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Advanced Crystal Reports

TeachUcomp, Inc.

...it's all about you

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Introduction and Overview

Welcome to Teachucomp, Inc.'s Advanced Crystal Reports class. Crystal Reports is a database reporting application. It has powerful capabilities to access and analyze various sources of data for its reports.

As business evolves towards a more information-based workplace, the talent to access and create accurate and relevant reports from multiple data sources is quickly becoming a necessity for businesses of all sizes. However, as a business entity grows, it may often find that the data needed in order to make informed business decisions is contained within various database applications.

Crystal Reports provides a solution to this issue, due in large part to its flexibility in accessing various types of data. You can use Crystal Reports to access data from database files commonly used in many types of businesses and industries, from desktop database solutions like Microsoft Access or Microsoft Visual FoxPro to mainframe or server-based data files like Microsoft SQL Server or Oracle.

Crystal Reports can also be used by many different types of individuals within an organization. One does not have to be an IT guru in order to generate basic reports, as Crystal Reports provides many intuitive wizards to assist in report generation. It also has more advanced features for the IT professional's use, too. Whatever your data reporting needs, one will find that knowing Crystal Reports is a useful tool in making more informed business decisions.

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9.1- Crystal Reports Formula Syntax:

Much of the power in Crystal Reports lies in its ability to use powerful analytical functions and mathematical expressions to create complex formulas which can manipulate and further calculate the data displayed in the report. For example, you could create a formula in a field that multiplies the values in one field by the values displayed in another field. This is just one example of the ways in which formulas can be used in Crystal Reports. In this lesson, you will examine the ways in which you can write formulas in Crystal Reports. There are two different way of writing formulas: you can either use the Crystal syntax or the Basic syntax. A syntax is simply an accepted way of writing an expression.

Crystal syntax is the way of writing formulas which has always been included in all releases of Crystal Reports. The Basic syntax is similar to the way of expressing statements in Visual Basic, but has specific reporting variations implemented. You can use both types of formulas in your reports. You simply have the flexibility of choosing whichever syntax you prefer to use and are more skilled or comfortable in using.

All formulas, regardless of how they are expressed, make use of some common elements. These various elements are combined together using the rules of expression that govern the selected syntax (Crystal or Basic) to create the formulas used in your reports.

Element:	***Purpose:***
Fields	You will frequently make references to field values that are contained in the underlying tables of your report. These will always be in the format of "tablename.fieldname," enclosed in braces **{ }**. Example: {employees.EmployeeID}.
Functions	Functions are preset mathematical and analytical operations that can be performed upon the values contained within your report. There are many different categories of functions available that can perform operations on different types of numeric, date/time and string (text) values. Functions are always entered in as the name of the function (for example **sum**), followed by one or more additional arguments required by the function to work with each argument separated by a comma. Example: **AVERAGE({orders.Order Amount})**.
Operators	Crystal Reports allows for the use of several standard mathematical and comparison operators in report formulas. For example, the **+** sign can be used for addition, the **>** symbol means "greater than," and so on and so forth.
Text/Numbers	You can make a reference to a string (text) value by enclosing the desired text within either single or double quotation marks. Number can also be entered into formulas as plain values with no commas or other punctuation. Date/time references must be enclosed in pound signs # #.
Other Formulas	Other formulas can be referenced by preceding them with the @ symbol, followed by the formula name, all surrounded by braces. Example: **{@FormulaName}**.

Formulas are not case-sensitive. They are also not sensitive to carriage returns or spaces. You can certainly use spaces and carriage returns to make the formulas that you compose more comprehensible and easier to read, but they are not "necessary," per se. However, you must not place a carriage return within quotes (text values) as this will generate an error in your formula. Also, any lines within a formula that begin with two forward slash symbols (***//***) will be ignored by Crystal Reports. That symbol is used to denote comments in a formula. Very complex formulas can benefit from comments that clarify their purpose.

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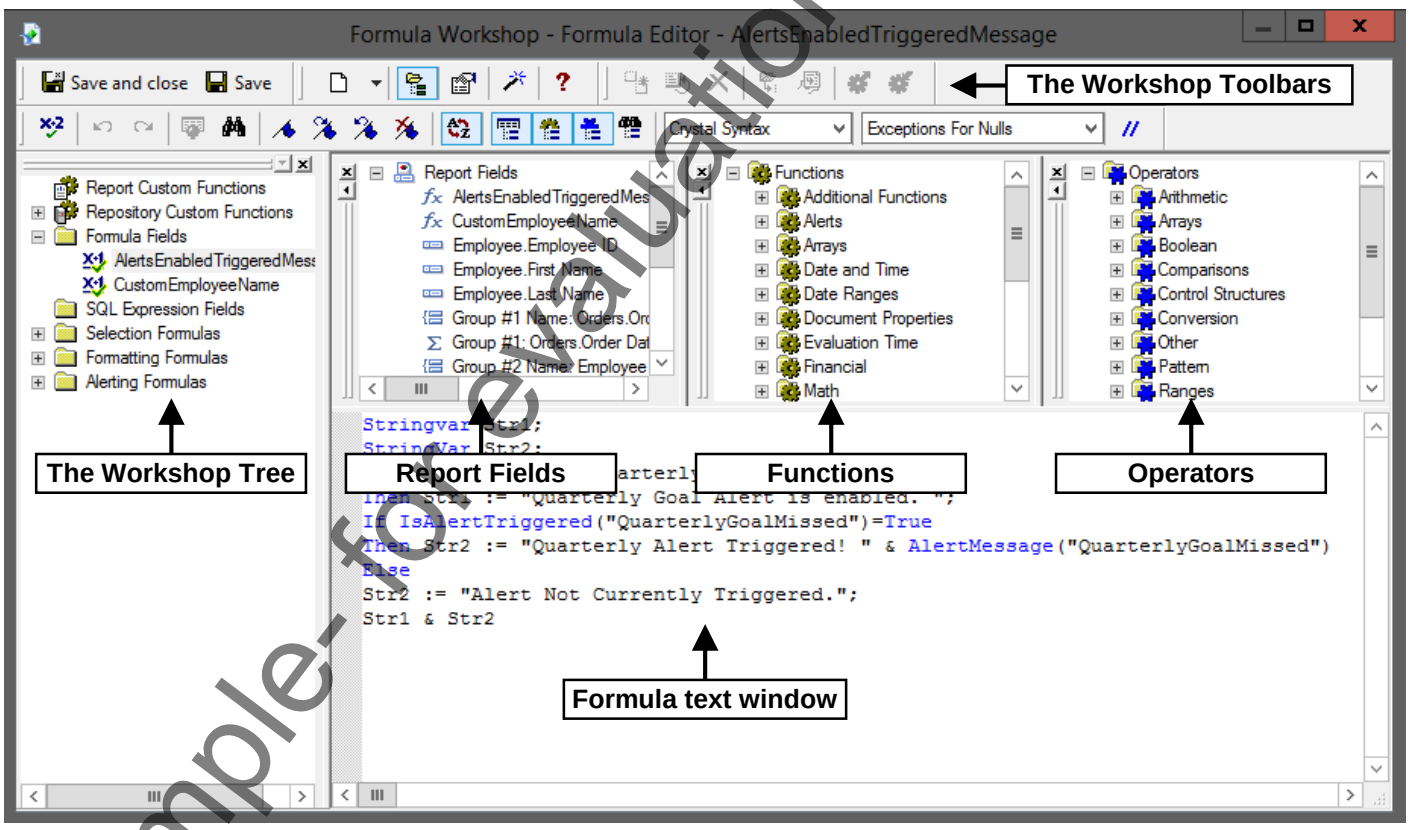
9.2- The Formula Workshop- Formula Editor Window:

In Crystal Reports, you use the Formula Workshop window to create the various types of formulas that are used to select records, create custom group names, calculate values, and other formula-related activities. The Formula Workshop consists of two separate components: the Formula Editor and the Formula Expert. The Formula Editor is where you create almost all of the formulas that you use in Crystal Reports. The Formula Expert is a less frequently used aspect of the Formula Workshop which allows you to create your own custom functions that can then be used by other formulas and stored into the Crystal Repository (if using Crystal Enterprise).

You can access the Formula Workshop in various places within Crystal Reports. You can click the "Formula Workshop" button in the Experts toolbar to launch this screen in a separate window. You can also launch this window by choosing "Report| Formula Workshop…." from the Menu Bar. You can also access this window by clicking the small "X+2" buttons that appear in various dialog boxes within Crystal Reports.

When the Formula Editor is being displayed in the Formula Workshop, you can see the different sections of the window which are displayed below. At the top of the window you can see the various buttons in the four small toolbars that are available for selection. To the left side of the window, you can also view the Workshop Tree pane, which shows the various types of formulas and expressions which you can manipulate through this window.



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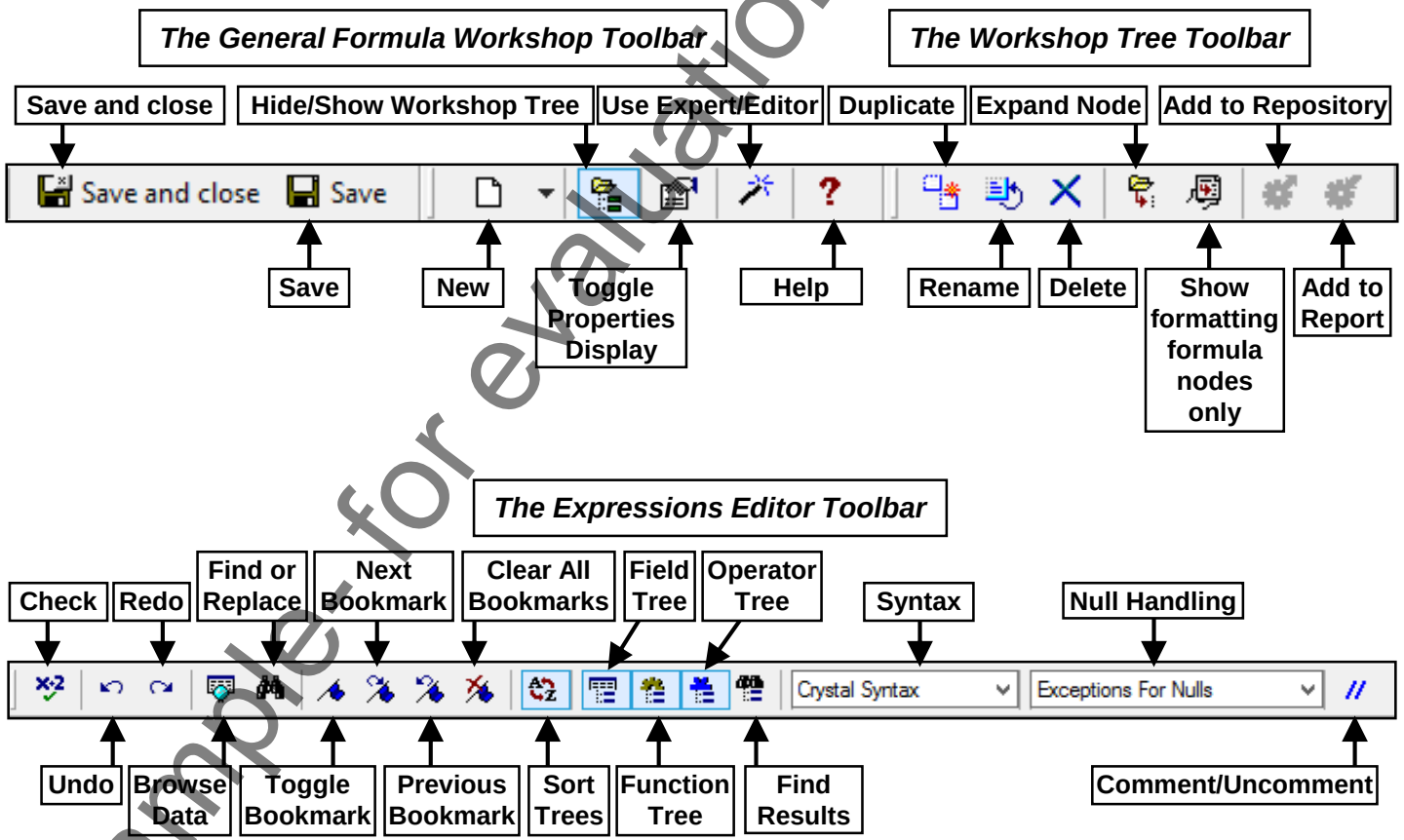
9.2- The Formula Workshop- Formula Editor Window- (cont'd.):

To the right of the Workshop Tree pane are the four main panes used to create your formulas in the Formula Editor. In the "Report Fields" pane, you can see all of the database fields which are available for reference in your formula. You will also see any other fields or groups created for the report in this pane, as well. The middle pane of the three is the "Functions" pane and this is where you will find all of the possible functions which you can insert into your formulas. The rightmost pane is the listing of the "Operators" which are available for use in your formulas as well.

Within each pane you can click the small plus (+) and minus (-) signs next to each category to expand and collapse the objects displayed within each section. You can double-click on an entry within these panes to insert it into the "Formula text window" at the bottom of the panes. In this manner you can edit and create the complex expression that consists of the fields, functions, operators, and other text and numbers that you enter by hand into the "Formula text window." Notice that in each of the three panes, you have a small "X" button, which you can click to close the pane. They can then be turned back on using the buttons in the Expressions Editor toolbar. You can also click the small left and right arrows next to the small "X" to hide and show each pane temporarily while using the Formula Editor.

Let's examine what toolbars and buttons are available for use within the Formula Editor when in the Formula Workshop window.



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9.3- Creating Formula Fields:

You can also add a formula field into your report, and this is probably the most common reason (at first) to use the Formula Workshop window. Formula fields are simply fields that are placed into your report that calculate a value determined by the formula which you set. You can either create them through the Formula Workshop window, or through the Field Explorer pane.

If you have already launched the Formula Workshop window, you can create a new formula field by clicking the small drop-down arrow next to the "New" button and then clicking the "Formula…" command. You can also right-click on the "Formula Fields" folder in the pane at the left side of the dialog box and choose "New…" from the pop-up menu which appears.

If you have the Field Explorer pane open and wish to use that to create the new formula field, you can do so by simply clicking on the "Formula Fields" entry within the pane and then clicking the "New" button in the toolbar at the top of the pane. You can also right-click on the "Formula Fields" entry and then choose "New…" from the pop-up menu that appears.

Whichever way that you begin, you will next see the "Formula Name" dialog box appear. Type the name which you wish to give to the formula field into the "Name:" text box and then click the "OK" button.

Next, you will view the Formula Editor panes in the Formula Workshop. The formula that you create will be displayed in the "Formula text window" area of the Formula Editor. Now you create the desired formula using the available fields, functions, and operators listed in the three panes above the "Formula text window."

Note that you can change which syntax you would prefer to use from the "Syntax" drop-down at the right side of the Expressions Editor toolbar. By default, it displays the more commonly used "Crystal Syntax" choice, but you can choose the "Basic Syntax," if you prefer. Selecting the "Basic Syntax" option places the required "formula =" variable into the "Formula text window."

You can then finish editing the formula as needed in the "Formula text window." You can click the "Check" button in the Expressions Editor toolbar to check the syntax of the formula that you have created in the "Formula text window." If there is an error with the formula, it will be indicated by a message box that appears. You can then correct the formula before saving it. Once the syntax is correctly entered for the desired formula, you can then click the "Save" button to save your changes. If you wish to save the formula's changes and also close the "Formula Workshop" window, you can click the "Save and Close" button instead.

Once the report formula field has been created, it will appear as any other field in the "Field Explorer" pane at the right side of the window. You can then add it to the report in the design view just as you would add any other database field or special field. Once again, be aware of the placement of the formula field within the sections of the report, as its placement can drastically impact its displayed value.

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9.4- Crystal Syntax:

The Crystal Syntax is commonly used to create formulas in Crystal Reports, as it has been accepted in every version of Crystal Reports. You can only use the alternative Basic syntax starting in version 8.0. However, almost any formula can be written using either syntax.

When writing a formula using the Crystal syntax, the formula must return some type of value: whether it be a number value, text value (string), currency value, boolean (logical) value, date value, time value, or a combined date/time value. For example, a simple Crystal syntax formula that returns ten percent of an "Order Amount" field could be expressed as follows:

```
//This formula returns ten percent of whatever value is shown in the
//Order Amount field.
{Orders.Order Amount}*.10
```

This is what you could type into the Formula Editor, assuming that you had a field in your report named "Order Amount," in order to view what ten percent of the value of that field would be. This could be useful as a calculation of commission, for example.

Note that the first two lines in the formula begin with two forward slashes "//" followed by a line of descriptive text. These are "comments." Comments help clarify the purpose of the formula for other users who may view them, and are indicated by a line that begins with two forward slashes. These lines are ignored by Crystal Reports when evaluating the formula. Next, let's examine a formula that makes use of one of the over 250 functions in Crystal Reports.

```
"The employee is named: "+ Trim ({Employee.First Name}) + " " + Trim ({Employee.Last Name})
```

In this example, the "Trim" function is used. This is a function performed on string (text) values. It removes both leading and trailing spaces from the text values. Note the syntax convention used: the function is referenced and then the field upon which the function is to be performed is then referenced and enclosed in parentheses. The field references, using the general syntax of 'tablename.fieldname,' are always enclosed within braces.

Also note that this function makes use of one of the most common operators: the plus sign (**+**). When used with number values, the plus sign indicates addition. When used with string (text) values, it indicates concatenation. Concatenation is the combining of multiple text values into a single string value. The previous example that calculated ten percent of the "Order Amount" field also used another operator, the asterisk (*****) symbol. This indicates multiplication.

Also note that when it is necessary to create a reference in a formula to a string value, it needs to be enclosed within quotes to work. You may use either single or double quotes, as desired. It is also worth mentioning that formulas which use Crystal Syntax aren't case-sensitive. For example, you could have expressed the reference to the "Trim" function as "tRIM" or "trim," if you felt like it. The only exception is when making a string (text) reference. String values are always displayed exactly as they are entered. Using the previous example, if you had typed "the employee is named: " that is exactly (including the casing) what would be displayed.

The formulas which you have examined thus far have all been one line expressions which return a single value. More complex formulas may involve the use of multiple expressions. When using Crystal Syntax, you must place a semicolon after each expression (element which returns a value) within the formula.

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9.4- Crystal Syntax- (cont'd.):

For example, if you would like to declare a "variable" within an expression and then use that variable later on in another expression which will then return a value to the report, the two expressions must be separated with a semicolon. They do not necessarily need to be placed onto separate lines within the formula, however, they often are for clarity's sake.

//This is the expression line which declares a variable value. Note the semicolon.
NumberVar varX;
//Next, the variable is assigned a value, which is then returned to the report.
varX := 100

Note the new operator displayed in the last example, which is the "assignment" operator. It actually consists of two symbols placed in sequence: the colon symbol followed by the equal sign. After declaring a variable (which is accomplished in the example through the "NumberVar" function), you can then assign the variable a value using the assignment operator.

9.5- Basic Syntax:

If you are familiar with Visual Basic programming, you can create formulas in Crystal Reports using the Basic syntax which may seem more familiar to you. Generally speaking, using the Basic syntax in Crystal Reports is just like using Visual Basic, except that it has specific extensions to handle reporting.

When using Basic syntax, you will need to become familiar with the ways in which formulas refer to other fields in the report. You must also learn how to return the value from the formula to the report using a special variable called "formula." It is also important to be aware of some of the special report processing functions that you will probably need to use, such as "ReportTitle" or "OnFirstRecord." Also, you will need to understand the data type system used in the Basic syntax. Unlike the data types in Visual Basic, the Basic syntax is strongly typed. While you do not specifically have to declare a variable data type when declaring variables, there is no "variant" type. You have the choice of either a "Date," "Time," or "DateTime" data type versus the simple "Date" type used in Visual Basic.

In Basic syntax, the value returned by the formula to the report is signified by the use of a special variable named "formula." For example, here is a Basic syntax formula that returns ten percent of the value of an "Order Amount" field from an "Orders" table in a report.

formula = {Orders.Order Amount} * .10

Ensure that you switch the "Syntax" drop-down to "Basic syntax" before creating the formula in the "Formula Editor" version of the "Formula Workshop." If you do not, you will receive error messages when you try to save and close the formula, as its syntax will be evaluated using the "Crystal syntax" conventions, to which it does not adhere.

Basic syntax will always return a formula result which must be one of the seven simple data types supported: "Number," "Currency," "String," "Boolean," "Date," "Time," or "DateTime." While Crystal Reports does support the use of range types and array types, these cannot be the returned results of a formula.

Also, you may use the "formula" variable many times within a formula. This may be the case when using the "IF…THEN…ELSE" conditional, which returns one of two possible results.

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9.5- Basic Syntax- (cont'd.):

Also, even if you do not intend to use the result of the formula in the report, you must always assign a value to the "formula" variable. However, if you have the situation where you have multiple "formula" variables within a formula, as would be the case when using the "IF…THEN…ELSE" conditional, all of the values assigned to the "formula" variable must be of the same data type. For example, if "formula" is set to a string value in one line of the formula, it must always be assigned a string value in the other lines of the same formula when it occurs. Another unique feature of the "formula" variable is that you do not need to "declare" the variable as you would most other variables.

Just as when using the Crystal syntax, you can write comments into the formulas that can help clarify a function. To signify a comment in Basic syntax, begin the line with either the word "Rem," or with the apostrophe character. The text that then follows on the same line will be ignored by the Basic compiler when the formula is calculated. Another commonality between the Basic syntax and the Crystal syntax is the fact that neither syntax is case-sensitive, with the exception of text strings. Remember that the string value of "Crystal Reports" is not the same as "crystal reports" or "CRYSTAL REPORTS."

Many of the functions and operators used in Crystal syntax are also used in the Basic syntax. For example, subtraction is referenced by the minus sign (-) and many functions, such as Sum() are used the same way. However, there are still considerable differences between the two syntaxes. Basic syntax consists of several lines of statements which comprise the formula. Each statement can be separated by using either a line break or the colon symbol (if on the same line). You can continue a statement onto the next line by following it with the spacebar character and the underscore symbol " _" if needed. This allows you to write a single statement that consists of several lines, if desired.

You can also declare variables and assign a value to them which can then be used later on in the formula by another statement, much as you can in the Crystal syntax.

```
Rem This will declare the type of data to store to the variable.
Dim varX as Number
'Next you will assign the variable a value.
varX = 20*10
formula = varX
```

In the Basic syntax, you use the "Dim" function to declare the variable which is then named "as" a specified data type. Note that the first and third lines of this formula are simply commentary explaining what is occurring. The value of the declared variable is then assigned in the fourth line using the equal sign (=). Note that you can also use the word "Let" to assign a value to a variable. For example, here is an alternate way of expressing the fourth line of the previous example.

```
Let varX = 20*10
```

Much of the referencing to specific types of data values is the same in both syntaxes. Field values are always enclosed within braces, string values are always enclosed within double quotes (no single quotes allowed for Basic syntax), and date and time values are always enclosed within pound signs.

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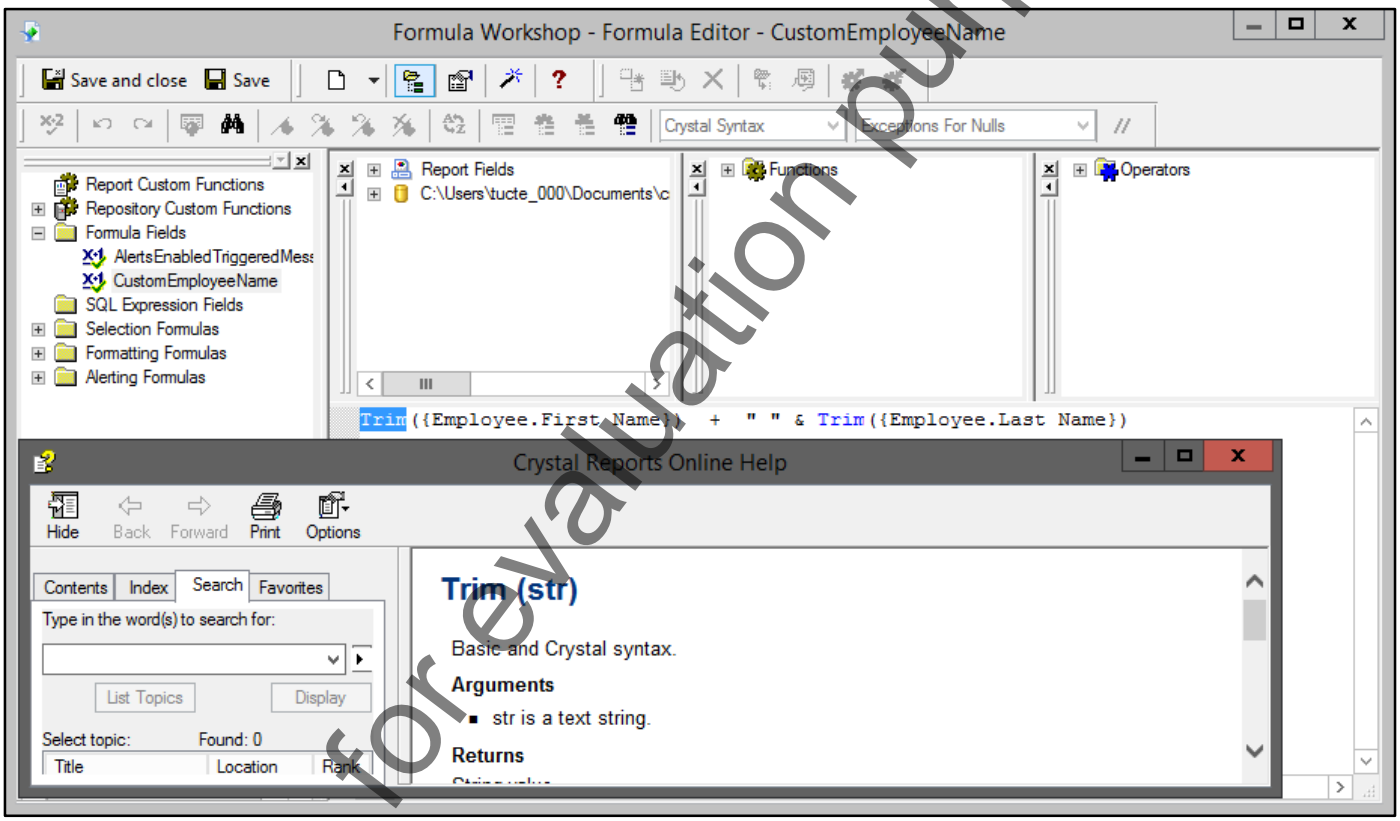
9.6- Finding Function and Operator Assistance:

When you are composing your formulas in the “Formula Workshop” window, you may want to find more information about a particular function or formula that you think you would like to use. If you use the “Function Tree” and the “Operator Tree” panes to expand the functions and operators, it is helpful to note that you can click on the name of a function or an operator within these two panes and then click the “Help” button in the Formula Workshop toolbar. This will then launch the “Crystal Reports Online Help” window and automatically find the help file associated with the selected function or operator. This can help you find information such as why you would use the function, what arguments the function requires, and how it is used through examples. When you have finished reading through the information in the help window that appears, click the “X” in the upper right corner of the window to close it and return to the “Formula Workshop” window.



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ACTIONS-
Using Formulas

TO OPEN THE FORMULA WORKSHOP WINDOW:

1. Click the "Formula Workshop" button in the Experts toolbar to launch this screen in a separate window.

OR

1. Choose "Report| Formula Workshop…." from the Menu Bar.

OR

1. Click the small "X+2" buttons that appear in various dialog boxes within Crystal Reports.

TO USE THE FORMULA WORKSHOP WINDOW:

1. In the "Report Fields" pane you can see all of the database fields available to reference in your formula.
2. The middle pane of the three is the "Functions" pane and this is where you will find all the possible functions you can insert into your formulas.
3. The rightmost pane is the listing of "Operators" available for use in your formulas.
4. Within each pane you can click the small plus (+) and minus (-) signs next to each section to expand and collapse the objects displayed within each section.
5. You can double-click an entry within these panes to insert it into the "Formula text window" at the bottom of the panes.
6. You can edit and create the complex expression that consists of the fields, functions, operators, and other text and numbers that you enter by hand into the "Formula text window."
7. Notice that in each of the three panes, you have a small "X" button, which you can click to close the pane. They can then be turned back on using the buttons in the Expressions Editor toolbar.
8. You can also click the small left and right arrows next to the small "X" to hide and show each pane temporarily while using the Formula Editor.

CREATING A FORMULA FIELD:

1. Within the Formula Workshop window, click the drop-down arrow next to the "New" button in the toolbar at the top of the window and then select the "Formula…" command.

OR

1. Right-click the "Formula Fields" folder in the pane at the left side of the Formula Workshop window and choose "New…" from the pop-up menu which appears.

OR

1. Click the "Formula Fields" entry within the "Field Explorer" pane and then click the "New" button in the toolbar at the top of the pane.

(cont'd.)

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CREATING A FORMULA FIELD- (CONT'D.):

OR

1. Right-click the “Formula Fields” entry within the “Field Explorer” pane and then choose “New…” from the pop-up menu that appears.
2. In the “Formula Name” dialog box, type the name which you wish to give to the formula field into the “Name:” text box and then click the “OK” button.
3. You will view the Formula Editor panes within the Formula Workshop window. The formula you create will be displayed in the “Formula text window” area of the Formula Editor.
4. Create the desired formula using the available fields, functions, and operators listed in the three panes above the “Formula text window.”
5. Note that you can change which syntax you would prefer to use from the “Syntax” drop-down at the right side of the Expressions Editor toolbar. By default, it displays the more commonly used “Crystal Syntax” choice, but you can choose the “Basic Syntax,” if you prefer. Selecting the “Basic Syntax” option places the required “formula =” variable into the “Formula text window.”
6. You can then finish editing the formula as needed in the “Formula text window.”
7. You can click the “Check” button in the Expressions Editor toolbar to check the syntax of the formula that you have created in the “Formula text window.” If there is an error with the formula, it will be indicated by a message box that appears. You can then correct the formula before saving it.
8. Once the syntax is correctly entered for the desired formula, you can then click the “Save” button to save your changes.
9. If you wish to save the formula’s changes and also close the “Formula Workshop” window, you can click the “Save and Close” button instead.

FINDING OPERATOR AND FUNCTION ASSISTANCE:

1. In the “Formula Workshop” window, click on the name of a function or an operator within either the “Functions” or “Operators” panes and then click the “Help” button in the Formula Workshop toolbar.
2. The “Crystal Reports Online Help” window will automatically find the help file associated with the selected function or operator.
3. Click the “X” in the upper right corner of the window when you are finished to return to the Formula Workshop.

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EXERCISES-
Using Formulas

Purpose:

1. To be able to create and insert basic formula fields into your reports.

Exercises:

1. Open Crystal Reports.
2. Select "File| Open…" from the Menu Bar to launch the "Open" dialog box.
3. Click the "My Documents" folder at the left side of the dialog box, or use the "Look in:" drop-down at the top of the dialog box to navigate to the "My Documents" folder.
4. Select the "Employee Sales Report," which you created in the "Chapter 4- Exercise" from the "Crystal Reports- Introductory" manual.
5. Click the "Open" button.
6. Click the "Design" tab.
7. Click on the "First Name" field in the "Details" section to select it.
8. Select "Edit| Delete" from the Menu Bar.
9. Click on the "Last Name" field in the "Details" section to select it.
10. Select "Edit| Delete" from the Menu Bar.
11. Click on the "Group #2 Name" field in the "Group Header #2:" section to select it.
12. Select "Edit| Delete" from the Menu Bar.
13. Click on the "Formula Fields" entry in the "Field Explorer," and then click the "New" button in the small toolbar at the top of the Field Explorer pane.
14. In the "Formula Name" dialog box, type "Custom Group Header" into the "Name:" text box, and then click the "OK" button.
15. Click the "Use Editor" button in the "Formula Name" dialog box, if prompted.
16. Ensure that the "Syntax" drop-down is set to "Crystal Syntax" in the toolbar at the top of the Formula Workshop window.
17. Enter the following formula exactly as shown into the "Formula Text" window:

    "Employee Name: " + {Employee.First Name} + " " + {Employee.Last Name}

18. Click "Save and Close" to return to the report design view.
19. Click and drag the new "Custom Group Header" field from the Field Explorer and drop it into the "Group Header #2:" section at the far left end
20. Select the "Custom Group Header" field and resize it so that its right end extends to 3" in the horizontal ruler.
21. Click the "Print Preview" button in the Standard toolbar.
22. Select "File| Save" from the Menu Bar to save your changes to the report.
23. Select "File| Close" from the Menu Bar to close the report.

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CHAPTER 10-
ADVANCED FORMATTING

10.1- THE HIGHLIGHTING EXPERT

10.2- THE SECTION EXPERT

10.3- CONDITIONALLY FORMATTING A SECTION

10.4- CONDITIONALLY FORMATTING A FIELD

10.5- MANIPULATING MULTIPLE SECTIONS

Sample- for evaluation purposes only!

10.1- The Highlighting Expert:

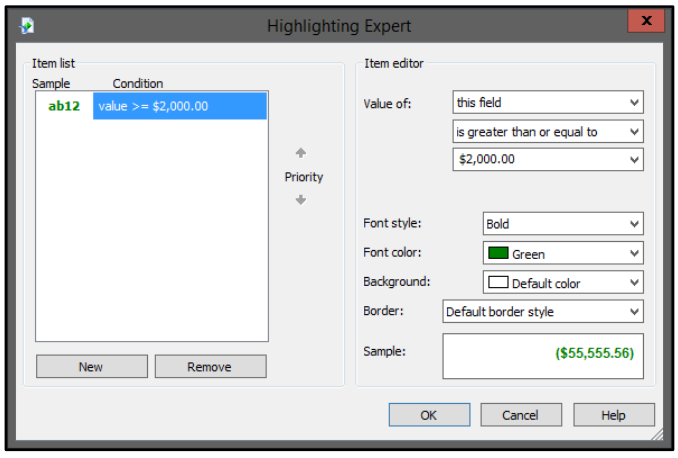
The Highlighting Expert is a tool which allows you to apply a specified formatting to a field when it meets a criteria which you set. For example, you could change the color of the font used to display numbers in a field to red only if they display a negative value.

To use the Highlighting Expert within a report, first select the field to which you wish to apply the conditional formatting. Next, click the "Highlighting Expert" button in the Experts toolbar or choose "Format| Highlighting Expert…" from the Menu Bar to launch the "Highlighting Expert" dialog box.

In this dialog box, you can click the "New" button to create a new item in the item list, which is displayed at the left side of the "Highlighting Expert" dialog box. To the right side of this dialog box, in the "Item editor" section, is where you can create and edit the formula used to apply the desired formatting.

Use the "Value of:" drop-down to select the name of the field whose value you wish to use as the basis of the condition you are about to specify. Note that you can select a field to format, but base the formatting upon the value of another field, which you can specify here. Use the drop-down below the first drop-down to specify the comparison operator used for the condition. The third drop-down allows you to specify a value from the selected field. This drop-down shows the first few hundred possible choices from the selected field. You can also type a value directly into the field itself, if needed. Notice that as you make or enter your choices from the drop-down menus available that the condition displays itself in the "Item list" at the left side of this dialog box.

Next you need to choose the formatting to apply to the selected field when the criteria which you specified is met. You can use the "Font style:" drop-down to choose a selected font style for the displayed used. The "Font color:" drop-down allows you to select from a basic set of color choices. Note that you can select the "Custom" color choice to launch the "Color" dialog box, where you can set your own custom color choice. You can use the "Background:" drop-down to accomplish the same thing by choosing the desired background color used for the display of the value. You can use the "Border:" drop-down to select the type of border to apply to the selected values when they meet the condition that you specify from this drop-down. After you have made all of the choices that you would like, you will be able to see the way that the text values will display in the "Sample:" text box.



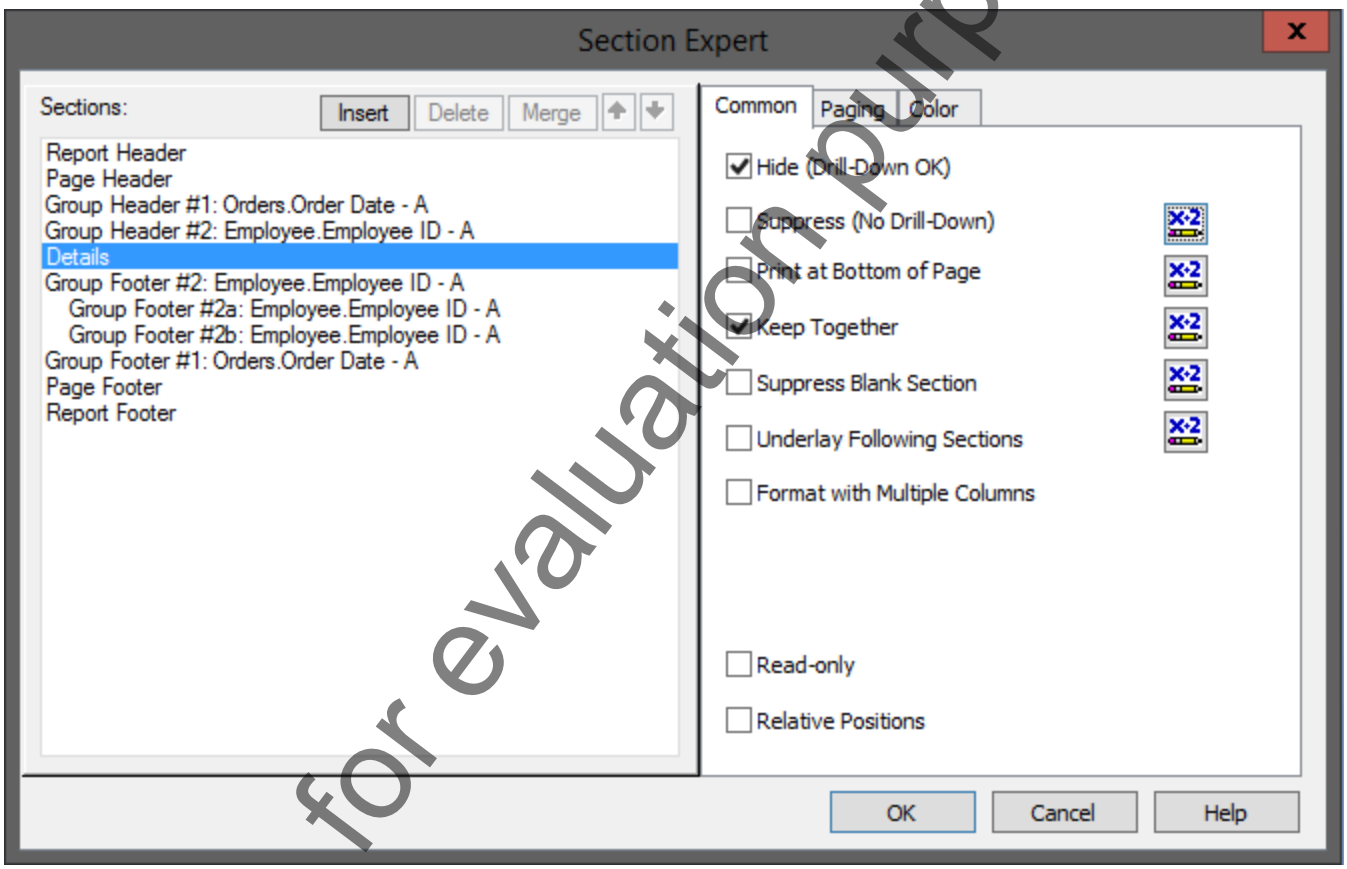
At this point, you can then create additional conditions to which you would like to apply formatting to the same selected field by simply clicking the "New" button again and then repeating the same process of selecting the values and the formatting to display. If you have a condition specified for a field which you no longer wish to apply, you can select the condition to remove from the "Item list" and then click the "Remove" button at the bottom of the "Item list." If you have multiple conditional formatting formulas listed in the "Item list," you can click the "up" and "down" arrows to the right of the "Item list" to reorganize the order in which the conditional formatting will be enforced. When you have finished specifying any conditional formatting choices that you wish, you can click the "OK" button at the bottom of the "Highlighting Expert" dialog box to apply the selected conditions to the chosen field.

Sample, for evaluation purposes only!

10.2- The Section Expert:

The Section Expert allows you to control the appearance of information within the various sections displayed in the Design view of the report. You can also set the appearance of the sections themselves using the Section Expert dialog box. This allows us to apply some very powerful formatting features to your reports. Using the Section Expert, you can choose to show or hide entire sections, keep sections together and set the background color for the selected section, amongst other things.

To view the Section Expert, either click the "Section Expert" button in the Experts toolbar, or choose "Report| Section Expert…" from the Menu Bar. You can also right-click on one of the names of the sections listed at the left side of the Design view and then choose the "Section Expert…" command from the pop-up menu which appears in order to select that, as well.



At the left side of the "Section Expert" dialog box are the names of the various sections of the current report. You can click on a name of a section in this list to select it and then view its properties on the tabs to the right.

On the "Common" tab, you can view various section settings from which you can set your desired options. You will examine what options you can set on this tab in a moment.

On the "Color" tab, you can set the desired background color for the section. You can even specify a conditional color setting for the background color, if so desired.

You have page-related options shown on the "Paging" tab.

Sample- for evaluation purposes only!

10.2- The Section Expert- (cont'd.):

Now you can examine the options that you can set on the “Common” tab and “Paging” tabs of the “Section Expert” dialog box. The options are shown in the table shown below. If the option is found on the “Paging” tab, it is noted next to the option. If not, it is found on the “Common” tab.

Option:	***Function:***
Hide (Drill-Down OK)	Hides the selected section during printing, but allows viewing in “Print Preview” by allowing the user to double-click on a group summary which displays the hidden section.
Suppress (No Drill-Down)	Hides the selected section in both the printed version and the preview. There is no “drill-down” allowed.
Print at Bottom of Page	If checked, will force the section to print as far down in the page as possible. Cannot print any lower than the section beneath it, if checked.
New Page Before (on “Paging” tab)	If checked, will force a new page break before the section prints.
New Page After (on “Paging” tab)	If checked, will force a new page break after the section prints.
Reset Page Number After (on “Paging” tab)	If checked, will reset the page numbering back to “1” after printing the section.
Keep Together	If checked, will try to print the entire section and all section data on a single page. If there is not enough room left on a page, then the whole section is moved to print starting at the top of the next page.
Suppress Blank Section	Will prevent the display of the section if there is no data in the section’s fields.
Underlay Following Sections	When checked, will print the section in the same place on the page where it prints the next section’s data. Useful for printing a group graph next to the group data.
Format with Multiple Columns	Allows you to have data display in columns instead of as a single column which prints straight down the page in the “Details” section. When you check this option, you will see a new “Layout” tab appear. When you click the “Layout” tab, you can specify (in inches) the width of the columns and the gap between the columns. You can also set the printing direction on the “Layout” tab.
Reserve Minimum Page Footer	Only applicable to the “Page Footer” section. Allows you to gain space by removing unused page footer space.
Read-only	Prevents additional formatting changes from being applied to the section. Also prevents the use of formatting buttons that can format a section.
Relative Positions	When checked, locks the section next to a grid object, like a cross-tab. As the object changes in size, the section expands in relationship to the size of the object.

Sample- for evaluation purposes only!

10.2- The Section Expert- (cont'd.):

After checking any options which you wish to set in the "Section Expert" dialog box, you can click the "Color" tab. On the "Color" tab, if you wish to set the background color of the selected section, check the "Background Color" checkbox. That will then enable the drop-down box below the checkbox. Use the drop-down to select the color which you want to display as the background color for the selected section. You can click the "More…" command to launch the "Color" dialog box where you can select from a wider range of colors or create your own custom background color.

Once you have made your choices as to the desired settings to apply to the selected sections, you can click the "OK" button at the bottom of the "Section Expert" dialog box.

10.3- Conditionally Formatting a Section:

If you examine the "Section Expert" dialog box, you can see that many of the options which are available to use have formula selection buttons available for use. When you normally check an option in this tab, or many others (such as the ones in the "Format Editor" dialog box), you are turning the feature or format on or off unconditionally. Notice that the buttons which display the small blue "X+2" symbols can be clicked to conditionally apply a format using the Formula Editor in the Formula Workshop. Only when the formula you specify is met will the selected formatting be applied. For many of the types of formatting which you can apply, you will simply need to enter a logical test that will either evaluate to a true or false value, effectively enabling or disabling the formatting of the section. Other types of formatting, such as a "Background Color" formatting choice where there could be a number of possibilities, will need to have a logical "IF…THEN…ELSE" statement with the possible values specified.

Depending on the type of formatting you are trying to apply, type the necessary formula or formulas into the "Formula Text Box" and then save and close the conditional formula which you made to return to the "Section Expert" dialog box. Notice when you do this that the blue "X+2" button has switched to a maroon "X+2" button with a pencil pointing upwards. This indicates that a condition has been specified for the selected formatting condition. When you have specified the necessary conditions, you can then click "OK" in the "Section Expert" dialog box to view the formatting applied in the report.

10.4- Conditionally Formatting a Field:

You can also apply conditional formatting to fields in a report using the "Format Editor" dialog box. While much of the conditional formatting which you would want to apply can be applied through the Highlighting Expert, you can also specify more involved conditions under which to apply specified formatting using the Formula Editor in the Formula Workshop window and the "Format Editor" dialog box.

To use this feature, first select the field to which you want to apply the conditional formatting in the report. Then either right-click and choose the "Format Field…" command from the pop-up menu which appears, or choose "Format| Format Field…" from the Menu Bar, or click the "Format" button in the Experts toolbar.

In the "Format Editor" dialog box, you can click the blue "X+2" button next to the format which you wish to conditionally apply. This will invoke the Formula Editor in the Formula Workshop window, where you can specify the formula which, if met, will then apply the selected formatting. When you are finished entering the formula, click "Save and Close" to return to the "Format Editor" dialog box. Here you can then click "OK" to save and set the desired conditional formatting.

Sample- for evaluation purposes only!

10.5- Manipulating Multiple Sections:

When you create a new, blank report you are given five report sections to use by default: the report header, the page header, the details section, the report footer, and the page footer. Using the Section Expert allows us to create and delete additional sections within the framework of the five basic sections. For example, you can have a “Page Footer A” and a “Page Footer B.”

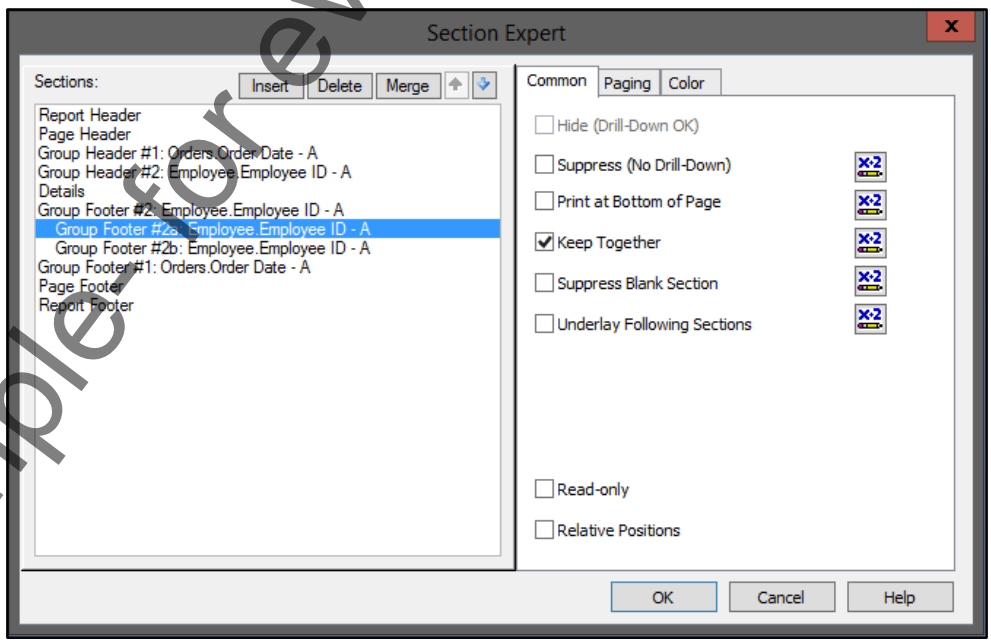
Having multiple sections within a report allows you to accomplish very sophisticated report layouts. For example, this can be used to display alternating background colors for each row in a report. You could also use this to show or hide lines when the fields are empty, or display text messages based on specified conditions. There are several ways in which you can use multiple report sections to create intricate report designs. Some of the section attributes which you examined in the Section Expert, such as the “Underlay” option, are often used in conjunction with multiple report sections.

To manipulate multiple report sections, first invoke the Section Expert dialog box. Note that there are buttons shown above the “Sections:” list at the left side of the dialog box. You use these buttons to add, position, and remove the various report sections.

You can select a report section from the listing at the left side of the dialog box, and then click the “Insert” button to insert an additional section of the same “type” beneath the selected listing. This will typically then show the two sections, listing the original as section “a” and the one you just created as section “b.” You can continue to add additional sections, which will simply consecutively increase the lettering for each section that you continue to add (such as “c,” “d,” etc…).

You can click on a section which you have added and then click the “Delete” button in the Section Expert dialog box to remove the selected section from the report. You can also merge the contents of two adjacent sections within the same section type. To do this, highlight the upper section of the two sections which you wish to merge into a single section and then click the “Merge” button to merge the selected section with the section below it.

You can use the “Up” and “Down” arrows to move the selected report section up or down through the list of sections available to reposition the section in the desired order. When you are finished, click “OK” in the Section Expert dialog box to return to the report.



Sample - for evaluation purposes only!

ACTIONS-
ADVANCED FORMATTING

APPLYING CONDITIONAL FORMATTING USING THE HIGHLIGHTING EXPERT:

1. Select the field to which you wish to apply the conditional formatting using the Highlighting Expert.
2. Click the "Highlighting Expert" button in the Experts toolbar.

OR

2. Choose "Format| Highlighting Expert…" from the Menu Bar to open the "Highlighting Expert" dialog box.

3. In the "Highlighting Expert" dialog box, you can click the "New" button to create a new item in the "Item list," which is displayed at the left side of the "Highlighting Expert" dialog box.
4. Use the "Value of:" drop-down to select the name of the field whose value you wish to use as the basis of the condition you are about to specify.
5. Use the drop-down below the first drop-down to specify the comparison operator used for the condition.
6. The third drop-down allows you to specify a value from the selected field. You can also type a value directly into the field itself, if needed.
7. Next, use the "Font style:" drop-down to choose a selected font style for the displayed used.
8. Use the "Font color:" drop-down to select from a basic set of color choices. Note that you can select the "Custom" color choice to launch the "Color" dialog box, where you can set your own custom color choice.
9. You can use the "Background:" drop-down to choose a desired background color used for the display of the value.
10. You can use the "Border:" drop-down to select the type of border to apply to the selected values when they meet the condition that you specify.
11. You can create additional conditions by simply clicking the "New" button again and then repeating steps 4 through 10 above.
12. When you have finished specifying any conditional formatting choices that you wish, you can click the "OK" button at the bottom of the "Highlighting Expert" dialog box to apply the selected conditions.

REMOVING CONDITIONAL FORMATTING USING THE HIGHLIGHTING EXPERT:

1. Select the field from which you wish to remove the conditional formatting.
2. Open the "Highlighting Expert" dialog box.
3. Select the condition to remove from the "Item list."
4. Click the "Remove" button at the bottom of the "Item list."

REORGANIZING CONDITIONAL FORMATTING USING THE HIGHLIGHTING EXPERT:

1. Select the field from which you wish to remove the conditional formatting.
2. Open the "Highlighting Expert" dialog box.
3. In the "Item list," select which condition to reorganize.
4. You can click the "up" and "down" arrows to the right of the "Item list" to reorganize the order in which the conditional formatting will be enforced.
5. When you have finished specifying any conditional formatting choices that you wish, you can click the "OK" button at the bottom of the "Highlighting Expert" dialog box.

Sample- for evaluation purposes only!

ACTIONS-
ADVANCED FORMATTING

SETTING SECTION PROPERTIES USING THE SECTION EXPERT:

1. Click the “Section Expert” button in the Experts toolbar.

OR

1. Choose “Report| Section Expert…” from the Menu Bar.

OR

1. Right-click on one of the names of the sections listed at the left side of the report Design view and then choose the “Section Expert…” command from the pop-up menu which appears.
2. Click on the name of a section displayed in the list at the left side of the “Section Expert” dialog box to select it and view its properties on the tabs to the right.
3. On the “Common” tab, you can check any options which you wish to set.
4. Set any paging options that you desire on the “Paging” tab.
5. Click the “Color” tab if you wish to set the background color of the selected section by checking the “Background Color” checkbox. That will enable the drop-down box below the checkbox. Use the drop-down to select the color which you want to display as the background color for the selected section. You can click the “More…” command to launch the “Color” dialog box where you can select from a wider range of colors or create your own custom background color.
6. Once you have made your choices as to the desired settings to apply to the selected sections, you can click the “OK” button at the bottom of the “Section Expert” dialog box.

CONDITIONALLY FORMATTING A SECTION USING THE SECTION EXPERT:

1. Invoke the “Section Expert” dialog box.
2. In the “Section Expert” dialog box, you can see many of the options have formula selection buttons (X+2).
3. Click the “X+2” button next to the formatting option which you wish to conditionally apply.
4. In the Formula Editor, create the formula which, when met, will apply the selected formatting feature.
5. Click “Save and Close” in the Formula Workshop window.
6. Notice that the blue “X+2” button has switched to a maroon “X+2” button with a pencil pointing upwards to indicate that a condition has been specified for the selected formatting condition.
7. When you have set any additional conditions you would like, you can then click “OK” in the “Section Expert” dialog box to view the formatting applied in the report.

Sample-for evaluation purposes only!

ACTIONS-
ADVANCED FORMATTING

CONDITIONALLY FORMATTING A REPORT FIELD:

1. To use this feature, first select the field to which you want to apply the conditional formatting.
2. Then either right-click and choose the "Format Field…" command from the pop-up menu which appears.

OR

2. Choose "Format| Format Field…" from the Menu Bar.

OR

2. Click the "Format" button in the Experts toolbar.
3. In the "Format Editor" dialog box, you can click the blue "X+2" button next to the format which you wish to conditionally apply.
4. This will invoke the Formula Editor in the Formula Workshop window, where you can specify the formula which, if met, will then apply the selected formatting.
5. When you are finished entering the formula, click "Save and Close" to return to the "Format Editor" dialog box.
6. Here you can then click "OK" to save and set the desired conditional formatting.

MANIPULATING MULTIPLE REPORT SECTIONS USING THE SECTION EXPERT:

1. Invoke the "Section Expert" dialog box.
2. You can select a report section from the listing at the left side of the dialog box, and then click the "Insert" button to insert an additional section of the same "type" beneath the selected listing.
3. You can click on a section which you have added and click the "Delete" button in the "Section Expert" dialog box to remove the selected section from the report.
4. You can also merge the contents of two adjacent sections within the same section type. To do this, highlight the upper section of the two sections which you wish to merge into a single section and then click the "Merge" button to merge the selected section with the section below it.
5. You can use the "Up" and "Down" arrows to move the selected report section up or down through the list of sections available to reposition the section in the desired order.
6. When you have finished making your changes to the sections, click "OK" to return to the report.

Sample- for evaluation purposes only!

EXERCISES-
ADVANCED FORMATTING

Purpose:

1. To be able to apply advanced conditional formatting to your reports.

Exercises:

1. Open Crystal Reports.
2. Select "File| Open…" from the Menu Bar to launch the "Open" dialog box.
3. Click the "My Documents" folder at the left side of the dialog box, or use the "Look in:" drop-down at the top of the dialog box to navigate to the "My Documents" folder.
4. Select the "Employee Sales Report," which was created during the earlier exercises.
5. Click the "Open" button.
6. Click the "Design" tab.
7. Choose "Report| Section Expert…" from the Menu Bar.
8. In the "Section Expert" dialog box, click on the "Group Header #2: Employee.Employee ID – A" in the "Sections:" listed at the left side of the dialog box.
9. Click the "Insert" button above the "Sections:" list to insert a new section called "Group Header #2b: Employee.Employee ID – A" in the "Section Expert."
10. Ensure that the "Group Header #2b: Employee.Employee ID – A" section is highlighted in the "Sections:" list, and click the "Common" tab at the right side of the dialog box to bring it forward, if necessary.
11. Click the "Underlay Following Sections" checkbox to place a checkmark into the checkbox.
12. Click "OK."
13. Using the "Field Explorer" pane, add the "Photo" field from the "Employee" table at the far left edge of the "Group Header #2b:" section.
14. Click on the "Sum of Orders.Order Amount" summary field in the "Group Footer #2" section.
15. Choose "Format| Highlighting Expert…" from the Menu Bar.
16. Click the "New" button in the lower left corner of the "Highlighting Expert" dialog box.
17. Use the first drop-down in the upper right corner to select "this field."
18. Use the second drop-down to select "is greater than or equal to."
19. Type "$50,000.00" into the third text box.
20. Use the "Font style:" drop-down to select "Bold."
21. Use the "Font color:" drop-down to select "Red."
22. Click "OK."
23. Select "File| Save" from the Menu Bar.
24. Click the "Print Preview" button in the Standard toolbar to inspect the changes to the report's appearance.
25. Select "File| Close" from the Menu Bar to close the report when you are finished previewing the data.

Sample- for evaluation purposes only!

CHAPTER 11-
SUMMARY REPORTS

11.1- SUMMARIZING REPORT DATA

11.2- USING THE DRILLDOWNGROUPLEVEL FEATURE

Sample- for evaluation purposes only!

11.1- Summarizing Report Data:

You can create summary reports that show the summarized totals of detail data, but hide the details upon which the summary values are calculated. Once you have created a full report with groupings and data values which you have summarized, Crystal Reports makes it very easy to display a summary report from the detailed report data. In the "Section Expert" dialog box, it was shown that each section could have its "Suppress" or "Hide" option set for the data it contains on the "Common" tab. Checking either of these options will suppress the detail data from displaying. The difference is that you may double-click on a section that has been set to "Hide" in order to view the detail data on a separate "Preview" tab. When you check the "Suppress" option, you will not be able to double-click to "drill-down" to the detail data upon which the summary value is calculated.

Once you have selected which detail sections to hide, all you will see in the report is the information shown in the report, page, and group headers and footers. This is the summary format of the report. Once again, you may be able to double-click on the summary values to display their associated detail data on a new "Preview" tab if you selected to "Hide" the detail data versus "Suppress" the detail data in the "Section Expert" dialog box.

11.2- Using the DrillDownGroupLevel Feature:

As long as you choose to "Hide" the detail data in summary reports versus suppressing the detail data, you can double-click on the summary values which are displayed within the report to show the hidden detail data on a new preview tab. However, sometimes the field headings will still appear in section headings where you wish that they wouldn't. You can use conditional formatting and the "DrillDownGroupLevel" function to show or hide information depending on which drill-down grouping level is being displayed.

When you are viewing the information in a drill-down level, you will need to know the number value assigned to the detail information which you are viewing. The topmost level is always zero (0). The first grouping is level 1, the second grouping is level 2, and so on and so forth.

You can then choose to suppress the display of information while viewing a specified drill-down group level, by selecting the field or section to suppress and then clicking the "X+2" button next to the "Suppress (No Drill-Down)" option. In the "Formula Text" window, you can then type the following general formula: ***DrillDownGroupLevel = Number***, where "Number" is the number of the drill-down level for which you wish to suppress the display of the selected information.

Sample- for evaluation purposes only!

ACTIONS-
Summary Reports

CREATING SUMMARY REPORTS:

1. First, create a report with field groupings and summarized data values.
2. Select “Report| Section Expert…” from the Menu Bar.
3. In the “Section Expert” dialog box select the section of the report (usually the “Details” section) which contains the detail records which you wish to hide in order to simply show summary fields.
4. If you do **not** want the users to preview the report and double-click on the summary values to see the detail of the records which contributed to the summarized value on a separate “Preview” tab, then check the “Suppress (No Drill-Down)” option on the “Common” tab.
5. If you **do** want the users to preview the report and double-click on the summary values to see the detail of the records which contributed to the summarized value on a separate “Preview” tab, then check the “Hide (Drill-Down OK)” option on the “Common” tab.
6. Click “OK” to apply the selected settings to the chosen sections.

USING THE DRILLDOWNGROUPLEVEL FEATURE:

1. Knowing the group number allows us to apply conditional suppression to the desired information. The topmost level is always zero (0). The first grouping is level 1, the second grouping is level 2, and so on and so forth.
2. You can choose to suppress the display of information while viewing a specified drill-down group level, by selecting the field or section to suppress and then clicking the “X+2” button next to the “Suppress (No Drill-Down)” option in the associated “Format” dialog box or the “Section Expert” dialog box.
3. In the “Formula Text” window, you can then type the following general formula: ***DrillDownGroupLevel = Number***, where “***Number***” is the number of the drill-down level for which you wish to suppress the display of the selected information.

Sample- for evaluation purposes only!

EXERCISES-
SUMMARY REPORTS

Purpose:

1. To be able to create a summary report with drill-down capabilities in Crystal 2013.

Exercises:

1. Open Crystal Reports 2013.
2. Click the "Blank Report" hyperlink in the "Start Page."
3. In the "Database Expert" dialog box, expand the data source connection to reveal the sample database connection, which was created in the "Chapter 3- Exercise" from the "Introductory Crystal Reports" manual.
4. Expand the sample database and then expand the "Tables" within the database.
5. Double-click the "Customer" table to move it into the "Selected Tables:" list.
6. Double-click the "Orders" table to move it into the "Selected Tables:" list.
7. Double-click the "Orders_Detail" table to move it into the "Selected Tables:" list.
8. Click "OK" in the "Database Expert" window.
9. Click "OK" in the "Database Expert" window again, once you have viewed the "Links" tab shown.
10. Select "Insert| Text Object" from the Menu Bar.
11. Click into the upper left corner of the report in the "Report Header" to place the text object.
12. Type the report title of "Customer Order Report" into the text object.
13. Click outside of the text object to stop editing the text.
14. Ensure that the text object is selected, and then select "Format| Format Text…" from the Menu Bar.
15. On the "Common" tab, type "ReportTitle" into the "Object Name:" text box.
16. On the "Font" tab, select "Bold" from the "Style:" drop-down.
17. On the "Font" tab, select "16" from the "Size:" drop-down.
18. Click "OK" in the "Format Editor" dialog box.
19. Resize the text object to fully display the text enclosed within the object.
20. In the "Field Explorer" pane, select the "Formula Fields" list and then click the "New" button in the toolbar at the top of the "Field Explorer" pane.
21. In the "Formula Name" dialog box, type "Sale Amount" into the "Name:" text box.
22. Click the "Use Editor" button in the "Formula Name" dialog box, if prompted.
23. Ensure that the "Syntax:" drop-down is set to "Crystal Syntax."
24. Enter the following formula into the formula text window: ***{Orders_Detail.Unit Price}*{Orders_Detail.Quantity}***.
25. Click "Save and Close" to return to the report's Design view.
26. Click and drag the "Sale Amount" field from the "Field Explorer" and deposit it at 3" on the horizontal ruler in the "Details" section of the report.
27. Select "Report| Group Expert…" from the Menu Bar.
28. In the "Group Expert" dialog box, select "Customer ID" from the "Available Fields:" list and click the ">" arrow to move it to the "Group By:" list at the right side of the dialog box.
29. Click the "Options…" button to launch the "Change Group Options" dialog box.
30. Click the "Options" tab, and click the "Customize Group Name Field" checkbox.
31. Select the "Choose From Existing Field" option button.
32. Select "Customer Name" from the drop-down menu.
33. Click "OK" in the "Change Group Options" dialog box.
34. Click "OK" in the "Group Expert" dialog box.

(cont'd.)

Sample- for evaluation purposes only!

Exercises- (cont'd.):

35. Choose “Insert| Summary…” from the Menu Bar.
36. In the “Insert Summary” dialog box, select “Sale Amount” from the “Choose the field to summarize:” drop-down.
37. Choose “Sum” from the “Calculate this summary:” drop-down.
38. Select “Group #1: Customer.Customer ID – A” from the “Summary location” drop-down.
39. Click “OK” to insert the summary field.
40. Copy the “Sale Amount” label from the “Page Header” section and paste the copy into the “Group Header #1:” section. Do not change its horizontal position.
41. Select “Report| Section Expert…” from the Menu Bar.
42. In the “Section Expert” dialog box, select the “Details” section from the “Sections:” listed at the left.
43. Check the “Hide (Drill-Down OK)” checkbox on the “Common” tab.
44. Click “OK.”
45. Select “File| Save As…” from the Menu Bar.
46. In the “Save As” dialog box, save the reports to your “My Documents” folder and type the name of “Customer Order Report” into the “File name:” text box.
47. Click “Save” to save the report to the selected directory with the given name.
48. Select “View| Print Preview” from the Menu Bar. Note the way that the label “Sale Amount” is repeated for each record because it appears in both the “Page Header” and also in the “Group Header.”
49. Double-click on any of the summary values displayed to show the detail records which contributed to the value upon which you just double-clicked on their own tab.
50. Click the “X” on each preview tab to delete them. Return to the “Design” tab.
51. You will now suppress the display of the “Sale Amount” label in the “Group Header #1:” but only when viewing the topmost level of the report (not when viewing a drill-down group). To do this, right-click on the “Sale Amount” field that is shown in the “Group Header #1:” field and then select “Format Text…” from the Menu Bar.
52. In the “Format Editor” dialog box on the “Common” tab, click the “X+2” button that is to the right of the “Suppress” checkbox to launch the “Formula Editor” window.
53. Expand the “Functions” pane to reveal the “Print State” function group.
54. Expand the “Print State” function group and double-click on the “DrillDownGroupLevel” function to insert it into the “Formula Text” window.
55. Type “=0” after the “DrillDownGroupLevel” in the “Formula Text” window.
56. Click the “Save and close” button in the Formula Workshop window.
57. Click “OK” in the “Format Editor” dialog box.
58. Select “View| Print Preview” from the Menu Bar to view the report on the “Preview” tab. Note that the secondary display of the “Sale Amount” label has been suppressed. If you double-click on a summary field to display it on its own tab, however, note that the field will be displayed.
59. Click the small “X” on each “Preview” tab to delete the preview tabs you have created.
60. Select “File| Save” from the Menu Bar to save the changes to the report that were made.
61. Select “File| Close” from the Menu Bar to close the report.

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CHAPTER 12- CHARTING

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12.1- The Chart Expert:

Crystal Reports provides another useful tool for creating charts from the grouped and summarized data in your reports: the "Chart Expert." You use the Chart Expert to quickly and easily create graphs and charts to supplement your report data. To insert a chart into your report, select "Insert| Chart…" from the Menu Bar. You can also click the "Insert Chart" button in the Insert toolbar. Next, click into the section of the report where you want to place the chart. Often, this will then launch the "Chart Expert" dialog box to assist you in creating your chart. If the "Chart Expert" dialog box does not launch, you can right-click on the chart that you just inserted and then choose the "Chart Expert…" command from the pop-up menu that appears. The "Chart Expert" dialog box is a series of tabs which you click through, setting your desired chart options in each as needed.

On the "Type" tab, you can select which type of chart to create in your report by clicking on the desired type in the "Chart type:" list. To the right of the listing of chart types, you will see the various chart sub-types from which you can select. You click on the specific sub-type that you wish to create at the right, and you can read the description of the chart type in the small text box below the sub-type. Also, for some of the chart types (like the "Bar" type), you can select either a "Vertical" or "Horizontal" display by choosing the desired option button at the bottom of the "Chart type:" list.

On the "Data" tab, you can set the display of the data used in the chart. In the "Layout" section you can choose either "Advanced," "Group," "Cross-Tab," or "OLAP." Not every choice may be available, depending on the data source of the report. Whichever button is selected in the "Layout" section impacts the display of the "Data" section of the "Data" tab.

For most reports with grouping applied, the "Group" choice will appear as the default. This then allows you to select for which grouped field's values (if you have more than one) you want to show the summary data by choosing the field to use from the "On change of:" drop-down. Then use the "Show:" drop-down to select which field's values to display for each change in the value of the field you had just selected in the drop-down above.

If you select the "Advanced" layout, you can then specify by which field you want to create the groupings by using the listing of fields shown in the "Available Fields:" list. Use the drop-down to the right to select either "On change of," "For each record," or "For all records." If you select either "On change of" or "For each record," you will then need to specify which field to use from the "Available Fields:" list. Select the field to use and then click the ">" button to move it to the list at the right. Then, for each record or group selected, you can then choose which field's summary values to display. Just click on the field whose values you wish to display from the "Available Fields:" list, and then click the ">" arrow to move it into the "Show value(s):" list at the right. Crystal Reports will then attempt to display a summary value (like "Sum" or "Count") for the field. If you want to change the summary used, click on the summary field's value and then click the "Set Summary Operation…" button. In the "Edit Summary" dialog box which appears, you can select the summary function to display from the "Calculate this summary:" drop-down. When you are finished, click "OK" to set the summary options that you wish. If you have selected to show the change in value for a specified field, then you can check the "Don't Summarize" option, to not show a summary of a field, if you do not wish to see one for the change in the field shown above.

If you have a cross-tab table as the basis for your report, you can click the "Cross-Tab" layout button to display the cross-tab display options at the right. These are similar to the normal "Group" options, however, you also have the option to show the data subdivided by a secondary field, if needed. You can select which field to use for that purpose from the "Subdivided by:" drop-down.

If you have an OLAP data cube as the basis for your data source, then you will see options similar to the ones that you have for the cross-tab display. You can use the "On change of" drop-down to select the dimension that you want to use for plotting the values in the chart. Then use the "Subdivided by" drop-down

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12.1- The Chart Expert- (cont'd.):

to choose the secondary row or column by which to base the chart. You can click the "Other Dimensions" button to invoke the "Format Other Dimensions" dialog box. In this dialog box, you can click on a dimension shown and then click "Select a field value" to specify a new field to which to fix the dimension.

You can click on the "Axes" tab to set the axes of the chart. Depending on the type of chart which you are trying to create, the options on this tab will vary. For some chart types, such as a "Pie" chart, this tab will not even appear as it would be completely devoid of any meaning or function for that type of chart. In the "Show gridlines" section, you have two columns of checkboxes for the "Major" and "Minor" gridlines. Depending upon the type of chart that you are creating, you will then have checkboxes for "Group axis (x):," "Series axis (y):," "Data axis (z):," and/or "Data 2 axis." You can check or uncheck any boxes that correspond to the types of gridlines you want to show or hide.

In the "Data values" section, you can specify what range of data values to plot in the chart. If you check the "Auto scale" checkbox, you will specify that the number of data labels is adjusted so that they will clearly display along the data axis. If "Auto range" is checked, the data values for the data axis are assigned a default range of values to plot. If unchecked, you can then use the "Min" and "Max" text boxes to set the desired minimum and maximum values to plot. Also, you can use the "Number format" drop-down to set the number formatting used for the data axis. You may also have a "Data 2" axis for which you can set the number display if you are using a cross-tab or OLAP chart.

In the "Number of divisions" section, you can set the number of divisions used for the corresponding data axis. If you select the "Automatic" option, then Crystal Reports will automatically set the number of divisions for the data axis. If you select the "Manual" option, then you can type the desired number of divisions to display into the text box at the right.

Click the "Options" tab. In the "Chart color" section you can specify either a "Color" chart or a "Black and White" chart by clicking the desired option button. You can click the "Color Highlight" tab to set conditional chart formatting. You can set the criteria and colors here, just as you do when using the "Highlighting Expert."

In the "Data points" section of the "Options" tab in the "Chart Expert" dialog box, you set what to display for the data points plotted in your chart. You can check the "Show label" checkbox to show the label next to each plotted value. You can check the "Show value" checkbox to show the value that is being plotted in the chart. This is often very useful for "Pie" chart types. If you elect to show the value plotted, you can then use the "Number format:" drop-down to select the formatting of the values displayed.

In the "Customize settings" section, you can set the display of data markers and pie slices in your charts, if the type of chart that you selected makes use of those features.

You can check the "Transparent background" checkbox to remove the appearance of the background of the chart, allowing underlying objects to become visible through the chart background. If you are creating a "Line" type chart, you can use the "Marker size:" drop-down to select the size of the markers used to plot the data points on the line chart. You use the "Marker shape:" drop-down to choose what shape to make the data markers. You can use the "Viewing angle:" drop-down to choose the angle from which you will appear to be viewing the chart. If you are using a pie chart, you can use the "Pie size:" drop-down to set the size which you want the pie to be. If you are creating a bar chart, you can use the "Bar size:" drop-down to set the size of the bar chart. If you happen to be creating a pie chart, you can check the "Detach pie slice" checkbox to have one of the pieces of the pie appear detached from the rest of the pie. You can then use the option buttons to the right to choose to detach either the "Smallest slice" or the "Largest slice."

In the "Legend" section you set the appearance of the legend in the chart. To set the legend to display, you can check the "Show Legend" checkbox. Use the "Placement:" drop-down to specify where to place the legend within the chart. Then you can use the "Layout:" drop-down to set whether to show

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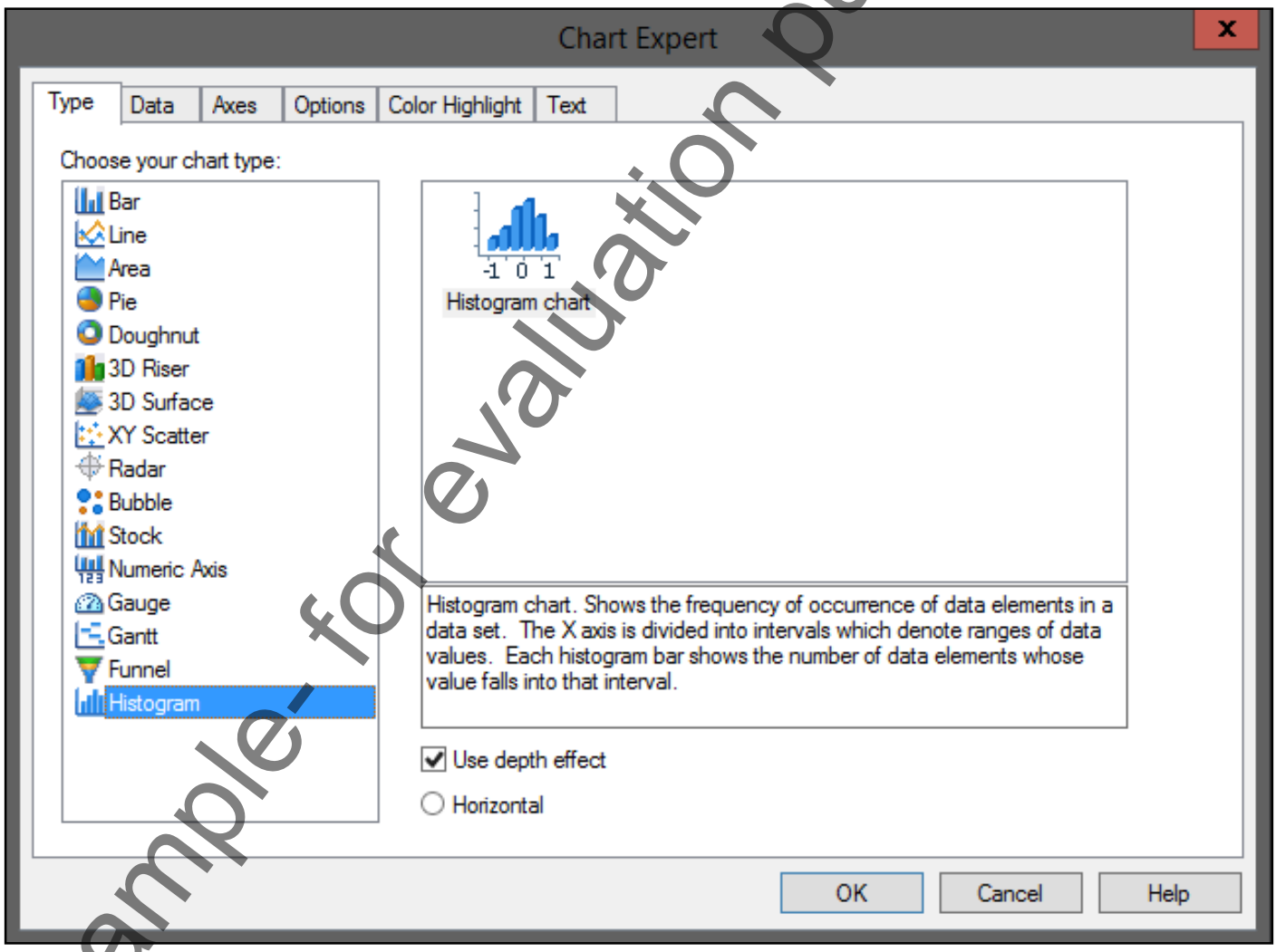
12.1- The Chart Expert- (cont'd.):

percentage values, amount values, both, or none in the legend.

After setting the options on the other tabs, you can click the "Text" tab to set the options for the display of the text within the chart. Here you can set the text to display for the various text elements within the chart. If you leave the "Auto-Text" checkbox checked the text elements will be automatically created using the default values assigned by Crystal Reports. You can clear the "Auto-Text" checkboxes and then specify your own titles in the text boxes to the right, if you like.

You can use the "Format" section at the bottom of the "Text" tab to set the display of the text in the chart. To do this, just click on the type of text to format within the scrolling list, such as "Title." Then click the "Font…" button to launch the "Font" dialog box where you can set the font used to display that type of data within the chart.

When you have finished setting your desired chart options in the "Chart Expert" dialog box, click the "OK" button to insert a chart with the specified settings into your report.



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12.2- Editing Charts:

You can edit a chart object once it has been created, if needed. You can click the chart object once to select it and set the focus of the application to the chart object. It will appear with a blue border around its perimeter so that you can tell when it is selected. You can click and drag the chart object around by its border to move it, if needed. You can also place your mouse pointer over any one of the small blue resizing squares on the border of the chart until you see the mouse pointer turn into a double-pointed arrow. You can then click and drag at that point to change the size of the chart area.

It is important to also notice that a chart is really a larger container for several independently selectable smaller objects. While you can make changes to the entire chart area, you can also click on the individual elements, such as the data series, the legend, and the labels within the chart after you have selected the entire chart area by simply clicking once again on the particular object that you wish to select within the chart area. You will find that not only can you edit the properties of the entire chart, but you can also set the properties of the individual elements within the chart.

To edit the chart object itself using the “Chart Expert” after you have created it, just select the chart object and then choose “Format| Chart Expert…” from the Menu Bar. You can also just right-click on the chart object and then select the “Chart Expert…” command from the pop-up menu that appears. You can then step back through the tabs in the “Chart Expert” dialog box, changing the settings as needed.

12.3- Setting General Chart Options:

You can set general options for a selected chart by choosing “Chart| Chart Options…” from the Menu Bar. You could also right-click on the chart and choose “Chart Options…” from the pop-up menu which appears. Either way, this will launch the “Chart Options” dialog box. This dialog box is used to change the layout and appearance of a chart and also hide and show chart labels and other chart objects.

You can click the “Appearance” tab to set general formatting options for your selected chart type. The options displayed here will vary depending on the type of chart selected. Depending on what type of chart you created, you will use the sliders and settings on this tab to set the options for your chart type.

On the “Titles” tab, you can set options for the chart titles which you have available.

On the “Data Labels” tab you can set the general display options of the data labels used for the chart. Note that for “Gauge” chart types, the “Data Labels” options are set on the “Quality Bands” tab, instead. Once again, the options for how to display the data labels will change, depending on your selected chart type.

On the “Legend” tab, you can set options for the display and placement of the chart legend.

On the “Gridlines” tab, you can set the formatting and display of the gridlines in your selected chart.

On the “Axes” tab, you can set the formatting and display of chart axes. If you are setting the properties of a dual-axes chart, then you can set the additional axes options on the “Multi-Axes” tab. This tab will only appear if you check the “Dual Axes” checkbox on the “Axes” tab, if available.

Once you have set the general chart options that you wish to view in this dialog box, click “OK” to apply the changes to your selected chart.

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12.4- Formatting Selected Chart Items:

You can set the formatting of selected chart items by first selecting the individual item within the chart area that has the appearance that you wish to change. You can then choose "Chart| Format (object name)…" from the top of the Menu Bar drop-down menu, or just right-click on the selected chart element and choose "Format (object name)…" from the pop-up menu which appears.

In the "Format (object name)" dialog box which appears, there are various tabs which you can use to change the appearance of the selected item. The specific tabs available will depend entirely on the type of object selected. Common tabs that are available for many objects are: "Font," "Line," "Border," "Layout," and "Fill." Depending on what object was selected, note that some of these tabs may appear unavailable for use. For example, if there was no text associated with the selected chart object, then the "Font" tab would appear unavailable.

On the "Font" tab, you can set the style of text displayed in the selected object. Use the drop-downs on this tab to make your desired changes. You can change the font face used by selecting a choice from the "Font:" drop-down. You can add bolding or italics by clicking either the "B" or "I" button, as desired. You can then click one of the buttons available to set the horizontal alignment of the text within the selected object. You can select either "Align Left," "Align Center," or "Align Right." You can click the "Color:" drop-down to pick a font color from the colors displayed in the color cubes in the drop-down menu. If you wish to create a custom color, you may click the "More…" button toward the bottom of this drop-down to open the "Color" dialog box, where you can create and set a custom color. You can then use the "Size:" drop-down to select a font size. Use the "Frame:" drop-down to select a style of border for the selected text. The options that you choose can be viewed in the "Preview:" window at the bottom of this tab.

On the "Line" tab, you can set the color of the selected line of the chart item using the "Color:" drop-down. Then use the "Style:" and "Thickness:" drop-downs to set the desired line style and thickness for the selected line.

On the "Border" tab, you can set the color of the border of the selected chart item using the "Color:" drop-down. Then use the "Style:" and "Thickness:" drop-downs to set the desired line style and thickness for the border.

On the "Layout" tab, you can set the appearance of the legend and labels in the chart. Use the checkboxes and drop-down on this tab to make your desired selections. The exact options available in this tab will depend on the type of chart which you have selected.

On the "Fill" tab, you set the fill, or interior, color of the selected chart object. You can apply a simple color choice using the color cubes available from the "Foreground Color:" drop-down. However, if you would like a more sophisticated appearance, you can make use of the "Pattern," "Gradient," "Texture," and "Picture" buttons to apply a more interesting fill effect than just a simple color.

To apply a pattern, click the "Pattern…" button to open the "Choose a Pattern" dialog box. In this dialog box, select a pattern that you want to use as the fill pattern from the choices listed at the left. You can then set the "Foreground:" and "Background:" colors by clicking the "paint can" button next to each label, and then selecting the desired choice from the drop-down menu of color cube choices. The pattern that you have selected will be displayed in the "Preview:" square. When you have the desired pattern set, click "OK" to return to the "Fill" tab in the "Format (object name)" dialog box.

You can apply a gradient by clicking the "Gradient…" button to open the "Choose a gradient to apply to the selected areas" dialog box. Here, you can simply click on the type of gradient that you want to apply in the list shown and then click "OK" to apply the selected gradient. If you wish to create your own customized gradient, then you can instead click the "Advanced Options >>" button to expand the dialog box.

To the right, you can create and customize your own gradients. You can begin to create a gradient by selecting a preset gradient from the list that is as similar as possible to the gradient that you would like to

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12.4- Formatting Selected Chart Items- (cont'd.):

create. You could also use the drop-down below the gradient preview to select the name of a preset gradient to use, or you can click the arrow buttons to scan through the list of presets until you find the one you want.

You can change the colors used in the displayed gradient by clicking the "paint can" buttons shown at either end of the gradient strip and then selecting the desired color to use from the color cubes displayed. You can change the type of gradient pattern used by selecting either the "Linear," "Circular," or "Rectangular" option buttons. You can then use the "Angle," "Horizontal Offset" and "Vertical Offset" spinner buttons to change the direction and angle of the gradient.

When you have created the desired gradient, you can then click a button to save or dismiss your changes. Click the "Save" button to save your changes and overwrite the old preset gradient. You can click the "Save As…" button to invoke the "Enter the Gradient Preset Name" dialog box, where you can type a new name for the gradient which you have created and then click "OK" to create and save a new preset gradient. You can rename a gradient by clicking the "Rename" button and typing the new name into the "Enter the Gradient Preset Name" dialog box. You can click the "Delete" button to delete the selected preset gradient. You can click the "Duplicate" button to create a duplicate copy of the current gradient, if desired. Once you have made any changes to the gradient, you can click "OK" to return to the "Fill" tab of the "Format (object name)" dialog box.

You can apply a texture to a selected chart object by clicking the "Texture..." button on the "Fill" tab of the "Format (object name)" dialog box. This opens the "Choose a texture to apply to the selected areas" dialog box. You can click on the name of the tab that contains the type of texture that you would like to use. You can then scroll through the lists of available textures on the tab and click on the one that you would like to use. If you click the "Advanced Options >>" button, you will view the expanded dialog box, where you can choose additional customization options for your texture by choosing the desired option buttons. The changes that you select can be seen in the preview box at the right side of the dialog box. When you have selected the desired texture and set any additional options which you would like to apply, click "OK" to return to the "Format (object name)" dialog box.

If you want to use a picture as the fill effect for the selected chart object, then click the "Picture…" button in the "Fill" tab to open the "Choose a picture" dialog box. You can select one of the pieces of clip art displayed by clicking on it. If you wish to set any additional options, you can click the "Advanced Options >>" button to expand the dialog box to the right. You can click the checkbox for "Pictograph (Scale Picture to Grid Unit)" to fit one entire picture within each major grid unit of the data series of a bar chart. You can then select one of the selected display options for flipping the image from the four options shown. If you wish to browse for a piece of clip art to use from your computer or network, you can click the "Browse…" button to launch the "Open" dialog box. You can then navigate to the folder that contains the clip art (.wmf) file that you wish to use in the report. You can click on the file to select it and then click the "Open" button to return to the "Choose a Picture" dialog box. Click "OK" when you are ready to return to the "Fill" tab of the "Format (object name)" dialog box.

After you have set the desired formatting options for the selected chart element in the "Format (object name)" dialog box, click "OK" to apply the selected formatting.

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12.5- Formatting a Data Series:

You can apply formatting to the data series in your chart by first selecting a data series within your chart. Then choose “Chart| Series Options…” from the Menu Bar or right-click on the selected data series and select “Series Options…” from the pop-up menu which appears to invoke the “Series Options” dialog box. In this dialog box are the tabs which you can use to format the selected series.

The tabs which are displayed in this dialog box vary based upon the chart type selected. For most charts, you can set general display options using the settings displayed on the “Appearance” tab. If you click the “Data Labels” tab, you can choose whether or not to show data labels for the series by checking or unchecking the checkbox for “Show Data Labels.”

If you have a data series that displays trends, such as a bar chart or line chart, then you can set the appearance of the trendlines in the selected data series of the chart by choosing the desired options on the “Trendlines” tab. When you have set any formatting options that you want to apply to the selected data series, just click “OK” to apply the selected options.

12.6- Formatting Chart Gridlines:

If you have created a chart that makes use of an underlying grid of values upon which the data series are charted, you can set the formatting of the chart gridlines and value scaling. To do so, first select a chart gridline. Note that you may have to be very careful where you click, as it is sometimes tricky to select a gridline. Once it is selected, choose “Chart| Format Grid Lines…” from the Menu Bar. You could also just right-click on the chart and then choose “Format Grid Lines…” from the pop-up menu which appears.

In the “Format Gridlines…” dialog box, you can format all of the gridlines in your chart. On the “Line” tab, you can set general formatting options such as the color and thickness of the selected gridlines. On the “Scales” tab you can set scaling options like the minimum and maximum values to display on the axis, the base measurement unit, and the major and minor scaling units. If you want Crystal Reports to handle the settings, you can check the checkboxes under the “Auto-Scale” column for the “Minimum Value:,” “Maximum Value:,” “Major Interval:,” and “Minor Steps:.” If you want to set your own value settings for any one of these values shown, just uncheck the checkbox and then specify the desired value in the text box to the right of the attribute label. You also have a separate section of checkbox options that you can check or uncheck to alter the appearance of the gridlines, as desired.

On the “Layout” tab, you can select whether or not to display the major and minor gridlines within the chart grid. You can also use the drop-downs available to specify additional stylistic settings for the appearance of the ticks and lines of the gridlines. Once you have set the appearance of the gridlines within the grid as you would like, click “OK” to close the dialog box and apply the selected formatting.

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12.7- Setting Chart Axes Options:

You can set the attributes of chart axes by first selecting the axis within the chart area whose attributes you wish to edit. Note that you have to be very careful where you click when selecting an axis, as it can be tricky to select. So, you can click the associated axis label if that is easier for you to select. Once you have the desired axis or axis label selected, choose “Chart| Axis Options…” from the Menu Bar or just right-click on the selected axis or axis label and choose “Axis Options…” from the pop-up menu which appears. This will make the axis settings dialog box appear. The title of the dialog box will change, depending on which axis you selected.

In the dialog box, you can set options for the selected axis. The exact options available change slightly depending upon which axis is selected. On the “Layout” tab, you can select whether or not to display the axis lines and labels and also set axis and label options by checking the desired checkboxes or selecting the desired option buttons. On the “Scales” tab, you can set scaling options to display on the axis. If you want Crystal Reports to handle the settings, you can check the checkboxes under the “Auto-Scale” column for the “Minimum Value:,” “Maximum Value:,” “Major Interval:,” and “Minor Steps:.” If you want to set your own value settings for any one of these values shown, just uncheck the checkbox and then specify the desired value in the text box. You also have a separate section of checkbox options that you can check or uncheck to alter the appearance of the axis, as desired. On the “Numbers” tab, which will appear for numbers on value axes only, you can select the type of numeric formatting to use from the “Category:” drop-down. You can also set the number of decimals to display, whether or not to use a thousands separator, and the abbreviation of the numbers to use for large values. On the “Gridlines” tab, you can set the display of the major and minor gridlines for values axes. Once you have set the appearance of the axes within the chart as you would like, click “OK” to close the dialog box and apply the selected options.

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12.8- Adding Chart Trendlines:

You can add a trendline against which you can display the values in the chart by first selecting a data series within the chart and then choosing "Chart| Trendlines…" from the Menu Bar, or by just right-clicking on a data series and then selecting "Trendlines…" from the pop-up menu which appears.

In the "Trendlines" dialog box which appears, you can choose a type of trendline to add to the chart by clicking on the desired type of trendline to add in the "Available Types:" list at the left side of the dialog box. You can then click the ">" button to add the selected trendline to the "Show Trendlines:" list.

You can then set any additional options that you would like for the selected trendline by choosing the desired options underneath the "Show Trendlines:" list. Once you have set any display options for the selected trendline types that you have selected, click the "OK" button to add them to the selected chart.

12.9- Modifying a 3D Chart View:

You can alter the 3D view of your 3D chart types by using the "Choose a Viewing Angle" dialog box. To access this dialog box, first select the 3D chart type whose display you wish to change. Then choose "Chart| 3D Viewing Angle…" from the Menu Bar. Note that this is not available for charts that use the new "depth" feature of charts that appears in Crystal Reports, but only for true 3D chart types, as selected in the first step of the Chart Expert.

The "Choose a Viewing Angle" dialog box is used to pan, rotate, and move your 3D chart within the chart area. To quickly change the 3D view of your chart, you can click one of the preset pictures that represent the types of 3D views available for use from the list of views shown.

If you want to make your own custom 3D view, click the "Advanced Options >>" button in the upper right corner of the dialog box to expand the dialog box to the right. You will see four tabs which can be used to make your own custom 3D adjustments: "Rotate," "Pan," "Walls," and "Move."

On the "Rotate" tab, you can click the arrow buttons in the image or to the right of the "X," "Y," and "Z" letters to change the rotation of the currently selected view. You can click the "Pan" tab and then click the arrows displayed in the image or to the right of the "X," "Y," and "Zoom" labels to change the perspective on the 3D view. On the "Walls" tab you can click the arrow buttons in the image or to the right of the "X," "Y," and "Z" labels to increase or decrease the thickness or length of the walls in the chart. If you click the "Link" checkbox, you will only need to click the "X" coordinate to also increase the "Y" and "Z" coordinates at the same time. You can click the "Move" tab to change the position of the 3D chart in the chart area by clicking on the arrows in the diagram to move the selected chart view or by clicking the arrows to the right of the "X," "Y," and "Z" labels.

You can then click one of the buttons at the right side of this dialog box to determine what you would like to do after making your custom 3D view. You can click the "Save" button to save your changes over the currently selected preset view. You can click the "Save As…" button to launch the "Enter 3D Viewing Angle Preset Name," where you can type a new name for your new custom 3D view. Click "OK" to save the new view as a custom preset view.

You can also click the "Rename" button to launch the "Enter 3D Viewing Angle Preset Name," where you can type a new name for the currently selected 3D view. Click "OK" to save the view with a new name. You can click the "Delete" button at the right side of the dialog box to delete the currently selected view from the dialog box. You can click the "Duplicate" button to create a duplicate of the currently selected view in the dialog box. When you have made whatever changes you want in this dialog box, click "OK" to apply the selected 3D view.

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12.10- Using Chart Templates:

You can use the available chart templates to quickly apply a pre-created chart type to your chart data, or you can save a chart type that you have customized as your own custom chart template to re-use it in the future without having to reset and re-apply all of the custom formatting which you have set. This can save a lot of time in formatting future charts that you may need to create.

To save a custom chart template, select the chart which you have formatted and now wish to save as a new chart template. Then choose "Chart| Save as Template…" from the Menu Bar. You can also simply right-click on the chart which you want to serve as the basis for your new template, and then select "Save as Template…" from the pop-up menu which appears.

In the "Save As" dialog box which appears, type a name for the template into the "File name:" text box at the bottom of the dialog box and click the "Save" button to save the template into the pre-designated folder with the name which you gave it. Do not change the folder into which it wants to save the template, as it will need to look into this folder in order to access the template in the future.

To apply a chart template in the future, first select the chart to which you would like to apply the template. Then select "Chart| Load Template…" from the Menu Bar.

If you want to apply a custom chart type which you have saved as a template, click on the "User Defined" choice at the bottom of the "Categories:" list. Then select the saved template which you wish to apply to the selected chart from the list at the right side of the tab. Note that there are also several sets of "preset" custom chart types from which you can choose on the "Custom" tab within the "Categories" list. Once you have made your desired template choice, just click "OK" to apply the selected chart type.

12.11- Auto-Arranging Charts:

Once you have applied all of the modifications that you want to the selected chart, you may want to use the "Auto-Arrange" feature to arrange the elements within the chart in a manner that makes the most use of the chart area that is available. This can oftentimes be more efficient that manually reorganizing the chart elements. To auto-arrange chart elements, select the chart and then choose "Chart| Auto-Arrange Chart" from the Menu Bar.

Sample- for evaluation purposes only!

ACTIONS- CHARTING

USING THE "CHART EXPERT" TO INSERT A CHART:

1. To insert a chart into your report, select "Insert| Chart…" from the Menu Bar or click the "Insert Chart" button in the Insert toolbar.
2. In the "Chart Expert" dialog box click on the "Type" tab to select which type of chart to create by clicking on the desired type shown in the "Chart type:" list.
3. To the right of the displayed chart types, you will see the various chart sub-types which you can click on to select.
4. For some of the chart types (like the "Bar" type), you can select either a "Vertical" or "Horizontal" display by choosing the desired option button at the bottom of the "Chart type:" list.
5. On the "Data" tab, you can set the display of the data used in the chart.
6. In the "Layout" section you can choose either "Advanced," "Group," "Cross-Tab," or "OLAP." Not every choice may be available, depending on the data source of the report. Whichever button is selected in the "Layout" section does impact the display of the "Data" section of the "Data" tab.
7. For most reports with grouping applied, the "Group" choice will appear as the default. This then allows you to select for which grouped field's values (if you have more than one) you want to show the summary data by choosing the field to use from the "On change of:" drop-down. Then use the "Show:" drop-down to select which field's values to display for each change in the value of the field you had just selected in the drop-down above.
8. If you select the "Advanced" layout, you can then specify by which field you want to create the groupings by using the listing of fields shown in the "Available Fields:" list. Use the drop-down to the right to select either "On change of," "For each record," or "For all records."
9. If you select either "On change of" or "For each record," you will need to specify which field to use from the "Available Fields:" list. Select the field to use and click the ">" button to move it to the list at the right.
10. For each record or group selected, you can then choose which field's summary values to display. Just click on the field whose values you wish to display from the "Available Fields:" list, and then click the ">" arrow to move it into the "Show value(s):" list at the right. Crystal Reports will then attempt to display a summary value (like "Sum" or "Count") for the field.
11. If you want to change the summary used, click on the summary field's value and then click the "Set Summary Operation…" button. In the "Edit Summary" dialog box which appears, you can select the summary function to display from the "Calculate this summary:" drop-down. When you are finished, click "OK" to set the summary options that you wish.
12. If you have selected to show the change in value for a specified field, then you can check the "Don't Summarize" option, to not show a summary of a field, if you do not wish to see one for the change in the field shown above.
13. If you have a cross-tab table as the basis for your report, you can click the "Cross-Tab" layout button to show the cross-tab display options at the right. These are similar to the normal "Group" options, however, you also have the option to show the data subdivided by a secondary field, if needed. You can select which field to use for that purpose from the "Subdivided by:" drop-down.
14. If you have an OLAP data cube as the basis for your data source, then you will see options similar to the ones that you have for the cross-tab display. You can use the "On change of" drop-down to select the dimension that you want to use for plotting the values in the chart. Then use the "Subdivided by" drop-down to choose the secondary row or column by which to base the chart.
15. You can click the "Other Dimensions" button to invoke the "Format Other Dimensions" dialog box. In this dialog box, you can click on a dimension shown and then click "Select a field value" to specify a new field to which to fix the dimension.

(cont'd.)

Sample- for evaluation purposes only!

USING THE "CHART EXPERT" TO INSERT A CHART- (CONT'D.):

16. You can click on the "Axes" tab to set the axes of the chart. Depending on the type of chart which you are trying to create, the options on this tab will vary. For some chart types, such as a "Pie" chart, this tab will not even appear as it would be completely devoid of any meaning or function for that type of chart.
17. In the "Show gridlines" section, you have two columns of checkboxes for the "Major" and "Minor" gridlines. Depending upon the type of chart that you are creating, you will then have checkboxes for "Group axis (x):," "Series axis (y):," "Data axis (z):," and/or "Data 2 axis." You can check or uncheck any checkboxes that correspond to the types of gridlines that you want to show or hide.
18. In the "Data values" section, you can specify what range of data values to plot in the chart. If you check the "Auto scale" checkbox, you will specify that the number of data labels is adjusted so that they will clearly display along the data axis.
19. If "Auto range" is checked, the data values for the data axis are assigned a default range of values to plot. If unchecked, you can then use the "Min" and "Max" text boxes to set the desired minimum and maximum values to plot.
20. You can use the "Number format" drop-down to set the number formatting used for axis data. You may also have a "Data 2" axis for which you can set number display in cross-tab or OLAP charts.
21. In the "Number of divisions" section, you can set the number of divisions used for the corresponding data axis. If you select the "Automatic" option, then Crystal Reports will automatically set the number of divisions for the data axis. If you select the "Manual" option, then you can type the desired number of divisions to display into the text box at the right.
22. Click the "Options" tab.
23. In the "Chart color" section you can specify either a "Color" chart or a "Black and White" chart by clicking the desired option button.
24. Click the "Color Highlight" tab to set conditional chart formatting. You can set the criteria and colors here, just as you do when using the "Highlighting Expert."
25. In the "Data points" section of the "Options" tab in the "Chart Expert" dialog box, you set what to display for the data points plotted in your chart. You can check the "Show label" checkbox to show the label next to each plotted value. You can check the "Show value" checkbox to show the value that is being plotted in the chart. This is often very useful for "Pie" chart types. If you elect to show the value plotted, you can then use the "Number format:" drop-down to select the formatting of the values displayed.
26. In the "Customize settings" section, you can set the display of data markers and pie slices in your charts, if the type of chart that you selected makes use of those features.
27. You can check the "Transparent background" checkbox to remove the appearance of the background of the chart, allowing underlying objects to become visible through the chart background.
28. If you are creating a "Line" type chart, you can use the "Marker size:" drop-down to select the size of the markers used to plot the data points on the line chart. You use the "Marker shape:" drop-down to choose what shape to make the data markers.
29. Use the "Viewing angle:" drop-down to choose the angle used to view the chart.
30. If creating a pie chart, you can use the "Pie size:" drop-down to set the size you want the pie to be.
31. If you are creating a bar chart, you can use the "Bar size:" drop-down to set the size of the bar chart.
32. If you happen to be creating a pie chart, you can check the "Detach pie slice" checkbox to have one of the pieces of the pie appear detached from the rest of the pie. You can then use the option buttons to the right to choose to detach either the "Smallest slice" or the "Largest slice."
33. In the "Legend" section you set the appearance of the legend in the chart. To set the legend to display, you can check the "Show Legend" checkbox.

(cont'd.)

Sample- for evaluation purposes only!

USING THE "CHART EXPERT" TO INSERT A CHART- (CONT'D.):

34. Use the "Placement:" drop-down to specify where to place the legend within the chart. Then you can use the "Layout:" drop-down to set whether to show percentage values, amount values, both, or none in the legend.
35. After setting the options on the other tabs, you can click the "Text" tab to set the options for the display of the text within the chart. Here you can set the text to display for the various text elements within the chart. If you leave the "Auto-Text" checkbox checked the text elements will be automatically created using the default values assigned by Crystal Reports. You can clear the "Auto-Text" checkboxes and then specify your own titles in the text boxes to the right, if you like.
36. You can use the "Format" section at the bottom of the "Text" tab to set the display of the text in the chart. To do this, just click on the type of text to format within the scrolling list, such as "Title." Then click the "Font…" button to launch the "Font" dialog box where you can set the font used to display that type of data within the chart.
37. When you have finished setting your desired chart options in the "Chart Expert" dialog box, click "OK" to insert a chart with the specified settings into your report.

SELECTING A CHART:

1. You can click the chart object once to select it and set the focus of the application to the chart object. It will appear with a blue border around its perimeter so that you can tell when it is selected.

MOVING AND RESIZING A CHART:

1. You can click and drag the chart object around by its blue border to move it.
2. You can also place your mouse pointer over any one of the small blue resizing squares on the border of the chart until you see the mouse pointer turn into a double-pointed arrow. You can then click and drag at that point to change the size of the chart area.

SELECTING A PART OF A CHART:

1. You can click the chart object once to select it and set the focus of the application to the chart object. It will appear with a blue border around its perimeter so that you can tell when it is selected.
2. Click once again on the particular object that you wish to select within the chart area.

EDITING A CHART:

1. To edit the chart object using the "Chart Expert," select the chart object first.
2. Choose "Format| Chart Expert…" from the Menu Bar or just right-click on the chart object and then select the "Chart Expert…" command from the pop-up menu that appears.
3. You can then step back through the "Chart Expert" dialog box, changing the settings as needed.
4. Click "OK" to apply the changed settings when you are finished.

Sample- for evaluation purposes only!

SETTING GENERAL CHART OPTIONS:

1. You can set general options for a selected chart by choosing “Chart| Chart Options…” from the Menu Bar.

OR

1. You can right-click on the chart and choose “Chart Options…” from the pop-up menu.

2. In the “Chart Options” dialog box that then appears, you can click the “Appearance” tab to set general formatting options for your selected chart type. The options displayed here will vary depending on the type of chart selected. Depending on what type of chart you created, you will use the sliders and settings on this tab to set the options for your chart type.
3. On the “Titles” tab, you can set options for the chart titles which you have available.
4. On the “Data Labels” tab you can set the display options of the data labels used for the chart. Note that for “Gauge” chart types, the “Data Labels” options are set on the “Quality Bands” tab, instead. Once again, the options for how to display the data labels will change, depending on your selected chart type.
5. On the “Legend” tab, you can set options for the display and placement of the chart legend.
6. On the “Gridlines” tab, you can set the formatting and display of the gridlines in your selected chart.
7. On the “Axes” tab, you can set the formatting and display of chart axes. If you are setting the properties of a dual-axes chart, then you can set the additional axes options on the “Multi-Axes” tab. This tab will only appear if you check the “Dual Axes” checkbox on the “Axes” tab, if available.
8. Once you have set the general chart options that you wish to view in this dialog box, click “OK” to apply the changes to your selected chart.

Sample- for evaluation purposes only!

FORMATTING CHART ITEMS:

1. You can set the formatting of selected chart items by first selecting the individual item within the chart area that has the appearance that you wish to change.
2. Choose "Chart| Format (object name)…" from the top of the Menu Bar drop-down menu or right-click the selected chart element and choose "Format (object name)…" from the pop-up menu which appears.
3. In the "Format (object name)" dialog box which appears, there are various tabs which you can use to change the appearance of the selected item. The specific tabs available will depend entirely on the type of object selected. Common tabs that are available for many objects are: "Font," "Line," "Border," "Layout," and "Fill." Depending on what object was selected, note that some of these tabs may appear unavailable for use. For example, if there was no text associated with the selected chart object, then the "Font" tab would appear unavailable.
4. On the "Font" tab, you can set the style of text displayed in the selected object. Use the drop-downs on this tab to make your desired changes.
5. You can change the font face used by selecting a choice from the "Font:" drop-down.
6. You can add bolding or italics by clicking either the "B" or "I" button, as desired.
7. You can then click one of the buttons available to set the horizontal alignment of the text within the selected object. You can select either ""Align Left," "Align Center," or "Align Right."
8. You can click the "Color:" drop-down to pick a font color from the colors displayed in the color cubes in the drop-down menu. If you wish to create a custom color, you may click the "More…" button toward the bottom of this drop-down to open the "Color" dialog box, where you can create and set a custom color.
9. You can then use the "Size:" drop-down to select a font size.
10. Use the "Frame:" drop-down to select a style of border for the selected text.
11. On the "Line" tab, you can set the color of the selected line of the chart item by using the "Color:" drop-down.
12. Then use the "Style:" and "Thickness:" drop-downs to set the desired line style and thickness for the selected line.
13. On the "Border" tab, you can set the color of the border of the selected chart item using the "Color:" drop-down.
14. Then use the "Style:" and "Thickness:" drop-downs to set the desired line style and thickness for the border.
15. On the "Layout" tab, you can set the appearance of the legend and labels in the chart. Use the checkboxes and drop-down on this tab to make your desired selections. The exact options available in this tab will depend on the type of chart which you have selected.
16. On the "Fill" tab, you set the fill, or interior, color of the selected chart object. You can apply a simple color choice using the color cubes available from the "Foreground Color:" drop-down. However, if you would like a more sophisticated appearance, you can make use of the "Pattern," "Gradient," "Texture," and "Picture" buttons to apply a more interesting fill effect than just a simple color.
17. To apply a pattern, click the "Pattern…" button to open the "Choose a Pattern" dialog box. In this dialog box, select a pattern that you want to use as the fill pattern from the choices listed at the left.
18. You can then set the "Foreground:" and "Background:" colors by clicking the "paint can" button next to each label, and then selecting the desired choice from the drop-down menu of color cube choices.
19. The pattern that you have selected will be displayed in the "Preview:" square. When you have the desired pattern set, click "OK" to return to the "Fill" tab in the "Format (object name)" dialog box.

(cont'd.)

Sample for evaluation purposes only!

FORMATTING CHART ITEMS- (CONT'D.):

20. You can apply a gradient by clicking the “Gradient…” button to open the “Choose a gradient to apply to the selected areas” dialog box. Here, you can simply click on the type of gradient that you want to apply in the list shown and then click “OK” to apply the selected gradient.
21. If you wish to create your own customized gradient, then you can instead click the “Advanced Options >>” button to expand the dialog box.
22. To the right, you can create and customize your own gradients. You can begin to create a gradient by selecting a preset gradient from the list that is as similar as possible to the gradient that you would like to create. You could also use the drop-down below the gradient preview to select the name of a preset gradient to use, or you can click the arrow buttons to scan through the list of presets until you find the one you want.
23. You can change the colors used in the displayed gradient by clicking the “paint can” buttons shown at either end of the gradient strip and then selecting the desired color to use from the color cubes displayed.
24. You can change the type of gradient pattern used by selecting either the “Linear,” “Circular,” or “Rectangular” option buttons.
25. You can then use the “Angle,” “Horizontal Offset” and “Vertical Offset” spinner buttons to change the direction and angle of the gradient.
26. When you have created the desired gradient, you can then click a button to save or dismiss your changes. Click the “Save” button to save your changes and overwrite the old preset gradient.
27. You can click the “Save As…” button to invoke the “Enter the Gradient Preset Name” dialog box, where you can type a new name for the gradient which you have created and then click “OK” to create and save a new preset gradient.
28. You can rename a gradient by clicking the “Rename” button and typing the new name into the “Enter the Gradient Preset Name” dialog box.
29. You can click the “Delete” button to delete the selected preset gradient.
30. You can click the “Duplicate” button to create a duplicate copy of the current gradient, if desired.
31. Once you have made any changes to the gradient, you can click “OK” to return to the “Fill” tab of the “Format (object name)” dialog box.
32. You can apply a texture to a selected chart object by clicking the “Texture...” button on the “Fill” tab of the “Format (object name)” dialog box. This opens the “Choose a texture to apply to the selected areas” dialog box.
33. You can click on the name of the tab that contains the type of texture that you would like to use. You can then scroll through the lists of available textures on the tab and click on the one that you would like to use.
34. If you click the “Advanced Options >>” button, you will view the expanded dialog box, where you can choose additional customization options for your texture by choosing the desired option buttons. The changes that you select can be seen in the preview box at the right side of the dialog box.
35. When you have selected the desired texture and set any additional options which you would like to apply, click “OK” to return to the “Format (object name)” dialog box.
36. If you want to use a picture as the fill effect for the selected chart object, then click the “Picture…” button in the “Fill” tab to open the “Choose a picture” dialog box.
37. You can select one of the pieces of clip art displayed by clicking on it. If you wish to set any additional options, you can click the “Advanced Options >>” button to expand the dialog box to the right.

(cont’d.)

Sample- for evaluation purposes only!

FORMATTING CHART ITEMS- (CONT'D.):

38. You can click the checkbox for “Pictograph (Scale Picture to Grid Unit)” to fit one entire picture within each major grid unit of the data series of a bar chart.
39. You can then select one of the selected display options for flipping the image from the four options shown.
40. If you wish to browse for a piece of clip art to use from your computer or network, you can click the “Browse…” button to launch the “Open” dialog box.
41. You can then navigate to the folder that contains the clip art (.wmf) file that you wish to use in the report. You can click on the file to select it and then click the “Open” button to return to the “Choose a Picture” dialog box.
42. Click “OK” when you are ready to return to the “Fill” tab of the “Format (object name)” dialog box.
43. After you have set the desired formatting options for the selected chart element in the “Format (object name)” dialog box, click “OK” to apply the selected formatting.

FORMATTING A DATA SERIES:

1. Select a data series within your chart.
2. Then choose “Chart| Series Options…” from the Menu Bar or right-click on the selected data series and select “Series Options…” from the pop-up menu which appears to invoke the “Series Options” dialog box. In this dialog box are the tabs which you can use to format the selected series.
3. The tabs displayed in this dialog box vary based upon the chart type selected. For most charts, you can set general display options using the settings displayed on the “Appearance” tab.
4. If you click the “Data Labels” tab, you can choose whether or not to show data labels for the series by checking or unchecking the “Show Data Labels” checkbox.
5. If you have a data series that displays trends in a data series, such as a bar chart or line chart, then you can set the appearance of the trendlines in the selected data series of the chart by choosing the desired options on the “Trendlines” tab.
6. When you have set any formatting options that you want to apply to the selected data series, just click “OK” to apply the selected options.

Sample- for evaluation purposes only!

ACTIONS- CHARTING

FORMATTING CHART GRIDLINES:

1. Select a chart gridline. Note that you may have to be very careful where you click, as it is sometimes tricky to select a gridline.
2. Once it is selected, choose "Chart| Format Grid Lines…" from the Menu Bar or just right-click on the chart and then choose "Format Grid Lines…" from the pop-up menu which appears.
3. In the "Format Gridlines…" dialog box, you can format all of the gridlines in your chart.
4. On the "Line" tab, you can set general formatting options such as the color and thickness of the selected gridlines.
5. On the "Scales" tab you can set scaling options like the minimum and maximum values to display on the axis, the base measurement unit, and the major and minor scaling units. If you want Crystal Reports to handle the settings, you can check the checkboxes under the "Auto-Scale" column for the "Minimum Value:," "Maximum Value:," "Major Interval:," and "Minor Steps:." If you want to set your own value settings for any one of these values shown, just uncheck the checkbox and then specify the desired value in the text box to the right of the attribute label. You also have a separate section of checkbox options that you can check or uncheck to alter the appearance of the gridlines, as desired.
6. On the "Layout" tab, you can select whether or not to display the major and minor gridlines within the chart grid. You can also use the drop-downs available to specify additional stylistic settings for the appearance of the ticks and lines of the gridlines.
7. Click "OK" to close the dialog box and apply the selected formatting.

SETTING CHART AXES OPTIONS:

1. You can set the attributes of chart axes by first selecting the axis within the chart area whose attributes you wish to edit. Note that you have to be very careful where you click when selecting an axis, as it can be tricky to select. So, you can select the associated axis label if that is easier for you to select.
2. Once you have the desired axis or axis label selected, choose "Chart| Axis Options…" from the Menu Bar or just right-click on the selected axis or axis label and choose "Axis Options…" from the pop-up menu which appears.
3. The axis settings dialog box appear. Its title will change, depending on which axis you selected.
4. In the dialog box, you can set options for the selected axis. The exact options available change slightly depending upon which axis is selected.
5. On the "Layout" tab, you can select whether or not to display the axis lines and labels and also set axis and label options by checking the desired checkboxes or selecting the desired option buttons.
6. On the "Scales" tab, you can set scaling options like the minimum and maximum values to display on the axis. If you want Crystal Reports to handle the settings, you can check the checkboxes under the "Auto-Scale" column for the "Minimum Value:," "Maximum Value:," "Major Interval:," and "Minor Steps:."
7. To set your own value settings for any values shown, just uncheck the checkbox and then specify the desired value in the text box to the right of the attribute label. You also have a separate section of checkbox options that you can check or uncheck to alter the appearance of the gridlines, as desired.
8. On the "Numbers" tab, which will appear for numbers on value axes only, you can select the type of numeric formatting to use from the "Category:" drop-down. You can also set the number of decimals to display, whether or not to use a thousands separator, and the abbreviation of the numbers to use for large values.
9. On the "Gridlines" tab, you can set the display of the major and minor gridlines for values axes.
10. Click "OK" to close the dialog box and apply the selected options.

Sample-for evaluation purposes only!

ACTIONS- CHARTING

ADDING TRENDLINES TO A CHART:

1. Select a data series within the chart and then choose "Chart| Trendlines…" from the Menu Bar or right-click on a data series and then select "Trendlines…" from the pop-up menu which appears.
2. In the "Trendlines" dialog box, you can choose a type of trendline to add to the chart by clicking on the desired type of trendline to add in the "Available Types:" list at the left side of the dialog box.
3. You can then click the ">" button to add the selected trendline to the "Show Trendlines:" list.
4. You can then set any additional options that you would like for the selected trendline by choosing the desired options underneath the "Show Trendlines:" list.
5. Once you have set any display options for the selected trendline types that you have selected, click the "OK" button to add them to the selected chart.

MODIFYING A 3D CHART VIEW:

1. Select the 3D chart type whose display you wish to change.
2. Choose "Chart| 3D Viewing Angle…" from the Menu Bar. Note that this is not available for charts that use the new "depth" feature of charts that appears in Crystal Reports, but only for true 3D chart types, as selected in the first step of the Chart Expert.
3. You can easily change the 3D view of your chart by clicking on the picture that represents the type of 3D view you wish to use for the 3D chart's display in the list of views shown in the dialog box.
4. If you want to make your own custom 3D view, click the "Advanced Options >>" button in the upper right corner of the dialog box to expand the dialog box to the right. You will see four tabs which can be used to make your own custom 3D adjustments: "Rotate," "Pan," "Walls," and "Move."
5. On the "Rotate" tab, you can click the arrow buttons in the image or to the right of the "X," "Y," and "Z" letters to change the rotation of the currently selected view.
6. You can click the "Pan" tab and then click the arrows displayed in the image or to the right of the "X," "Y," and "Zoom" labels to change the perspective on the 3D view.
7. On the "Walls" tab you can click the arrow buttons in the image or to the right of the "X," "Y," and "Z" labels to increase or decrease the thickness or length of the walls in the chart. If you click the "Link" checkbox, you will only need to click the "X" coordinate to also increase the "Y" and "Z" coordinates at the same time.
8. You can click the "Move" tab to change the position of the 3D chart in the chart area by clicking on the arrows in the diagram to move the selected chart view or by clicking the arrows to the right of the "X," "Y," and "Z" labels.
9. You can then click one of the buttons at the right side of this dialog box to determine what you would like to do after making your custom 3D view. You can click the "Save" button to save your changes over the currently selected preset view.
10. You can click the "Save As…" button to launch the "Enter 3D Viewing Angle Preset Name," where you can type a new name for your new custom 3D view. Click "OK" to save the new view as a custom preset view.
11. You can click the "Rename" button to launch the "Enter 3D Viewing Angle Preset Name," where you can type a new name for the currently selected 3D view. Click "OK" to save the view with a new name.
12. You can click the "Delete" button at the right side of the dialog box to delete the currently selected view from the dialog box.
13. You can click the "Duplicate" button to create a duplicate of the currently selected view in the dialog box.
14. When you have made whatever changes you want, click "OK" to apply the selected 3D view.

Sample- for evaluation purposes only!

MODIFYING A 3D CHART VIEW:

1. Select the 3D chart type whose display you wish to change.
2. Choose "Chart| 3D Viewing Angle…" from the Menu Bar. Note that this is not available for charts that use the new "depth" feature of charts that appears in Crystal Reports, but only for true 3D chart types, as selected in the first step of the Chart Expert.
3. You can easily change the 3D view of your chart by clicking on the picture that represents the type of 3D view you wish to use for the 3D chart's display in the list of views shown in the dialog box.
4. If you want to make your own custom 3D view, click the "Advanced Options >>" button in the upper right corner of the dialog box to expand the dialog box to the right. You will see four tabs which can be used to make your own custom 3D adjustments: "Rotate," "Pan," "Walls," and "Move."
5. On the "Rotate" tab, you can click the arrow buttons in the image or to the right of the "X," "Y," and "Z" letters to change the rotation of the currently selected view.
6. You can click the "Pan" tab and then click the arrows displayed in the image or to the right of the "X," "Y," and "Zoom" labels to change the perspective on the 3D view.
7. On the "Walls" tab you can click the arrow buttons in the image or to the right of the "X," "Y," and "Z" labels to increase or decrease the thickness or length of the walls in the chart. If you click the "Link" checkbox, you will only need to click the "X" coordinate to also increase the "Y" and "Z" coordinates at the same time.
8. You can click the "Move" tab to change the position of the 3D chart in the chart area by clicking on the arrows in the diagram to move the selected chart view or by clicking the arrows to the right of the "X," "Y," and "Z" labels.
9. You can then click one of the buttons at the right side of this dialog box to determine what you would like to do after making your custom 3D view. You can click the "Save" button to save your changes over the currently selected preset view.
10. You can click the "Save As…" button to launch the "Enter 3D Viewing Angle Preset Name," where you can type a new name for your new custom 3D view. Click "OK" to save the new view as a custom preset view.
11. You can also click the "Rename" button to launch the "Enter 3D Viewing Angle Preset Name," where you can type a new name for the currently selected 3D view. Click "OK" to save the view with a new name.
12. You can click the "Delete" button at the right side of the dialog box to delete the currently selected view from the dialog box.
13. You can click the "Duplicate" button to create a duplicate of the currently selected view in the dialog box.
14. When you have made whatever changes you want, click "OK" to apply the selected 3D view.

Sample- for evaluation purposes only!

ACTIONS- CHARTING

SAVING A CHART TEMPLATE:

1. Select the chart which you wish to save as a chart template.
2. Choose “Chart| Save as Template…” from the Menu Bar or right-click on the chart and select “Save as Template…” from the pop-up menu.
3. In the “Save As” dialog box, type a name for the template into the “File name:” text box.
4. Click the “Save” button to save the template into the pre-designated folder. Do not change the folder into which it wants to save the template, as it will need to look into this folder in order to access the template in the future.

APPLYING A CHART TEMPLATE:

1. Select the chart to which you would like to apply a template.
2. Select “Chart| Load Template…” from the Menu Bar.
3. To apply a custom chart type which you have saved as a template, click the “User Defined” choice at the bottom of the “Categories:” list.
4. Then select the saved template which you wish to apply to the selected chart from the list at the right side of the tab. Note that there are also several sets of “preset” custom chart types from which you can choose on the “Custom” tab within the “Categories” list.
5. Once you have made your desired template choice, just click “OK” to apply the selected chart type.

AUTO-ARRANGING CHART CONTENTS:

1. Select the chart and then choose “Chart| Auto-Arrange Chart” from the Menu Bar.

Sample- for evaluation purposes only!

EXERCISES- CHARTING

Purpose:

1. To be able to create a summary report and chart in Crystal Reports 2013.

Exercises:

1. Open Crystal Reports 2013.
2. Select the "Blank Report" hyperlink in the "Start Page."
3. In the "Database Expert" dialog box, expand the "Favorites" data source connection to reveal the sample database connection, which was created in the "Chapter 3- Exercise" from the "Introductory Crystal Reports" manual.
4. Expand the sample database, and then expand the "Tables" within the database.
5. Double-click the "Product_Type" table to move it into the "Selected Tables:" list.
6. Double-click the "Product" table to move it into the "Selected Tables:" list.
7. Double-click the "Orders_Detail" table to move it into the "Selected Tables:" list.
8. Click "OK" in the "Database Expert" window.
9. Click "OK" after viewing the "Links" tab in the "Database Expert" window.
10. Select "Insert| Text Object" from the Menu Bar.
11. Click into the upper left corner of the report in the "Report Header" to place the text object.
12. Type the report title of "Product Sales Graph By Product Type" into the text object.
13. Click outside of the text object to stop editing the text.
14. Ensure that the text object is selected, and then select "Format| Format Text…" from the Menu Bar.
15. On the "Common" tab, type "ReportTitle" into the "Object Name:" text box.
16. On the "Font" tab, select "Bold" from the "Style:" drop-down.
17. On the "Font" tab, select "16" from the "Size:" drop-down.
18. Click "OK" in the "Format Editor" dialog box.
19. Resize the text object to fully display the text enclosed within the object.
20. In the "Field Explorer" pane, select the "Formula Fields" list and then click the "New" button in the toolbar at the top of the "Field Explorer" pane.
21. In the "Formula Name" dialog box, type "Sale Amount" into the "Name:" text box.
22. Click "OK" button in the "Formula Name" dialog box.
23. In the "Formula Editor" window, ensure that the "Syntax:" drop-down is set to "Crystal Syntax."
24. Enter the following formula into the formula text window: ***{Orders_Detail.Unit Price}*{Orders_Detail.Quantity}***.
25. Click "Save and Close" to return to the report's Design view.
26. Click and drag the "Sale Amount" field from the "Field Explorer" and drop it at 3" on the horizontal ruler in the "Details" section of the report.
27. Select "Report| Group Expert…" from the Menu Bar.
28. In the "Group Expert" dialog box, click the plus sign (+) next to the "Product_Type" table and then select "Product Type Name" from the "Available Fields:" list and click the ">" arrow to move it to the "Group By:" list at the right side of the dialog box.
29. Click the "Options…" button to launch the "Change Group Options" dialog box.
30. Click the "Options" tab, and click the "Customize Group Name Field" checkbox.
31. Select the "Choose From Existing Field" option button.
32. Select "Product Type Name" from the drop-down menu.

(cont'd.)

Sample- for evaluation purposes only!

Exercises- (cont'd.):

33. Click “OK” in the “Change Group Options” dialog box.
34. Click “OK” in the “Group Expert” dialog box.
35. Choose “Insert| Summary…” from the Menu Bar.
36. In the “Insert Summary” dialog box, select “Sale Amount” from the “Choose the field to summarize:” drop-down.
37. Choose “Sum” from the “Calculate this summary:” drop-down.
38. Select “Group #1: Product_Type.Product Type Name – A” from the “Summary location” drop-down.
39. Click “OK” to insert the summary field.
40. Select “Report| Section Expert…” from the Menu Bar.
41. In the “Section Expert” dialog box, select the “Details” section from the “Sections:” listed at the left.
42. Check the “Hide (Drill-Down OK)” checkbox on the “Common” tab.
43. Click “OK.”
44. Select “Insert| Chart…” from the Menu Bar.
45. Click into the “Report Footer” section to place the chart.
46. Right-click on the default chart you inserted, and choose “Chart Expert” from the pop-up menu.
47. On the “Type” tab, select “Pie” from the “Choose your chart type:” list.
48. On the “Text” tab, uncheck the “Auto-Text” checkbox for the “Title:” box, and then type “Sales by Product Type” into the title text box.
49. Click “OK.”
50. Select “File| Save As…” from the Menu Bar.
51. In the “Save As” dialog box, save the reports to your “My Documents” folder and type the name of “Product Sales Graph By Type” into the “File name:” text box.
52. Click “Save” to save the report to the selected directory with the given name.
53. Select “View| Print Preview” from the Menu Bar to view the report on the “Preview” tab.
54. Click the small “X” on the “Preview” tab to delete the preview tab you have created.
55. Select “File| Save” from the Menu Bar to save the changes to the report that were made.
56. Select “File| Close” from the Menu Bar to close the report.

Sample- for evaluation purposes only!

CHAPTER 13-
Advanced Reporting Tools

13.1- Using Running Totals

13.2- Creating Parameter Fields

13.3- Parameterized Record Selection

13.4- Creating Subreports

13.5- Report Alerts

13.6- Report Alert Functions

Sample- for evaluation purposes only!

13.1- Using Running Totals:

You can make formula fields which display the results of a running total, versus simply showing the results tabulated at the end of a record grouping. You create these fields in the "Field Explorer" pane, just as you would any other type of formula field. These fields function in much the same way as a summary field functions, however, you have a greater amount of control over how the calculation is performed and when the calculated value is reset.

To create a running total field, click on the "Running Total Fields" entry in the "Field Explorer" pane. Then click the "New" button in the toolbar at the top of the "Field Explorer" pane to launch the "Create Running Total Field" dialog box. You use this dialog box to name the field and set its calculation properties.

In the "Running Total Name:" text box you can type a name for the running total field. In the "Summary" section, you select which field's values to calculate. Click on the field to summarize within the "Available Tables and Fields:" list at the left side of the dialog box, and then click the ">" arrow button to move the selected field into the "Field to summarize" text box at the right. Then use the "Type of summary" drop-down to select what type of summary calculation to perform over the chosen field.

In the "Evaluate" section you can set the parameters under which the calculation will be performed for the selected field's values. You can select the "For each record" option to calculate the chosen function for every record in the report. You can also choose the "On change of field" option to calculate a value based on the change to the value shown in another field. If you do choose that option, then click on the field to use for the changing values in the "Available Tables and Fields" list at the left of the dialog box and click the ">" arrow button to move it into the "On change of field" text box at the right side.

You could also choose the "On change of group" option button in the "Evaluate" section to evaluate the selected field on the change of a grouped value. If you choose this option, then select which group's values you want to use from the drop-down to the right of the "On change of group" label.

You can also select the "Use a formula" option button and then click the "X+2" button to invoke the "Formula Editor." In the Formula Editor, you can create a formula that, when evaluated and found to be true, will then perform the selected calculation of the chosen field. This is very handy for creating conditional running sum fields. For example, if you want to sum the "Amount Sold" field where the "Order Country" field was "USA," you could set that up as the condition under which the field would be added. The result would be the sum of all sales from the USA.

In the "Reset" section, you can choose under which conditions the running total will be reset back to zero. If you select "Never," the field's values will never be set back to zero in the report. You can also select the "On change of field" option button in the "Reset" section to have the running total field get reset back to zero on the change of value to a specified field. If you select this option, then select by which field you want to reset the value from the list displayed in the "Available Tables and Fields:" list at the left side of the dialog box, and click the ">" arrow button to move the selected field into the text box displayed. You can also select the "On change of group" option, and then select by which group's changing values you wish to reset the running total back to zero from the drop-down which appears. You can also click the "Use a formula" option button, and then click the "X+2" button to invoke the "Formula Editor." In the "Formula Editor," you can create a condition that, when met, will reset the value of the running total field back to zero.

Once you have set the desired attributes of the running total field, just click "OK" in the "Create Running Total Field" dialog box. The field that you created will then be displayed in the "Field Explorer" pane. You can then insert it into your report just as you would any other type of field.

Sample for evaluation purposes only!

13.2- Creating Parameter Fields:

A parameter field allows you to specify a value that will be used by the report when the report data is refreshed. Parameters can serve multiple purposes in reports and are one of the most powerful tools that you have. You can use parameters to filter report data at run-time, selecting which records to display and calculate "on-the-fly." You could also have a parameter prompt you to enter a value which can then be used by a formula in the report, for example.

You create the parameter fields in the "Field Explorer" pane, just as you create many other types of fields. You do have a few considerations to bear in mind as you create the parameter fields for use in your reports. First off, parameter fields that will be used by report group or record selection formulas do not need to have the parameter field placed into the actual report. Simply create the parameter field and then reference it as needed within the selection formula. Also, you can create parameters that will accept "string," "number," "currency," "boolean," "date," "time," or "date/time" values for use in the report.

To create a parameter field, select the "Parameter Fields" option in the "Field Explorer" pane and then click the "New" button in the toolbar at the top of the pane. This will launch the "Create New Parameter" dialog box where you can specify the settings for the parameter field. The "Name:" and "Type:" are the only two required arguments in this dialog box. You can specify the other values, as needed.

In the "Create New Parameter" dialog box, enter the name of the parameter field that you want to create into the "Name:" text box. It can be up to 255 characters in length, but should be short, descriptive, and easy to reference. You can then use the "Type:" drop-down to select the data type of the parameter.

In the "List of Values:" area, you can create a list of preset values from which the user can select the desired value to use for the parameter when refreshing the report data. You can either select the "Static" option or the "Dynamic" option. Note that your choice changes what fields are available in the dialog box.

If you select "Static," then you are presenting the user with choices that always contain the same values. This is used for possible parameter choices that do not change very frequently. If you choose "Dynamic," then you create a list of possible parameter choices that can be updated, as needed. In addition, you can create cascading choices in the dynamic parameter prompts. This allows you to make the user select from multiple fields to specify an exact value. For example, you could use both the "City" and "State" fields in a dynamic prompt to prevent confusion about which city is being referred to when one is selected. For example, using a cascading prompt you could make the user choose "Grand Rapids, MI" versus "Grand Rapids, MN." In a static prompt you would simply see the city of "Grand Rapids" shown twice in the list, without any idea which value was associated with which state.

If you select the "Static" option, then you can provide a list of values from a database field from which the user can choose by selecting the name of the desired database field from the "Value Field" drop-down. You can use the "Description Field:" drop-down to choose a database field which describes the contents of the "Value Field" choice, if needed. For example, if you selected the "Employee ID" field as the "Value Field," then you could select the "Employee Name" field as the "Description Field" so the user could see a name versus a number when selecting a parameter value.

If you wish to manually type a list of values and, optionally, descriptions; then you can either click into the first row of the "Value" column to begin entering the parameter values, or you can click the "Insert" button to append a new entry to the list of values. In the value list, you can click into any entry made, and then click the "Delete" button, which looks like a black 'x,' to delete the selected entry.

You may also click the "Move Up" and "Move Down" arrow button to move the selected choice up or down through the list of values.

You can use the "Actions" drop-down button to perform various commands on the value list shown. If you selected to use a database field value, then you must select the "Append all database values" command to load the values from the selected field(s) into the value list. You can select the "Clear"

Sample- for evaluation Purposes only!

13.2- Creating Parameter Fields- (cont'd.):

command to remove all list values shown. You can import a delimited list of values from a text file by clicking the "Import…" command choice. This launches a separate dialog box, which you can use to browse for and open the desired delimited text file. Also, you can select the "Export…" command to export a manual list to a delimited text file using the "Save As" dialog box.

If you choose "Dynamic" in the "List of Values:" section, then you have different choices to make in this section. If you have a cascading parameter choice, meaning it uses multiple fields, then type whatever you would like to have displayed as the prompting text for the cascading parameter into the "Prompt Group Text:" text box. You can use this with single-field prompts, as well, but the title shows up at the top of the parameter dialog box prompt and not over the individual fields.

To create a new list of field values from which the user can select, ensure that the "New" choice is selected in the "Choose a Data Source:" section. You can then select from the list of fields in the current data source by using the "Insert" button or by clicking into the first empty row of the "Value" column. You can select any field entered into the list and click the "Delete" button to delete the field. You can also reorganize a selected value by clicking the "Move Up" and "Move Down" arrow buttons. If you would like to use a secondary field for the description of the field selected in the "Value" column, then you can choose a field for that purpose to the right in the "Description" column. In the "Parameter" column, you can click on a value to unbind it from the parameter. You can also click it to bind an unbound parameter value.

Once you have set your value list, then you can set the desired options for each value in the "Options" area. The choices from which you can select change depending on whether or not you selected "Static" or "Dynamic" value fields. For all "Static" values that are not "Boolean" (logical) values, you can set the following parameter options by clicking into the "Setting" column and entering or changing the value. In the "Prompt Text:" option, you can enter the text that you want to appear as the parameter prompt. You can choose "True" or "False" for the "Prompt With Description Only" to only allow the description field choices to be viewed in the parameter prompt (True), or to show both the value and description fields (False). You can enter a default parameter value to use in the "Default Value" option. If you select "True" in the "Allow custom values" option, then the users can type in their own values in addition to selecting from the value list. If set to "False," then they must only choose from the values shown in the list. If the "Allow multiple values" option is set to "True," then the parameter prompt will allow multiple values to be selected. This also enables you to set both the "Allow discrete values" and "Allow range values" options to "True," as well. Normally, you can only select one of the two options.

You can set the "Allow discrete values" option to "True" to allow for only singular parameter values to be selected. Although there can be multiple, singular values- this means that there are no ranged parameter values, such as all values from $100 to $1,000.

You can set the "Allow range values" option to "True" to allow ranged parameter value choices. You can use the "Min length" option to enter the minimum number of characters that can appear as a value entry. You can also use the "Max length" to enter the maximum number of characters that could appear as a value entry. You can use the "Edit Mask" option to enter a field mask that restricts the possible range of characters that your users could input, if desired.

When setting static, boolean parameter options, you can set the "Prompt Text," "Prompt With Description Only," and "Default Value" options, as normal. You can also enter the "Boolean group #" option to set the number of the group to which you wish to add the selected boolean value. Boolean groups are created when Crystal Reports requires users to enter a prompt value. Boolean groups can contain many Boolean parameter fields. When a user select a group of boolean values, they can set the same values or different values to each parameter in the group. You use the "Exclusive Group" option to set this behavior. If this option is set to "True," users can only select a single "True" boolean value from the boolean options

Sample for evaluation purposes only!

13.2- Creating Parameter Fields- (cont'd.):

presented in the group. If set to "False," then the users can set multiple options in the group to "True."

If you selected a "Dynamic" set of values, then you can set the "Prompt Text," "Prompt With Description Only," "Allow multiple values," "Allow discrete values," and "Allow range values" options, as normal. In addition, you can use the "Sort Order" option to select how to sort the field's data values in the parameter prompt. The values can be sorted in either ascending (A-Z, 1-9) order or descending (Z-A, 9-1) order by either the value field or the description field.

Once you have set the desired parameter options, click "OK" in the "Create New Parameter" dialog box to create the new parameter field.

13.3- Parameterized Record Selection:

One of the primary reasons to create and use parameters within Crystal Reports is for record selection. Imagine if you had a report which showed sales by region of your company. If you had a parameter which you could use for the "region" variable, you could use the same report and change the parameter (in this example, the region) each time to show different regional sales.

To use a parameter for record selection after creating the necessary parameter field, click the "Select Expert" button in the Experts toolbar. In the "Choose Field" dialog box you select the field against which to compare the parameter value. Then click the "OK" button to continue. Then in the "Select Expert" dialog box that appears, you select the desired comparison operator, as usual. This time, notice that when you choose the value against which to compare the field from the drop-down available, that there is a parameter prompt at the top of the drop-down of choices in the following format: ***{?ParameterName}***. If you have multiple parameters from which you could choose, then select the name of the parameter whose value you want to use for the record selection. After you have made the selection criteria, click "OK."

It is important to note that the parameter value and the field against which you are comparing the parameter value must share that same data type. For example, if you had a "Number" parameter field, you could not compare it to a "String" field's value.

After you have entered a parameter field into your report, you can preview the report to force the report to refresh its data and enter a parameter value for use. However, once you have created the preview and set the parameter value, simply switching between the "Design" and "Preview" tabs will not necessarily prompt you to re-enter a new parameter value. You can always force a "refresh" of the data by selecting "Report| Refresh Report Data" from the Menu Bar.

When you do this in a report that already contains parameterized values used for the "Preview," Crystal Reports invokes a dialog box asking if you wish to "Use current parameter values" or "Prompt for new parameter values." Select the desired option and then click "OK" to continue.

When you are initially entering a parameter value, or if you select to re-enter a parameter value when refreshing report data, you will do so through the "Enter Values" dialog box. In this dialog box, you will see the names of the report parameters, and you can select or enter the desired values to use for the report for each one shown. After initially selecting parameter values, all parameters will retain their last setting, and you only need to select and change the value of the parameters that you need to, in order to display the data you want to see in the "Preview."

The value or values which you then specify are used to by the parameter to select records, display the chosen value, format fields, or whatever else you may use parameter values for in a report. Once you have entered the values for use, click "OK" to apply the new parameters.

Sample- for evaluation purposes only!

13.4- Creating Subreports:

Another sophisticated report tool which you can use is the subreport. A subreport is created in the same manner as a normal report, but it is then embedded within a main report as a report object and it cannot contain another subreport within it. This allows you to access and display information from two unrelated reports in a single report, or to display multiple views of report data in a single report.

You can create either linked or unlinked subreports. Unlinked subreports simply have no relationship between the records displayed in the subreport and the records displayed in the main report. The data is unrelated to each other in much the same way "unlinked" data in tables is unrelated. In linked subreports the data in the subreport is matched up to data in the primary report. For example, If you create an "Orders" report, you can create a linked subreport that displays the "Order Details" for each record in the "Orders" table. This could be used as another way of displaying the "one-to-many" type join between data in related tables.

To create a subreport, you can select "Insert| Subreport…" from the Menu Bar or click the "Insert Subreport" button in the Insert toolbar. This will invoke the "Insert Subreport" dialog box. In this dialog box you can select how you want to create the subreport using the two options displayed: "Choose an existing report" or "Create a subreport with the Report Wizard." If you select the first option, then click the "Browse…" button to invoke the "Open" dialog box where you can choose which report you want to embed as a subreport within the main report. If you wanted to create the subreport "on-the-fly" within the primary report, you can instead choose the latter option button and then click the "Report Wizard…" button to launch the Report Wizard dialog box which steps you through the creation of a standard report.

You can also check the "On-demand subreport (similar to a hyperlink)" checkbox to create a subreport which doesn't display its data until the user double-clicks on the subreport link to drill-down and display the subreport data on another "Preview" tab. They are displayed within their own object frame in the main report, which reduces the amount of display space required within the main report. In addition, data from an "On-demand subreport" isn't accessed from the database until the user double-clicks on the subreport to display the detail data. You can later access the subreport object and change its caption using the "Format Editor."

Assuming you wanted to create an unlinked subreport, you could just click the "OK" button at this point and then click into the report at the place where you wanted to display the subreport data. However, if you wanted to create a linked subreport, you must then click the "Link" tab in the "Insert Subreport" dialog box. When you create a link between the primary report and the subreport, they are linked by a parameter field created by the linking process. The parameter field is then used as a reference for the subreport's record selection formula, which filters the records displayed.

On the "Link" tab, you use the "For subreport:" drop-down to choose which subreport to link to from the drop-down displayed. Then in the "Container Report field(s) to link to" list, select the report field or underlying database field which will serve as the basis for the link between the data in the two reports. Then click the ">" arrow button to move the selected field(s) into the "Field(s) to link to:" list at the right side of the dialog box. At the bottom of the dialog box, use the drop-down at the left side of the dialog box to select the parameter field to use from the primary report, and the associated field from the subreport to use for the link from the drop-down at the right side of the dialog box. Once the association between the fields has been created, just click "OK" at the bottom of the dialog box. Then you can click into the position within the report at which you want to place the linked subreport.

Sample for evaluation purposes only!

13.5- Report Alerts:

You can set report alerts to notify the user of conditions or information in a report that are outside of the defined "norm." Many times in business you will want to see these types of reports, which are often called "exception reports," because they can alert you to potential problems. Crystal Reports uses report alerts to identify and notify the user when certain specified criteria are met. For example, you could create a report alert which informs the management staff with a custom message when sales for a specified period are under a certain specified value.

To create a report alert, choose "Report| Alerts| Create or Modify Alerts…" from the Menu Bar. This will launch the "Create Alerts" dialog box. You can click the "New" button in the dialog box to launch the "Create Alert" dialog box. Here you must type a name for the alert into the "Name" text box. You can then type the message that you want to display when the condition which you will set is met into the "Message" text box. If you wish to create a formula that displays a text value or makes reference to other report fields, you can instead click the "X+2" button to the right of the "Message" text box and then create the formula in the "Formula Editor" which you will display when the criteria is met.

Click the "Condition…" button to invoke the Formula Editor where you can create the formula, that when met, will trigger the display of the message which you created. Then click "Save and Close" in the Formula Editor window to return to the "Create Alert" dialog box. Note the "Enabled" checkbox is checked, which indicates that the alert is "on." You can always return to an alert that you wish to temporarily deactivate and uncheck this checkbox to turn an alert "off" without having to delete the alert. You can then click "OK" in this dialog box to return to the "Create Alerts" dialog box.

If you wish to delete an alert which you created but no longer need, you can select the name of the alert from the "Create Alerts" dialog box and then click the "Delete" button to delete the selected alert. You can also click on the name of an alert in this dialog box and then click "Edit…" to edit the selected alert's condition or message if needed. You can also click the "New…" button to create as many additional alerts as you feel you need for the report. When you are finished, you can click the "Close" button to return to the report. When you preview the data or refresh the report data, any alerts will be triggered if they meet the criteria which you specified. They will appear in their own "Report Alerts" dialog box, where you can see the name of the alert and the message which was entered. In this dialog box, you can select the name of the alert which was triggered and then click the "View Records" button to view the data records which triggered the report alert. When you are finished reviewing the data, you can click the "Close" button in the "report Alerts" dialog box.

13.6- Report Alert Functions:

Crystal Reports contains three functions which evaluate the status of the alerts within a report. These functions all return a "True" value or "False" value (boolean) used for evaluating the status of alerts. You can use these functions to determine whether or not an alert has been activated. You can use the "***IsAlertEnabled***" function to determine if the "enabled" checkbox is checked for an alert. You can use the "***IsAlertTriggered***" function to determine if an alert has been triggered. You can use the "***AlertMessage***" function to return the message (or the formula) that was typed into the "Message" text box in the "Create Alert" dialog box for an alert.

Sample - for evaluation purposes only!

CREATING A RUNNING TOTAL FIELD:

1. Click on the “Running Total Fields” entry in the “Field Explorer” pane.
2. Click the “New” button in the toolbar at the top of the “Field Explorer” pane to launch the “Create Running Total Field” dialog box.
3. In the “Running Total Name:” text box you can type a name for the running total field.
4. In the “Summary” section, you select which field’s values to calculate. Click on the field to summarize within the “Available Tables and Fields:” list at the left side of the dialog box, and then click the “>” arrow button to move the selected field into the “Field to summarize” text box at the right.
5. Use the “Type of summary” drop-down to select what type of summary calculation to perform over the chosen field.
6. In the “Evaluate” section you can set the parameters under which the calculation will be performed for the selected field’s values. You can select the “For each record” option to calculate the chosen function for every record in the report. You can also choose the “On change of field” option to calculate a value based on the change to the value shown in another field. If you do choose that option, then click on the field to use for the changing values in the “Available Tables and Fields” list at the left of the dialog box and click the “>” arrow button to move it into the “On change of field” text box at the right side.
7. You could also choose the “On change of group” option button in the “Evaluate” section to evaluate the selected field on the change of a grouped value. If you choose this option, then select which group’s values you want to use from the drop-down to the right of the “On change of group” label.
8. You can also select the “Use a formula” option button and then click the “X+2” button to invoke the “Formula Editor.” In the Formula Editor, you can create a formula that, when evaluated and found to be true, will then perform the selected calculation of the chosen field.
9. In the “Reset” section, you can choose under which conditions the running total will be reset back to zero. If you select “Never,” the field’s values will never be set back to zero in the report.
10. If you select the “On change of field” option button in the “Reset” section to have the running total field get reset back to zero on the change of value to a specified field. If you select this option, then select by which field you want to reset the value from the list displayed in the “Available Tables and Fields:” list at the left side of the dialog box, and click the “>” arrow button to move the selected field into the text box displayed.
11. If you select the “On change of group” option, and then select by which group’s changing values you wish to reset the running total back to zero from the drop-down which appears. You can also click the “Use a formula” option button, and then click the “X+2” button to invoke the “Formula Editor.” In the “Formula Editor,” you can create a condition that, when met, will reset the value of the running total field back to zero.
12. Once you have set the desired attributes of the running total field, just click “OK” in the “Create Running Total Field” dialog box.
13. The field that you created will then be displayed in the “Field Explorer” pane. You can then insert it into your report just as you would any other type of field.

Sample- for evaluation purposes only!

CREATING A PARAMETER FIELD:

1. Select the "Parameter Fields" option in the "Field Explorer" pane, and then click the "New" button in the toolbar at the top of the pane.
2. In the "Create New Parameter" dialog box, type the name of the parameter field that you want to create into the "Name:" text box.
3. You can then use the "Type:" drop-down to select the data type of the parameter.
4. In the "List of Values:" area, you can either select the "Static" option or the "Dynamic" option. Note that your choice changes what fields are available in the dialog box.
5. If you select the "Static" option, then you can provide a list of values from a database field from which the user can choose by selecting the name of the desired database field from the "Value Field" drop-down.
6. You can use the "Description Field:" drop-down to choose a database field which describes the contents of the "Value Field" choice, if needed.
7. If you wish to manually type a list of values and, optionally, descriptions; then you can either click into the first row of the "Value" column to begin entering the parameter values, or you can click the "Insert" button to append a new entry to the list of values.
8. In the value list, you can click into any entry made, and then click the "Delete" button, which looks like a black 'x,' to delete the selected entry.
9. You may also click the "Move Up" and "Move Down" arrow button to move the selected choice up or down through the list of values.
10. You can use the "Actions" drop-down button to perform various commands on the value list shown. If you selected to use a database field value, then you must select the "Append all database values" command to load the values from the selected field(s) into the value list.
11. You can select the "Clear" command to remove all list values shown.
12. You can import a delimited list of values from a text file by clicking the "Import…" command choice to launch a separate dialog box, which you can use to browse for and open the desired delimited text file.
13. You can select the "Export…" command to export a manual list to a delimited text file using the "Save As" dialog box.
14. If you choose "Dynamic" in the "List of Values:" section, then you have different choices to make in this section.
15. If you have a cascading parameter choice, meaning it uses multiple fields, then type whatever you would like to have displayed as the prompting text for the cascading parameter into the "Prompt Group Text:" text box. You can use this with single-field prompts, as well, but the title shows up at the top of the parameter dialog box prompt and not over the individual fields.
16. To create a new list of field values from which the user can select, ensure that the "New" choice is selected in the "Choose a Data Source:" section. You can then select from the list of fields in the current data source by using the "Insert" button or by clicking into the first empty row of the "Value" column.
17. You can select any field entered into the list and click the "Delete" button to delete the field.
18. You can also reorganize a selected value by clicking the "Move Up" and "Move Down" arrow buttons.
19. If you would like to use a secondary field for the description of the field selected in the "Value" column, then you can choose a field for that purpose to the right in the "Description" column.
20. In the "Parameter" column, you can click on a value to unbind it from the parameter. You can also click it to bind an unbound parameter value.
21. You can set the desired options for each value in the "Options" area. The choices from which you can select change depending on whether or not you selected "Static" or "Dynamic" value fields.

(cont'd.)

Sample for evaluation purposes only!

CREATING A PARAMETER FIELD- (CONT'D.):

22. For all "Static" values that are not "Boolean" (logical) values, you can set the following parameter options by clicking into the "Setting" column and entering or changing the value.
23. In the "Prompt Text:" option, you can enter the text that you want to appear as the parameter prompt.
24. You can choose "True" or "False" for the "Prompt With Description Only" to only allow the description field choices to be viewed in the parameter prompt (True), or to show both the value and description fields (False).
25. You can enter a default parameter value to use in the "Default Value" option.
26. If you select "True" in the "Allow custom values" option, then the users can type in their own values in addition to selecting from the value list. If set to "False," then they must only choose from the values shown in the list.
27. If the "Allow multiple values" option is set to "True," then the parameter prompt will allow multiple values to be selected. This also enables you to set both the "Allow discrete values" and "Allow range values" options to "True," as well. Normally, you can only select one of the two options.
28. You can set the "Allow discrete values" option to "True" to allow for only singular parameter values to be selected. Although there can be multiple, singular values- this means that there are no ranged parameter values, such as all values from $100 to $1,000.
29. You can set the "Allow range values" option to "True" to allow ranged parameter value choices.
30. You can use the "Min length" option to enter the minimum number of characters that can appear as a value entry.
31. You can also use the "Max length" to enter the maximum number of characters that could appear as a value entry.
32. You can use the "Edit Mask" option to enter a field mask that restricts the possible range of characters that your users could input, if desired.
33. When setting static, boolean parameter options, you can set the "Prompt Text," "Prompt With Description Only," and "Default Value" options, as normal.
34. You can also enter the "Boolean group #" option to set the number of the group to which you wish to add the selected boolean value. When a user select a group of boolean values, they can set the same values or different values to each parameter in the group.
35. If the "Exclusive Group" option is set to "True," users can only select a single "True" boolean value from the boolean options presented in the group. If set to "False," then the users can set multiple options in the group to "True."
36. If you selected a "Dynamic" set of values, then you can set the "Prompt Text," "Prompt With Description Only," "Allow multiple values," "Allow discrete values," and "Allow range values" options, as normal.
37. In addition, you can use the "Sort Order" option to select how to sort the field's data values in the parameter prompt. The values can be sorted in either ascending (A-Z, 1-9) order or descending (Z-A, 9-1) order by either the value field or the description field.
38. Once you have set the desired parameter options, click "OK" in the "Create New Parameter" dialog box to create the new parameter field.

Sample- for evaluation purposes only!

PARAMETERIZED RECORD SELECTION:

1. To use a parameter for record selection, click the “Select Expert” button in the Experts toolbar.
2. In the “Choose Field” dialog box, select the field against which to compare the parameter value.
3. Click the “OK” button to continue.
4. In the “Select Expert” dialog box that appears, select the desired comparison operator.
5. In the values drop-down to the right of the comparison operator, choose the parameter prompt at the top of the drop-down of choices that appears in the following format: **{?ParameterName}**. If you have multiple parameters from which you could choose, select the name of the parameter whose value you want to use for record selection.
6. After you have made the selection criteria, click the “OK” button.
7. If you force a “refresh” of the data by selecting “Report| Refresh Report Data” from the Menu Bar within a report that already contains parameterized values used for a “Preview,” Crystal Reports invokes a dialog box asking if you wish to “Use current parameter values” or “Prompt for new parameter values.” Select the desired option and then click “OK” to continue.
8. In the “Enter Values” dialog box, you will see the names of the report parameters and you can select or enter the desired values to use for the report for each one shown. After initially selecting parameter values, all parameters will retain their last settings. you only need to select and change the value of parameters to display the data you want to see in the “Preview.”
9. Once you have entered the values to use, click “OK” to apply the new parameters.

CREATING A SUBREPORT:

1. Select “Insert| Subreport…” from the Menu Bar or click the “Insert Subreport” button in the Insert toolbar.
2. In the “Insert Subreport” dialog box, select how to create the subreport using the two options displayed: “Choose an existing report” or “Create a subreport with the Report Wizard.” If you select the first option, click the “Browse…” button to invoke the “Open” dialog box and choose the report to embed as a subreport within the main report. To create the subreport “on-the-fly” within the primary report, choose the latter option button and then click the “Report Wizard…” button to launch the Report Wizard dialog box which steps you through the creation of a standard report.
3. You can check the “On-demand subreport (similar to a hyperlink)” checkbox to create a subreport which doesn’t display its data until the user double-clicks on the subreport link to drill-down and display the subreport data on another “Preview” tab.
4. To create an unlinked subreport, click the “OK” button and then click into the report at the place where you want to display the subreport data. To create a linked subreport instead, click the “Link” tab in the “Insert Subreport” dialog box.
5. On the “Link” tab, use the “For subreport:” drop-down to choose the subreport to link.
6. Then in the “Container Report field(s) to link to” list, select the report field or underlying database field which will serve as the basis for the link between the data in the two reports.
7. Click the “>” arrow button to move the selected field(s) into the “Field(s) to link to:” list at the right side of the dialog box.
8. At the bottom of the dialog box, use the drop-down at the left side of the dialog box to select the parameter field to use from the primary report, and the associated filed from the subreport to use for the link from the drop-down at the right side of the dialog box.
9. Once the association between the fields has been created, click “OK” at the bottom of the dialog box.
10. Then click into the position within the report at which you want to place the linked subreport.

Sample for evaluation purposes only!

ACTIONS-
ADVANCED REPORTING TOOLS

CREATING REPORT ALERTS:

1. Choose “Report| Alerts| Create or Modify Alerts…” from the Menu Bar to launch the “Create Alerts” dialog box.
2. Click the “New” button in the dialog box to launch the “Create Alert” dialog box.
3. Type a name for the alert into the “Name” text box.
4. Type the message that you want to display when the condition which you will set is met into the “Message” text box. If you wish to create a formula that displays a text value or makes reference to other report fields, you can instead click the “X+2” button to the right of the “Message” text box and then create the formula in the “Formula Editor” which you will display when the criteria is met.
5. Click the “Condition…” button to invoke the Formula Editor where you can create the formula, that when met, will trigger the display of the message which you created. Then click “Save and Close” in the Formula Editor window to return to the “Create Alert” dialog box.
6. You can then click “OK” in this dialog box to return to the “Create Alerts” dialog box.

ENABLING AND DISABLING REPORT ALERTS:

1. Choose “Report| Alerts| Create or Modify Alerts…” from the Menu Bar to launch the “Create Alerts” dialog box.
2. Select the name of the alert to turn on or off from the list shown, and then click the “Edit…” button.
3. If the “Enabled” checkbox is checked, the alert is “on.” You can always uncheck this checkbox to turn an alert “off” without having to delete the alert.
4. Click “OK” when you are finished to return to the “Create Alerts” dialog box.

DELETING REPORT ALERTS:

1. Choose “Report| Alerts| Create or Modify Alerts…” from the Menu Bar to launch the “Create Alerts” dialog box.
2. Select the name of the alert to delete from the list shown, and then click the “Delete” button to delete the selected alert.

EDITING REPORT ALERTS:

1. Choose “Report| Alerts| Create or Modify Alerts…” from the Menu Bar to launch the “Create Alerts” dialog box.
2. Select the name of the alert to edit from the list shown, and then click the “Edit…” button to edit the selected alert in the “Edit Alert” dialog box.
3. Click “OK” when you are finished making your changes to the report alert.

Sample- for evaluation purposes only!

EXERCISES-
ADVANCED REPORTING TOOLS

Purpose:

1. To be able to apply advanced reporting tools to enhance reports in Crystal Reports 2013

Exercises:

1. Open Crystal Reports 2013.
2. Select "File| Open…" from the Menu Bar to launch the "Open" dialog box.
3. Navigate to the "My Documents" folder where you stored the "Customer Order Report" which was created in the "Chapter 11- Exercise."
4. Click on the "Customer Order Report" to select it, and then click the "Open" button to open it.
5. Click on the "Parameter Fields" entry to select it, and then click the "New" button in the toolbar at the top of the "Field Explorer" pane.
6. In the "Create New Parameter" dialog box, type "Customer" into the "Name:" text box.
7. Select "String" from the "Type:" drop-down.
8. Select "Static" from the "List of Values:" choices.
9. Select "Customer Name" from the "Value Field" drop-down.
10. Select "Customer Name" from the "Description Field" drop-down.
11. Click the "Actions" button and select "Append all database values."
12. In the "Options:" section, enter the following "Prompt Text:" string: "Select the names of the customers for which you wish to view the sales totals from the drop-down below."
13. Set the "Prompt With Description Only" option to "True."
14. Set the "Allow custom values" option to "False."
15. Set the "Allow multiple values" option to "True."
16. Ensure that the "Allow discrete values" option is set to "True."
17. Click "OK" at the bottom of the "Create New Parameter" dialog box.
18. Click the "Select Expert" button within the Experts toolbar.
19. In the "Choose Field" dialog box which appears, click on "Customer.Customer Name" to select it.
20. Click "OK" to launch the "Select Expert" dialog box.
21. On the "Customer.Customer Name" tab, use the drop-down to select "is equal to" at the left side of the dialog box.
22. Use the drop-down which appears to the right to choose ***{?Customer}*** from the top of the drop-down list.
23. Click "OK" to set the selection criteria.
24. Select "File| Print Preview" from the Menu Bar to view the report on the "Preview" tab. If you already have a "Preview" tab, you can just switch to the "Preview" tab and then choose "Report| Refresh Report Data" from the Menu Bar to invoke the "Enter Values" dialog box, if needed.
25. In the "Enter Values" dialog box, select "Aruba Sport" from the "Available Values:" list.
26. Click the ">" button to add "Aruba Sport" to the "Selected Values:" list.
27. Select "Bikefest" from the "Available Values:" list.
28. Click the ">" button to add "Bikefest" to the "Selected Values:" list.
29. Click "OK" to view the sales totals for the two selected customers.
30. Select "File| Save" from the Menu Bar.
31. Select "File| Close" to close the report.

Sample- for evaluation purposes only!

CHAPTER 14-
ADVANCED FORMULA CREATION

Sample- for evaluation purposes only!

14.1- Evaluation Time Functions:

For some more complex reports that you can create, it can be important to be familiar with the order in which data processing occurs when creating the reports. Crystal Reports employs a two-pass method of data selection and processing which allows you to employ sophisticated formulas and determine when they occur and in what order. A "pass" occurs when Crystal Reports passes over the data- reading and manipulating the data in the report. There are functions that can be specified to "run" during this process. This can impact the result of other formulas in the report.

Before the first "pass" of the data, Crystal will evaluate formulas which make no references to the underlying data fields. These would be fields such as the current print date and time, for example. This is also when text objects are read and parameters are identified. In general, this process is referred to as "Before Reading Records." You can use the "***BeforeReadingRecords***" function to specify that a formula is to be evaluated before the first pass, during this time. If the formula refers to an unevaluated object, however, then it will return an error message.

Next, Crystal Reports begins the first "pass" of the data. During this phase, Crystal Reports begins to read the database records. It then selects the records, evaluates recurring formulas (versus "summary" formulas), applies record selection formulas, performs grouping, sorting, and totaling, generates cross-tabs, and then stores all saved records. This evaluation time is known as "While Reading Records." You can force a formula to be processed while reading database records by using the ***"WhileReadingRecords***" function. Most formulas have been calculated at this point, except for some grouping functions.

After the first pass, the "Group Sort Expert" runs an intermediate process before running the second full pass of the data. Basically, the groups in the report are inspected and sorted as needed, but no actual records are "read" in the tables.

The records are next read during the second pass, which is called the "While Printing Records" process. During this phase the records are saved with their subtotals, group selection occurs, running totals are executed, charts and maps are generated, subreports are run, and "Page on Demand" pages are generated. You can also run formulas using the "***WhilePrintingRecords***" function during this phase after grouping, summarizing, and sorting have been accomplished.

Sample- for evaluation purposes only!

14.2- Declaring Variables:

You can declare and use variables, which are stored values that can be referenced and manipulated, within a report. However, to use a variable you must first create it by "declaring" its existence within a formula. Once you have created the variable, you can then assign or "pass" values to the variable which it can then store. The variable and its stored value (or values) can then be used by the formulas within the report.

The first part of the process is "declaring" the variable. This is the process where you create the variable and set its initial values. The first aspect of declaring the variable is defining the data type that the variable will contain. Most commonly, the variable is defined using one of seven "simple" data types: "***NumberVar***," for number values you wish to calculate; "***CurrencyVar***," for currency variables which you wish to calculate, "***StringVar***," for any text characters; "***BooleanVar***," for logical values; "***DateVar***," for date values; "***TimeVar***," for time values; and "***DateTimeVar***," for both date/time values. In addition to the standard "simple" data types, there are also other ranged and array types available for a total of up 26 different types of variables which you can use for your formulas in your reports.

Next you would need to set the name of the variable. The name can contain up to 254 characters, but should probably be very short, unique, and descriptive. They may contains numbers, but cannot have a number as the first character in the name. Spaces are never allowed in variable names. Also, the name of the variable cannot be identical to any operator or function used in Crystal Reports. Also be aware that when you declare variables with the same name and type in more than one formula, they then share the variable and the value. You can define the "scope" of a variable to determine where it can and cannot be used.

In Crystal Syntax, you declare a variable in the formula text window of the "Formula Editor," by typing the variable type, a literal space character, followed by the variable name.

Once the variable has been declared, it must then have a values assigned to it. If you have no value assigned to the variable, it will have a "blank" or "zero" value, depending on the type of variable which you declared. To assign a value to a variable, you use the "assignment" operator of ":=" to accomplish this. For example, if you wanted to declare a "datetime" type variable named "WeekAfterOrder" to which you wanted to assign the value of the current record's "Order Date" field, plus seven days, it could be assigned as follows in the "Formula Workshop." The value of the "WeekAfterOrder" variable is then set to "Order Date" plus seven, so you can then use the "WeekAfterOrder" variable in other calculations, where it will use the variable.

```
DateTimeVar WeekAfterOrder;

WeekAfterOrder := {Orders.Order Date} + 7
```

Sample- for evaluation purposes only!

14.3- Using and Displaying Variables:

During the process of "declaring" a variable, the name and value of the variable is stored to the computer's memory for later use. The value of the variable can then be used by the formula or by other calculations later on in the report. When using *multiple* variables within a complex formula, it is important to note that the last variable assigned a value or used in the formula is the one which will be displayed in the formula result field when the field is placed into the report.

To display the value of a variable, you can just create a simple formula which contains the variable type and the variable name as a formula field within the report. Then you can place the formula field into the report at the place at which you want the variable's value to appear within then report.

Another consideration of displaying variables is defining the ***scope*** of the variable. The scope of the variable determines how the value of the declared variable is passed from formula to formula within the report. There are three levels of scope which can be defined for a variable: "Global," which means that the value of the variable is available to formulas through out the entire report; "Shared," which means that the value of the variable can be shared with a subreport as well as all formulas within the main report; or "Local," which means that the variable can only specifically be used by the formula within which it is declared.

The scope of the variable is actually set when you originally declare the variable value by placing either the word "Global," "Shared," or "Local", then a space, and then the variable declaration of the data type and the variable name, as normal. If omitted, the default scope for a variable is "global." Although the value of global variables can be used by any formula in the report, you must re-declare the variable in any other formula in order to use its value. If you wish to re-declare a variable, type the variable type, a space, and then the name of the variable again.

It is also worth noting that in order for a variable to work, it must be placed into a formula field within the Design view of a report, so that Crystal can evaluate the variable calculation and store it to temporary memory for future display. If you don't need to see the calculations in the "Preview," then you can suppress the display of the variable in the "Design" view.

14.4- Using Array Values:

Note that when you create parameter fields, you had the ability to create parameters that stored multiple values, such as multiple names or even an upper and a lower date value. When you create a parameter that stores multiple values, Crystal Reports stores these values to a structure called an *array*. An array is much like a database table, in that it can store multiple values. It is simply an ordered list of values which all share the same data type. Values stored within an array are called the *array elements*.

You can also create arrays using the ***MakeArray()*** function in either the Crystal syntax or the Basic syntax. There are also several functions which make use of arrays of numbers for their calculations, such as the statistical functions of ***Variation()*** or ***StdDev()***. You can also use arrays with your standard mathematical functions, like ***Average()*** or ***Sum()***. Oftentimes, arrays are created in parameter fields by storing two date values which are then used for record selection purposes. You can use the ***Minimum()*** and ***Maximum()*** functions to extract the lower and upper date ranges from the parameter array to use in the report subtitle, which is helpful for showing the date range selected by the parameter prompt.

Sample for evaluation purposes only!

14.5- Using "If… Then… Else…" Statements:

You can use the "If… Then… Else…" statement to create formula expressions which evaluate a condition and then return an outcome based on whether or not the condition evaluated returns a "true" or "false" value. You can even nest multiple "If… Then… Else…" statements together in order to test for multiple possible conditions. Note that it is important to remember that the results specified by the "Then…" and "Else…" lines of the expression must be of the same data type. In the "If… Then… Else…" statement you specify the condition to evaluate after the word "If." If the condition evaluates as being "true," then whatever is specified by the "Then…" aspect is returned by the statement and the "Else…" is ignored. Conversely, if the test returns a "false" value, the "Then…" is ignored and the "Else…" is evaluated. This can be very important to remember when using multiple nested if statements to test for multiple conditions. The general syntax of the statement is as follows:

IF *logical_test*
THEN *true_result*
ELSE *false_result*

14.6- Using the "Select/Case" Statement:

The "Select" statement, which is also often called the "Case" statement, is another statement which evaluate multiple possible conditions and returns an output based on which condition evaluates to "true." This is often a simpler way of expressing a statement that could also be expressed as a more complex nested "If… Then… Else…" statement. The general format of the select/case statement is as follows:

SELECT *evaluated_expression*
CASE *Condition_1* : *Expression_1*
CASE *Condition_2* : *Expression_2*
CASE *Condition_3* : *Expression_3*
DEFAULT : *default_value*

The evaluated expression is placed after the word "SELECT." After the word "CASE" for each subsequent line, you add the condition to evaluate, followed by a colon symbol (:), followed by the expression to use if the condition is "true." After the word "DEFAULT," you place the expression that you want as the default if the evaluated condition doesn't match any of the listed cases.

You can have multiple specific conditions listed for the *evaluated_expression* by separating them with commas. If you want to use comparison operators in the *Conditions*, then specify the word "is," followed by a space and then the desired comparison operator, followed by the condition to evaluate as usual.

Sample- for evaluation purposes only!

14.7- Using "For" Loops:

Both the "If… Then… Else…" and "Select/Case" statements are only executed once and not every condition possible is necessarily tested during the execution. You can use the "For" clause to establish loops that allow you to evaluate a sequence of expressions multiple times. Oftentimes, this is useful for working with array values.

You need to declare a "counter" variable to establish a number to use as the number of times to loop through the collected statements (which must appear inside of parentheses). Also note that if you have an "If… Then… Else…" statement included within your "For" statement, you will often use the "Exit For" ending as one of the results returned from the logical test in order to exit the specified loop. The general syntax is shown below (without the "exit for" clause):

FOR *number_of_times* DO (*statements*)

14.8- Using "Do… While" Loops:

While the "For" loop allows the user to loop through a series of statements a set number of times, the "Do… While" loop allows the user to repeat looping through a series of statements until a specific condition is met. Once again, like the "For" loop, you can also use the "exit while" clause to exit a "Do… While" loop if it uses an "If… Then… Else…" clause and you wish to have a possible result of the test be to exit the "Do… While" loop. The general syntax of the "Do… While" loop (without the "exit while" clause) is shown below:

DO (*statements*) WHILE *condition_remains_true*

There is another variation on this loop which can be used to evaluate a condition, first, and then execute a series of statements if the condition evaluates to a "true" value. This is the "While… Do" loop syntax. When using the "Do… While" syntax, the set of statements must be executed at least once, and then the condition is evaluated. When you switch the syntax to the "While… Do" syntax, the condition is evaluated first, and if found to be true, the series of statements is then executed until the condition returns a "false" value. The general syntax of the "While… Do" loop is shown below:

WHILE *condition_remains_true* DO (*statements*)

14.9- The IIF Function:

The IIF Function is another way of expressing the logic found within the "If… Then… Else…" statement using a more succinct syntax. There are three arguments used in this function, the *logical_test* to evaluate, the *true_result*, and the *false_result*. The general syntax used for this function is shown below:

IIF(*logical_test*,*true_result*,*false_result*)

Sample- for evaluation purposes only!

ACTIONS-
ADVANCED FORMULA CREATION

EVALUATION TIME FUNCTIONS:

1. BeforeReadingRecords- specifies that the formula is to be evaluated before the first pass.
2. WhileReadingRecords- specifies that the formula is to be evaluated during the first pass of the data.
3. WhilePrintingRecords- specifies that the formula is to be evaluated during the second pass of the data.

DECLARING A VARIABLE:

1. First decide what "scope" the variable should have: "Global," "Shared," or "Local." If omitted, then the variable is determined to be "Global" in scope.
2. Next, declare the data type of the variable.
3. Type a literal space value.
4. Type the name of the variable. It must be less than 255 characters in length, have no spaces, and cannot begin with a number.

ASSIGNING A VARIABLE:

1. Type the name of the variable which you have already declared.
2. Type a space, a colon sign, followed by an equal sign, and then another space.
3. Type the value to assign to the variable.

CREATING AN ARRAY:

1. When you create a parameter field which accepts multiple selections, the selections made are stored into an array.

OR

1. Use the ***MakeArray()*** function to create an array of values.

THE GENERAL "IF… THEN… ELSE…" STATEMENT SYNTAX:

IF *logical_test*
THEN *true_result*
ELSE *false_result*

THE GENERAL "SELECT/CASE" STATEMENT SYNTAX:

SELECT *evaluated_expression*
CASE *Condition_1* : *Expression_1*
CASE *Condition_2* : *Expression_2*
CASE *Condition_3* : *Expression_3*
DEFAULT : *default_value*

Sample- for evaluation purposes only!

ACTIONS-
Advanced Formula Creation

THE GENERAL "FOR" STATEMENT SYNTAX:

FOR *number_of_times* DO (*statements*)

THE GENERAL "DO… WHILE" STATEMENT SYNTAX:

DO (*statements*) WHILE *condition_remains_true*

OR

WHILE *condition_remains_true* DO (*statements*)

THE GENERAL "IIF" STATEMENT SYNTAX:

IIF(*logical_test*,*true_result*,*false_result*)

Sample- for evaluation purposes only!

EXERCISES-
ADVANCED FORMULA CREATION

Purpose:

1. To be able to incorporate more advanced formula usage into your reports.

Exercises:

1. Open Crystal Reports.
2. Select "File| Open…" from the Menu Bar to launch the "Open" dialog box.
3. Navigate to the "My Documents" folder where you stored the "Customer Order Report" which was created in the "Chapter 11- Exercise."
4. Click on the "Customer Order Report" to select it, and then click the "Open" button to open it.
5. Click the "Design" tab.
6. Click the "Customer Order Report" text object in the "Report Header" to select it.
7. Choose "Edit| Delete" from the Menu Bar.
8. Click on the "Formula Fields" entry in the "Field Explorer" pane.
9. Click the "New" button in the toolbar at the top of the pane.
10. In the "Formula Name" dialog box, type "CustomerTitle" into the "Name:" text box.
11. Then click the "OK" button.
12. Type the following into the "Formula Text" window in the "Formula Workshop- Formula Editor" window.

```
NUMBERVAR Repetitions;
STRINGVAR ShowCustomers := 'Total Sales for All Orders for the Following Customers: ' ;
FOR Repetitions := 1 to UBOUND({?Customer}) DO
(ShowCustomers := ShowCustomers + {?Customer}[Repetitions] + ', ' );
LEFT(ShowCustomers,LENGTH(ShowCustomers)-2)
```

12. Click the "Save and Close" button in the toolbar at the top of the window when you are finished.
13. Click and drag the "CustomerTitle" field from the "Field Explorer" pane and drop it into the upper left corner of the "Report Header."
14. Right-click on the field and choose "Format Field…" from the Menu Bar.
15. In the "Format Editor" dialog box, click the "Font" tab.
16. Use the "Style:" drop-down to select "Bold."
17. Use the "Size:" drop-down to select "14."
18. Click "OK."
19. Resize the field so that it is taller vertically and can display the height of the text.
20. Resize the field horizontally so that it stretches across the entire top of the page.
21. Switch to the "Preview" tab to view your change. Switch back to the "Design" tab and resize it as needed to display the names of the selected customers.
22. Select "File| Save" from the Menu Bar.
23. Select "File| Close" from the Menu Bar.

Sample- for evaluation purposes only!

CHAPTER 15-
ADVANCED REPORTING

15.1- CREATING A REPORT TEMPLATE

15.2- EXPORTING REPORT RESULTS

15.3- EXPORTING AS HTML

15.4- SETTING DEFAULT OPTIONS

15.5- SETTING REPORT OPTIONS

Sample- for evaluation purposes only!

15.1- Creating a Report Template:

You can create report templates that have no defined connection to data sources, but can be used to apply report formatting and layout. To do this, first create a new blank report that has no connection to an underlying data source. To do this, click the "Blank Report" hyperlink in the "Start Page." When the "Database Expert" dialog box appears, click the "Cancel" button.

You can add the report elements that you would like into the template. Text objects, logos and other images, and other non-data related objects (like "Special Fields") can be placed into the report. In a template, you do not place actual fields of information, but rather place "template fields" which act as placeholders for the data- to determine the appearance and placement of the fields. When you are ready to set the placement of the template fields, select "Insert| Template Field Object" from the Menu Bar. Then click into the section of the report where you want to place the template field. This will then place a detail entry and column heading that you can move and format as desired. Also notice that the template field is actually a "Formula Field" and you can see it under that section of the "Field Explorer" pane.

In order to save the report and have it appear in the future as a template which can be selected through the "Template Expert" dialog box, you will need to make some more modifications beyond simply placing the desired report objects, special fields, and template fields into the report design view. When you select a template to apply in the "Template Expert" dialog box, you can see the name of the template and a preview of the template to be applied. This information, such as the "name" of the template and the "preview" picture, is entered into the document before saving it as a template so that it will appear in the future when you select this template through the "Template Expert" dialog box.

To create the document properties, which allows you to enter this type of information, select "File| Summary Info…" from the Menu Bar to launch the "Document Properties" dialog box. This dialog box consists of two tabs: "Summary" and "Statistics." Click the "Summary" tab to enter the document information for the report template. In the "Author:" text box, you can enter the name of the creator of the template, if desired. Under "Keywords:," you can enter any keywords that identify this template. This can be used for file searching in the future. You can type a description of the report, or any other information you want, into the "Comments:" text box. The first 256 characters of this box can be displayed through the use of the "Report Comments" special field within a report. Type a title for the report into the "Title:" text box. Whatever title is entered here can be displayed through the use of the "Report Title" special field in a report. This will also be the name of the template displayed within the "Template Expert." You can click into the "Subject:" text box and type in the overall subject of your report. Then you can click into the "Template:" text box and type in an identifying name for the template, if desired. Then check the "Save Preview Picture" to save a preview of the first page of the content of the template. Ensure that you do not have sensitive data displayed in the first page if you check this checkbox. When you have finished entering the document properties, click "OK" to save and close the "Document Properties" dialog box.

You can save the report template by choosing "File| Save As…" from the Menu Bar. This will open the "Save As" dialog box. In order to save the report as a template, use the "Save in:" drop-down to save the file into the default template directory. Assuming that you installed to your "C:\" drive, for Crystal Reports 2013 this is usually "C:\Program Files\SAP BusinessObjects\Crystal Reports\Templates\en."

Sample- for evaluation purposes only!

15.2- Exporting Report Results:

When it comes time to allow access to the report data generated by Crystal Reports, you have a few options for exporting the results. In this lesson you will examine the options that you have for exporting report results to the users that need to view that data. When it comes time to export the report results, you can first open the report which you wish to export, and then choose either "File| Export| Export Report" from the Menu Bar or click the "Export" button in the Standard toolbar.

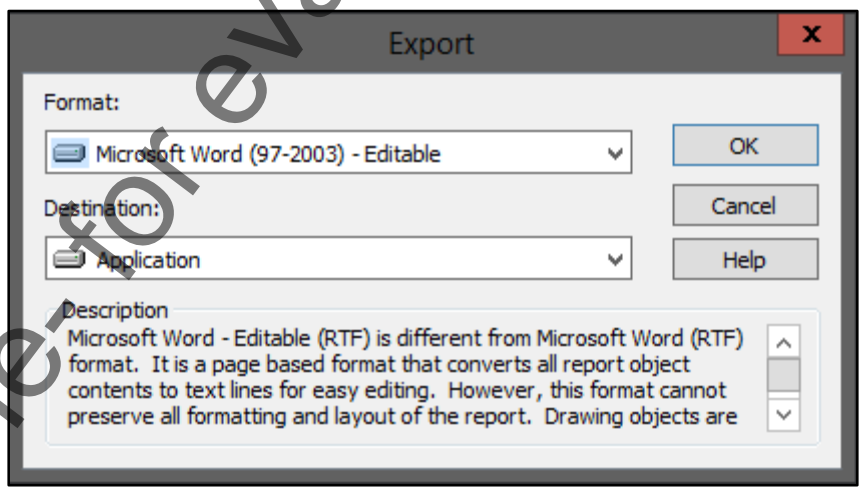
This will then launch the "Export" dialog box, which is used to export the selected report to a chosen destination in the format you prefer. Use the "Format:" drop-down to select the desired format to which you would like to export the selected report. Then use the "Destination:" drop-down to select one of the possible report destinations to which you could export the report. When you have made the desired selections from the drop-down, click "OK" to begin the exporting process.

Note that if you wish to export to one of the e-mail systems listed, you will log-in to the selected system and send the email to the designated recipients after clicking "OK." If using the "Lotus Domino" system, ensure that you read the help file in Crystal Reports about exporting to this destination, as it requires additional setup.

If you select the "Application" option, Crystal will export the report to the application used to open the type of file format you selected. For example, if you selected "MS Word" from the "Format:" drop-down and then chose "Application" for the "Destination:," Crystal Reports would open Microsoft Word and export the report as a new file in that application.

If you choose "Disk file" from the "Destination:" drop-down, then you can select the folder on your network to which you want to export the report. If you have Microsoft Exchange Server available and wish to save the report to a selected exchange folder, you can select that option to save it into a public or private folder which is then accessible through Microsoft Outlook.

The types of formats which are available for export will vary depending on the DLL files installed on your system. Depending on which format and destination you select, you may have to make additional choices in the ensuing dialog boxes which appear.



Sample- for evaluation purposes only!

15.3- Exporting as HTML:

HTML (Hypertext Markup Language) is a terrific export option for Crystal Reports, as HTML documents can be displayed easily on both the Internet and also on corporate intranets, as needed. As long as the user has access to the directory to which you will be exporting the results and a web browser, you can export the results as HTML to allow user access.

To export a displayed report as HTML, choose either "File| Export| Export Report" from the Menu Bar, or click the "Export" button in the Standard toolbar. In the "Export" dialog box, select "HTML 4.0" as the "Format:" and then choose "Application" from the "Destination:" drop-down. Selecting "Application" will then immediately open the report using your computer's default web browser after you have exported the results as HTML. Click "OK" when you are ready to export the results to launch the "Select Export File" dialog box.

In the "Select Export File" dialog box, you create the directory (folder) into which you will export the report results. The HTML report file will be placed into the folder created (along with several secondary, associated files) with the name that you used when you saved it, but with the ".html" file extension, versus the ".rpt" file extension.

To decide where to create the specified report directory, use the "Drives:" drop-down to choose a computer drive into which you want to save the results. Double-click into the folder shown in the list above the "Drives:" into which you want to save the report. You can continue double-clicking on the folders within that folder to continue choosing sub-directories, as needed. When you have double-clicked on the folder into which you want to create the new report folder, type the name which you want to give to the new folder into the "Directory Name:" text box.

Next, you can change the name of the default web page (HTML file) created by typing the desired file name into the "Base File Name:" text box. Typically this is not necessary as the report will simply use the same name you used. You can then check the "Page navigator" checkbox to create a navigation tool in the web page which the users can use to browse through the pages in the report. You can check the "Separate HTML Pages" checkbox to create each page as a separate web page, versus creating one long scrolling web page from the report data.

If you wish to filter the page range, you can select the "Pages" option in the "Page Range" section. Then input the starting page number into the "From:" box and the ending page number into the "To:" text box. When you have set all of the options for HTML publishing as needed, click "OK" to export the selected report as an HTML page and then view it immediately in your computer's default web browser.

Sample- for evaluation purposes only!

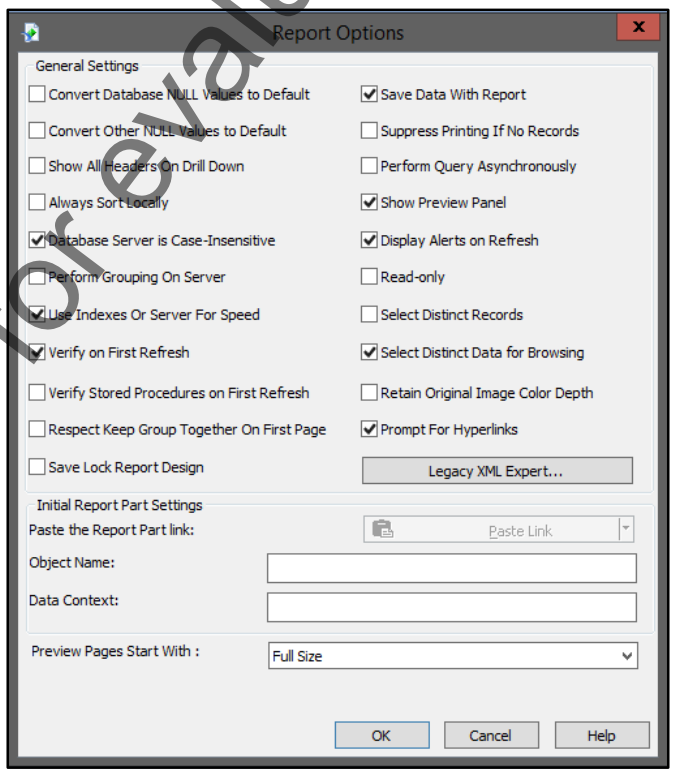
15.4- Setting Default Options for Crystal Reports:

You can control many of the default behaviors and options of Crystal Reports using the "Options" dialog box. Changes that are made here will affect all users of the installed instance of the application, so you should only make changes here if you are fully aware of how the changes will impact Crystal Reports and the other users on your machine. This is not like the "Report Options" dialog box, where changes made affect only the selected report. Changes made in the "Options" dialog box are global in nature. To view the "Options" dialog box, select "File| Options…" from the Menu Bar.

In the "Options" dialog box, you can select the tab name which contains the attributes which you would like to set. Then change any settings as needed, and click "OK" to apply the selected settings. Note that you can click on the name of any tab displayed in the "Options" dialog box and then click the "Help" button in the lower right corner to display a help file that lists the specific options which you can choose to set. The help file opens in a separate window, which you can close when you are finished using it.

15.5- Setting Report Options:

You can also set options for a single report in the "Report Options" dialog box. To access this dialog box, first open the report whose options you would like to set. Then select "File| Report Options…" from the Menu Bar to open the "Report Options" dialog box. You can then set the desired options which you wish to apply to only the selected report in the dialog box, and then click "OK" to apply the selected report options. Note that if there are any report options that you do not understand, you can click the "Help" button in the "Report Options" dialog box to launch an associated help file that lists all of the available report options in a separate window. You can then read through the options or print the help file if you need a hard copy, and close the window when you are finished using it to return to Crystal Reports.



Sample- for evaluation purposes only!

ACTIONS-
ADVANCED REPORTING

CREATING A REPORT TEMPLATE:

1. Click the “Blank Report” hyperlink in the “Start Page.”
2. When the “Database Expert” dialog box appears, simply click the “Cancel” button to view the blank report in design view.
3. Add the various report elements which you would like to appear as part of the template. Text objects, logos and other images, and other non-data related objects (like “Special Fields”) can be placed into the report at this time.
4. When you are ready to set the placement of the template fields, select “Insert| Template Field Object” from the Menu Bar. Then click into the section of the report at which you would like to place the template field. Note that this will then place a detail entry and column heading that you can move and format as desired. Also notice that the template field is actually a “Formula Field” and you can see it under that section of the “Field Explorer” pane.
5. Select “File| Summary Info…” from the Menu Bar to launch the “Document Properties” dialog box.
6. Click the “Summary” tab to enter the document information for the report template.
7. In the “Author:” text box, you can enter the name of the creator of the template, if desired.
8. Under “Keywords:,” you can enter any keywords that identify this template.
9. You can type a description of the report, or any other information you want, into the “Comments:” text box.
10. Type a title for the report into the “Title:” text box.
11. You can click into the “Subject:” text box and type in the overall subject of your report.
12. In the “Template:” text box, type an identifying name that will be used for the template.
13. Then check the “Save Preview Picture” to save a preview of the first page of the content of the template.
14. When you have finished entering the document properties, click “OK” to save and close the “Document Properties” dialog box.
15. Save the report by choosing “File| Save As…” from the Menu Bar to open the “Save As” dialog box.
16. In order to save the report as a template, use the “Save in:” drop-down to save the file into the default template directory. Assuming that you installed to your “C:\” drive, for Crystal Reports 2013 this is usually “C:\Program Files\SAP BusinessObjects\Crystal Reports\Templates\en.”
17. Type whatever file name you wish to save it with into the “File Name:” text box.
18. Click “Save” to save the report template into the selected folder with the given name.

EXPORTING REPORT RESULTS:

1. Open the report which you wish to export, and then choose either “File| Export| Export Report” from the Menu Bar, or click the “Export” button in the Standard toolbar.
2. In the “Export” dialog box, use the “Format:” drop-down to select the desired format to which you would like to export the selected report.
3. Use the “Destination:” drop-down to select one of the possible report destinations to which you could export the report.
4. Click “OK” to begin the exporting process and make any secondary selection in the dialog boxes which appear.

Sample- for evaluation purposes only!

ACTIONS-
ADVANCED REPORTING

EXPORTING REPORT RESULTS AS HTML:

1. Open the report which you wish to export, and then choose either "File| Export| Export Report" from the Menu Bar or click the "Export" button in the Standard toolbar.
2. In the "Export" dialog box, select "HTML 4.0" as the "Format:."
3. Choose "Application" from the "Destination:" drop-down. Selecting "Application" will immediately open the report using your computer's default web browser after you have exported the results.
4. Click "OK" when you are ready to export the results to launch the "Select Export File" dialog box.
5. To decide where to create the specified report directory, use the "Drives:" drop-down to choose a computer drive into which you want to save the results.
6. Double-click into the folder shown in the list above the "Drives:" into which you want to save the report. You can continue double-clicking the folders within that folder to select sub-directories, as needed.
7. When you have double-clicked on the folder into which you want to create the new report folder, type the name which you want to give to the new folder into the "Directory Name:" text box.
8. You can change the name of the default web page (HTML file) created by typing the desired file name into the "Base File Name:" text box. Typically this is not necessary as the report will simply use the same name you used.
9. You can then check the "Page navigator" checkbox to create a navigation tool in the web page which the users can use to browse through the pages in the report.
10. You can check the "Separate HTML Pages" checkbox to create each page as a separate web page, versus creating one long scrolling web page from the report data.
11. If you wish to filter the page range, you can select the "Pages" option in the "Page Range" section. Then input the starting page number into the "From:" box and the ending page number into the "To:" text box.
12. When you have set all of the options for HTML publishing as needed, click "OK" to export the selected report as an HTML page and then view it immediately in your computer's default web browser.

SETTING DEFAULT OPTIONS FOR CRYSTAL REPORTS:

1. Select "File| Options…" from the Menu Bar.
2. In the "Options" dialog box, select the tab name which contains the attributes you would like to set.
3. Note that you can click on the name of any tab displayed in the "Options" dialog box and then click the "Help" button in the lower right corner to display a help file that lists the specific options which you can choose to set.
4. The help file opens in a separate window, which you can close when you are finished using it.
5. Change any settings as needed, and click "OK" to apply the selected settings.

SETTING REPORT OPTIONS:

1. Open the report whose options you would like to set.
2. Select "File| Report Options…" from the Menu Bar to open the "Report Options" dialog box.
3. You can click the "Help" button in the "Report Options" dialog box to launch an associated help file that lists all of the available report options in a separate window, if needed. You can then read through the options and close the window when you are finished using it to return to Crystal Reports.
4. You can then set the desired options which you wish to apply to only the selected report in the dialog box, and then click "OK" to apply the selected report options.

Sample- for evaluation purposes only!

EXERCISES-
ADVANCED REPORTING

Purpose:

1. To be able to create a report template in Crystal Reports 2013.

Exercises:

1. Open Crystal Reports 2013.
2. Click the “Blank Report” hyperlink in the “Start Page.”
3. Click the “Cancel” button at the bottom of the “Database Expert” dialog box.
4. Click the plus sign (+) next to the “Special Fields” list in the “Field Explorer” pane.
5. Click and drag the “Report Title” special field from the list and drop it into the upper left corner of the “Report Header.”
6. Right-click on the field and choose “Format Field…” from the Menu Bar to launch the “Format Editor” dialog box.
7. Click on the “Font” tab.
8. Use the “Style:” drop-down to select “Bold.”
9. Use the “Size:” drop-down to select “14.”
10. Click “OK.”
11. Resize the “Report Title” field so that it is tall enough vertically to display the selected text. Then resize it horizontally to a width of 5” across.
12. Click and drag the “Page N of M” field from the “Special Fields” in the “Field Explorer” pane and drop it at the far left edge of the “Page Footer.”
13. Select the page number field that you just inserted and click the “Italic” button in the Formatting toolbar to italicize the selected field.
14. Choose “Insert| Template Field Object” from the Menu Bar.
15. Click once into the far left edge of the “Details” section to place the first template field.
16. Resize the field horizontally so that it is 2” in width.
17. Choose “Insert| Template Field Object” from the Menu Bar.
18. Click once into the “Details” section at 2.5” to place the second template field.
19. Resize the field out to the 4” mark on the horizontal ruler.
20. Select “File| Summary Info…” from the Menu Bar.
21. Click into the “Title:” field and type: “Two-column Report Template.”
22. Check the “Save Preview Picture” checkbox.
23. Click “OK” to set the document properties.
24. Select “File| Save As…” from the Menu Bar.
25. Use the “Save in:” drop-down to navigate to the following directory, assuming that you installed to your “C:\” drive, “C:\Program Files\SAP BusinessObjects\Crystal Reports\Templates\en.”
26. Type “Two-column template” into the “File name:” text box.
27. Click “Save.”
28. Select “File| Close” from the Menu Bar.

Sample- for evaluation purposes only!

CHAPTER 16-
USING REPORT WIZARDS

16.1- USING THE REPORT WIZARDS

16.2- REPORT WIZARD TYPES

16.3- CREATING A CROSS-TAB REPORT

Sample- for evaluation purposes only!

16.1- Using the Report Wizards:

There are several report wizards which you can run to quickly and easily create many various types of reports in Crystal Reports. This can often be a way of more quickly creating a report which you would otherwise have to create by hand. You can also edit and modify the reports after you have created them, if needed. This is simply another way of beginning the report creation process. However, these are not tools for the novice user who has no concept of data selection, sorting, filtering and grouping to use. These wizards simply expedite the basic report creation process.

You can start one of the four reports wizards by simply clicking on the hyperlinked name of the desired report wizard that appears in the "Start a New Report" section of the "Start Page." You can also start a report wizard by selecting "File| New" from the Menu Bar and then choosing the name of the desired report wizard from the side menu of choices that appears. You can select either the "Standard Report…," "Blank Report…," "Cross-Tab Report…," "Mailing Label Report…," or "OLAP Cube Report…" choice to create a report using a wizard of the selected type.

Each type of report wizard will lead you through a screen-by-screen process in which you answer questions and select report options. The screens which follow next will vary depending upon which wizard you selected. You will examine the most common options which you can set by selecting the "Standard" choice.

The first screen you will view after selecting the "Standard" choice is the "Data" screen in the "Standard Report Creation Wizard" dialog box. This is the same as the "Database Expert" dialog box. Any database connections you have created and stored to the "Favorites" folder in the "Database Expert" screen are available in this window. Select or set the desired data connection from the "Available Data Sources:" window and then move the desired data tables into the "Selected Tables:" pane at the right side of the dialog box. When you are ready to continue, click the "Next >" button to continue.

If you added multiple tables in the last screen, you will next view the "Link" screen. Here you review the tables which you have added to the report and you can edit the links, if needed. This is the same as the "Links" tab in the "Database Expert" dialog box. Make any changes you need here, and click the "Next >" button to continue.

In the "Fields" screen, you select the fields that you want to add to the report from the fields shown in the "Available Fields:" list at the left side of the dialog box. Click on the name of the field you want to add to the report and then click the right-pointing arrow ">" button to add the selected field to the "Fields to Display:" list at the right side of the dialog box. If needed, you can click on the name of a selected field in the "Fields to Display:" list and click the "up" and "down" arrows to change the placement of the field within the field list. The order of the fields, from top to bottom, is the order that they will be displayed from left to right in the report. When you have added the desired fields, click the "Next >" button to continue.

Next is the "Grouping" screen, where you can select a field by which to create data groupings within the report from the "Available Fields:" list at the left side of the dialog box. You can then click the right-pointing arrow button ">" to move the selected field to the "Group By:" list at the right side of the screen. You can then choose how to sort the chosen field groupings by selecting the desired sorting option from the drop-down at the bottom of the "Group By:" list.

If you want to create additional groupings within the primary grouping, you can continue to add additional fields from the "Available Fields:" list to the "Group By:" list, where you can then sort them by their values within the main grouping. If needed, you can select one of the groups and then click the "up" and "down" arrows to reorganize the order of the groups shown. When you have added the necessary fields by which to create the data groupings within your report, click the "Next >" button to continue.

If you elected to create data groupings in the report, then after clicking the "Next >" button to continue you will be presented with the "Summaries" screen. Once again, select the name of the field that

Sample for evaluation purposes only!

16.1- Using the Report Wizards- (cont'd.):

you want to calculate and summarize for each unique value within the grouping. Then click the right-pointing arrow button ">" to move the selected field to the "Summarized Fields:" list at the right side of the screen. You can choose which summary calculation to perform on the selected field from the drop-down list at the bottom of the "Summarized Fields:" list. If needed, you can choose a summary field value and click the "up" and "down" arrows in the "Summarized Fields:" list to move the field up or down in the list. The order of fields displayed here, from top to bottom, indicates the order that the fields will appear from left to right in the report. When you are ready, click the "Next >" button to continue.

If you added "Summaries" for the "Groups" in your report, then the next screen will be the "Group Sorting" screen, where you can sort the records by the summarized field values for each grouping. You can elect "None" to skip group ordering, or you can select "Top 5 Groups," or "Bottom 5 Groups," based on the values displayed in the selected summary value field. When you have set any options that you want to apply, click the "Next >" button to continue.

The next screen is the "Chart" screen. You can select a type of chart which you would like to see in the report by choosing a selected chart type from the option buttons available at the top of the screen. If you don't want a chart, then select the "No Chart" option button. If you do select a chart type, then type the title into the "Chart title:" text box. You can use the "On change of:" drop-down to select the field whose changing value establishes the series in your chart. Use the "Show Summary:" drop-down to choose the field whose values you wish to chart for each changing value in the field you selected in the "On change of:" drop-down. When you are ready to continue, click the "Next >" button.

In the "Record Selection" screen, you select a field or fields by which you want to filter the records in the selected tables. Choose the field by which you would like to filter the data from the "Available Fields:" list, and click the right-pointing arrow button ">" to move it into the "Filter Fields:" list. You can then select the field by which you wish to filter from the list at the right side of the dialog box and use the drop-down at the bottom of the "Filter Fields:" list to select the desired comparison operator. Then use the drop-down which appears below that one to select the desired comparison value from the drop-down list. You can also type a value directly into the drop-down box instead. When you are ready, click "Next >" to continue.

In the "Template" screen, you can select a report template to use as the basis for the current report from the listing in the "Available Templates" section. If you have a report which you would like to apply as a template you can click the "Browse..." button to select the report using the "Open" dialog box. If you don't want to apply a template, you can select the "No Template" option from the top of the "Available Templates" list. When you have made your choice, click "Finish" to create the report with the options which you have selected.

Note that if you wanted to change any settings that you made in the previous screens of the "Standard Report Creation Wizard," you can click the "< Back" button to return to the desired screen and make changes. Then click the "Next >" button until you have reached the end of the wizard, at which point you can click the "Finish" button. If you simply wish to cancel the creation of the report, you can click the "Cancel" button at any time during the "Standard Report Creation Wizard" to cancel the report generation.

Sample- for evaluation purposes only!

16.2- Report Wizard Types:

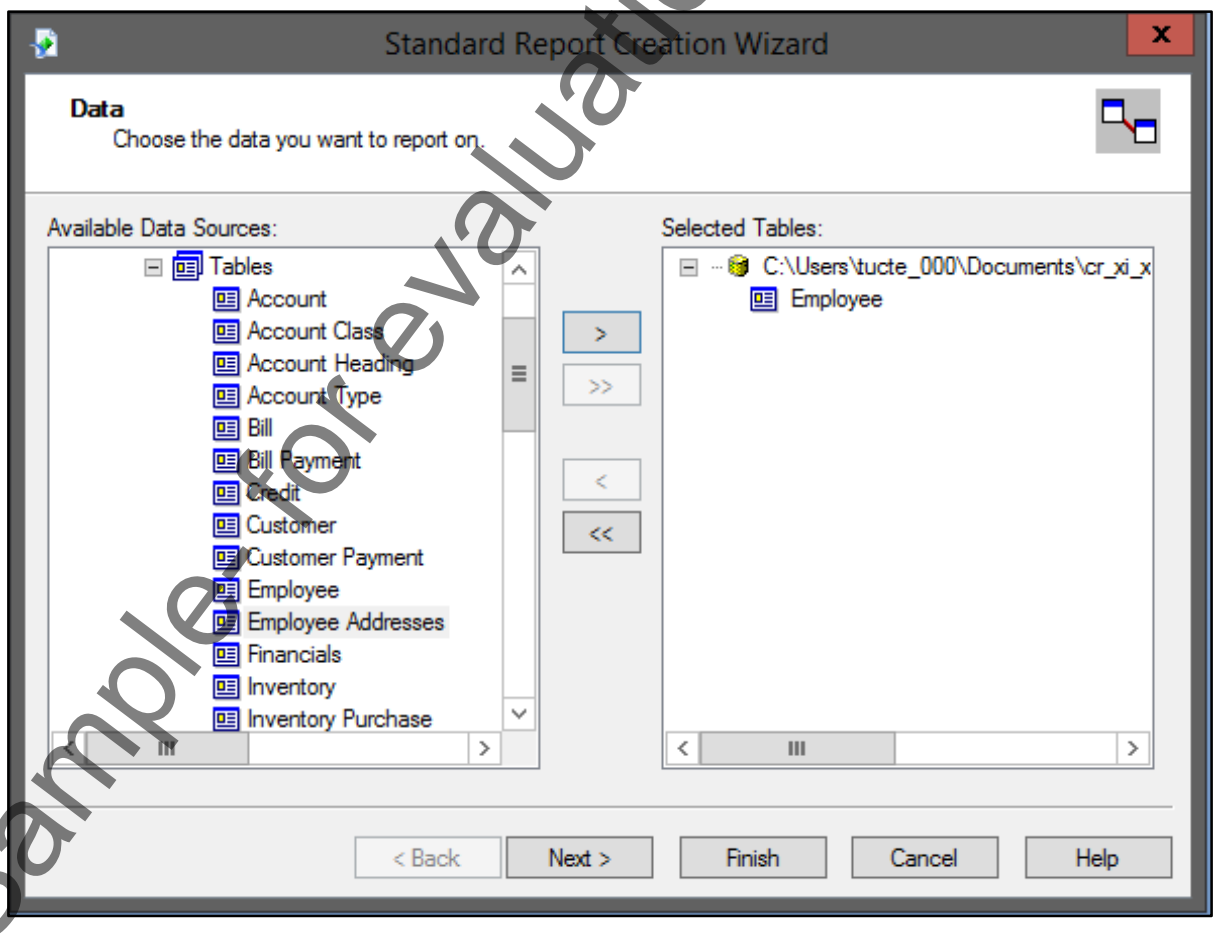
Besides the "Standard" report wizard, which is certainly the most common of the report wizards available for use, you can also use the wizards to create cross-tab reports, mailing labels, and reports based on OLAP data sources.

You can choose the "Cross-Tab" report wizard to let the wizard lead you through the process of creating a cross-tab report, which will generate a report which resembles the data displayed within a spreadsheet. The screens displayed in the "Cross-Tab Report Creation Wizard" are as follows: "Data," "Link," "Cross-Tab," "Chart," "Record Selection," and "Grid Style."

You can choose the "Mailing Label" report wizard to create a multi-column report which you can use to create mailing labels of various sizes and styles. The screens displayed in the "Mailing Labels Report Creation Wizard" are as follows: "Data," "Link," "Fields," "Label," and "Record Selection."

If you select the "OLAP" report wizard, you will be led through the screens in the "OLAP Report Creation Wizard," which allows you to display your OLAP data in a manner similar to a cross-tab report. The "OLAP Report Creation Wizard" contains the following screens: "OLAP Data," "Rows/Columns," "Slice/Page," "Style," and "Chart."

Each wizard behaves in essentially the same manner that the "Standard Report Creation Wizard" does. You make your choices on each screen displayed and click the "Next >" button to continue to the next screen. When you are done answering the questions displayed in each screen, you can click the "Finish" button to generate the selected report.



Sample for evaluation purposes only!

16.3- Creating a Cross-Tab Report:

The cross-tab report format allows you to view information in one column by information in another column, and then display the summary value of yet a third column in the intersecting report cells. In essence, a cross-tab looks much like a giant spreadsheet would, and perhaps you have a familiarity with using cross-tab data in spreadsheet applications. For example, if you had a data table which had a column for each sale, the customer, the sale date, and the sales total; you could create a cross-tab report that lists the sales, grouped by quarter, across the top of the cross-tab report with the customers listed down the left side of the report, and the sum of all the sales totals for each customer by quarter shown in the intersecting cells.

Cross-tab reports are complete and separate reports that can stand well on their own. Often they will interfere with summary data displayed in a primary report when inserted as a report object. Ensure that you try to only use cross-tab reports as subreports within primary reports that share the same record set or underlying tables. If you still have difficulty, you can instead create the cross-tab report as a separate report and then link it to the primary report as an "on-demand" subreport.

You can create a cross-tab report by selecting "File| New| Cross-Tab Report…" from the Menu Bar. That will open the "Cross-Tab Report Creation Wizard." On the first screen, you simply select the data on which you wish to base the report. Select the tables to use from the listing shown in the "Available Data Sources" list, and then click the ">" arrow button to move the selected table or tables into the "Selected Tables" list at the right side of the dialog box. Then click the "Next >" button to continue.

If you added multiple tables, the next screen you will see is the "Link" screen, where you can inspect the joins between the tables which you have added to the cross-tab report. When you are finished setting table joins, just click the "Next >" button to continue.

In the next screen, titled "Cross-Tab," you can add fields from the "Available Fields" list into the "Rows," "Columns," and "Summary Fields" sections by selecting the desired field and then clicking the ">" arrow button that appears next to the desired section. Fields added to the "Columns" and "Rows" list will effectively be treated like "Grouped" fields, in that they will only display their unique values in the columns or rows. Fields added to the "Summary Fields" section will display the result of a calculation for the intersecting cells of the "Columns" and "Rows" values. You can select a field in the "Summary Fields" section, and then use the drop-down that appears below that section to change which calculation is performed on that field's data values. Also, for some types of fields, such as date/time fields that are added to the "Columns" or the "Rows" you can select which level of grouping to apply to the selected field from the drop-down that appears below those sections, as well. When you are finished, click the "Next >" button to continue.

The next screen is the "Chart" screen. You can select a type of chart which you would like to see in the report by choosing a selected chart type from the option buttons available at the top of the screen. This is the same as the "Chart" screen in the "Standard Report Creation Wizard." When you are ready to continue, click the "Next >" button.

In the "Record Selection" screen, you select a field or fields by which you want to filter the records in the selected tables. This is the same as the "Record Selection" screen in the "Standard Report Creation Wizard." When you are ready to continue, click the "Next >" button.

In the "Grid Style" section, you can select a default design template to apply to your cross-tab data from the styles shown in the "Available Styles" list. Select a style from the list and then click the "Finish" button to finish creating your cross-tab report.

Sample for evaluation purposes only!

ACTIONS-
USING REPORT WIZARDS

CREATING A STANDARD REPORT USING THE REPORT WIZARD:

1. You can start one of the four reports wizards by simply clicking on the hyperlinked name of the desired report wizard that appears in the "Start a New Report" section of the "Start Page," or by selecting "File| New" from the Menu Bar and then choosing the name of the desired report wizard from the side menu of choices that appears. You can select either the "Standard Report…," "Blank Report…," "Cross-Tab Report…," "Mailing Label Report…," or "OLAP Cube Report…" choice.
2. The first screen you will view after selecting the "Standard" choice is the "Data" screen in the "Standard Report Creation Wizard" dialog box. Select or set the desired data connection from the "Available Data Sources:" window and then move the desired data tables into the "Selected Tables:" pane at the right side of the dialog box. When you are ready, click the "Next >" button to continue.
3. If you added multiple tables in the last screen, you will next view the "Link" screen. Review the tables you have added and you can edit the links, if needed. Click the "Next >" button to continue, when ready.
4. In the "Fields" screen, you select the fields that you want to add to the report from the fields shown in the "Available Fields:" list at the left side of the dialog box. Click on the name of the field you want to add to the report and then click the right-pointing arrow ">" button to add the selected field to the "Fields to Display:" list at the right side of the dialog box. If needed, you can click on the name of a selected field in the "Fields to Display:" list and click the "up" and "down" arrows to change the placement of the field within the field list. The order of the fields, from top to bottom, is the order that they will be displayed from left to right in the report. When you have added the desired fields, click the "Next >" button to continue.
5. In the "Grouping" screen, select a field by which to create data groupings within the report from the "Available Fields:" list at the left side of the dialog box. You can then click the right-pointing arrow button ">" to move the selected field to the "Group By:" list at the right side of the screen. You can then choose how to sort the chosen field groupings by selecting the desired sorting option from the drop-down at the bottom of the "Group By:" list. If you want to create additional groupings within the primary grouping, you can continue to add additional fields from the "Available Fields:" list to the "Group By:" list, where you can then sort them by their values within the main grouping. If needed, you can select one of the groups and then click the "up" and "down" arrows to reorganize the order of the groups shown. When you have added the necessary fields by which to create the data groupings within your report, click the "Next >" button to continue.
6. If you elected to create data groupings in the report, then after clicking the "Next >" button to continue you will be presented with the "Summaries" screen. Once again, select the name of the field that you want to calculate and summarize for each unique value within the grouping. Then click the right-pointing arrow button ">" to move the selected field to the "Summarized Fields:" list at the right side of the screen. You can choose which summary calculation to perform on the selected field from the drop-down list at the bottom of the "Summarized Fields:" list.
7. If needed, you can choose a summary field value and click the "up" and "down" arrows in the "Summarized Fields:" list to move the field up or down in the list. The order of fields displayed here, from top to bottom, indicates the order that the fields will appear from left to right in the report. When you are ready, click the "Next >" button to continue.
8. If you added "Summaries" for the "Groups" in your report, then the next screen will be the "Group Sorting" screen, where you can sort the records by the summarized field values for each grouping. You can elect "None" to skip group ordering, or you can select "Top 5 Groups," or "Bottom 5 Groups," based on the values displayed in the selected summary value field. When you have set any options that you want to apply, click the "Next >" button to continue.

(cont'd.)

Sample for evaluation purposes only!

CREATING A STANDARD REPORT USING THE REPORT WIZARD- (CONT'D.):

9. The next screen is the “Chart” screen. You can select a type of chart which you would like to see in the report by choosing a selected chart type from the option buttons available at the top of the screen. If you don’t want a chart, then select the “No Chart” option button. If you do select a chart type, then type the title into the “Chart title:” text box. You can use the “On change of:” drop-down to select the field whose changing value establishes the series in your chart. Use the “Show Summary:” drop-down to choose the field whose values you wish to chart for each changing value in the field you selected in the “On change of:” drop-down. When you are ready to continue, click the “Next >” button.
10. In the “Record Selection” screen, you select a field or fields by which you want to filter the records in the selected tables. Choose the field by which you would like to filter the data from the “Available Fields:” list, and click the right-pointing arrow button “>” to move it into the “Filter Fields:” list. You can then select the field by which you wish to filter from the list at the right side of the dialog box and use the drop-down at the bottom of the “Filter Fields:” list to select the desired comparison operator. Then use the drop-down which appears below that one to select the desired comparison value from the drop-down list. You can also type a value directly into the drop-down box instead. When you are ready, click “Next >” to continue.
11. In the “Template” screen, you can select a report template to use as the basis for the current report from the listing in the “Available Templates” section. If you have a report which you would like to apply as a template you can click the “Browse…” button to select the report using the “Open” dialog box. If you don’t want to apply a template, you can select the “No Template” option from the top of the “Available Templates” list.
12. When you have made your choice, click “Finish” to create the report with the options which you have selected.
13. If you want to change any settings that you made in the previous screens of the “Standard Report Creation Wizard,” you can click the “< Back” button to return to the desired screen and make changes. Then click the “Next >” button until you have reached the end of the wizard, at which point you can click the “Finish” button.
14. If you simply wish to cancel the creation of the report, you can click the “Cancel” button at any time during the “Standard Report Creation Wizard” to cancel the report generation.

CREATING A REPORT USING ONE OF THE REPORT WIZARDS:

1. Click the hyperlinked name of the report wizard that you want to use in the “Start Page:” “Standard Report Wizard;” “Cross-Tab Report Wizard;” “Mailing Label Report Wizard;” or “OLAP Cube Report Wizard.”

OR

1. Select “File| New” from the Menu Bar and then choose the desired report wizard from the side menu which appears: “Standard Report…;” “Cross-Tab Report…;” “Mailing Label Report…;” or “OLAP Cube Report…”
2. Answer any questions and make the necessary selections posed to you in each screen of the selected report wizard, and click the “Next >” button to continue through the screens.
3. When you are done answering the questions posed to you by the wizard, click the “Finish” button to create the report with the options that you specified.

Sample- for evaluation purposes only!

ACTIONS-
USING REPORT WIZARDS

CREATING A CROSS-TAB REPORT :

1. You can create a cross-tab report by selecting “File| New| Cross-Tab Report…” from the Menu Bar. That will open the “Cross-Tab Report Creation Wizard.”
2. On the first screen, you simply select the data on which you wish to base the report. Select the tables to use from the listing shown in the “Available Data Sources” list, and then click the “>” arrow button to move the selected table or tables into the “Selected Tables” list at the right side of the dialog box. Then click the “Next >” button to continue.
3. If you added multiple tables, the next screen you will see is the “Link” screen, where you can inspect the joins between the tables which you have added to the cross-tab report. When you are finished setting table joins, just click the “Next >” button to continue.
4. In the next screen, titled “Cross-Tab,” you can add fields from the “Available Fields” list into the “Rows,” “Columns,” and “Summary Fields” sections by selecting the desired field and then clicking the “>” arrow button that appears next to the desired section. Fields added to the “Columns” and “Rows” list will effectively be treated like “Grouped” fields, in that they will only display their unique values in the columns or rows. Fields added to the “Summary Fields” section will display the result of a calculation for the intersecting cells of the “Columns” and “Rows” values. You can select a field in the “Summary Fields” section, and then use the drop-down that appears below that section to change which calculation is performed on that field’s data values. Also, for some types of fields, such as date/time fields that are added to the “Columns” or the “Rows” you can select which level of grouping to apply to the selected field from the drop-down that appears below those sections, as well. When you are finished, click the “Next >” button to continue.
5. The next screen is the “Chart” screen. You can select a type of chart which you would like to see in the report by choosing a selected chart type from the option buttons available at the top of the screen. This is the same as the “Chart” screen in the “Standard Report Creation Wizard.” When you are ready to continue, click the “Next >” button.
6. In the “Record Selection” screen, you select a field or fields by which you want to filter the records in the selected tables. This is the same as the “Record Selection” screen in the “Standard Report Creation Wizard.” When you are ready to continue, click the “Next >” button.
7. In the “Grid Style” section, you can select a default design template to apply to your cross-tab data from the styles shown in the “Available Styles” list. Select a style form the list and then click the “Finish” button to finish creating your cross-tab report.

Sample- for evaluation purposes only!

EXERCISES-
USING REPORT WIZARDS

Purpose:

1. To be able to create a standard report using the report wizard in Crystal Reports.

Exercises:

1. In Crystal Reports 2013, click the "Report wizard" hyperlink in the "Start Page."
2. In the "Database Expert" dialog box, expand the data source connection to reveal the sample database connection, which was created in the "Chapter 3- Exercise" from the "Introductory Crystal Reports" manual.
3. Click the plus sign next to the "Tables" in the sample database
4. Select the "Employee" table.
5. Click the right-pointing arrow button ">" to move the table into the "Selected Tables:" list.
6. Click "Next >" to continue.
7. In the "Fields" screen, select the "First Name" field.
8. Click the right-pointing arrow button ">" to move the field into the "Fields to Display:" list.
9. Select the "Last Name" field.
10. Click the right-pointing arrow button ">" to move the field into the "Fields to Display:" list.
11. Select the "Position" field.
12. Click the right-pointing arrow button ">" to move the field into the "Fields to Display:" list.
13. Click "Next >" to continue.
14. On the "Grouping" screen, select the "Employee.Position" field.
15. Click the right-pointing arrow button ">" to move the field into the "Group By:" list.
16. Click "Next >" to continue.
17. In the "Summaries" screen, select the "Employee.Position" field from the "Available Fields:" list at the left side of the dialog box.
18. Click the right-pointing arrow button ">" to move the field into the "Summarized Fields:" list.
19. Use the drop-down at the bottom of the "Summarized Fields:" list to select "Count."
20. Click "Next >" to continue.
21. In the "Group Sorting" screen, select "None."
22. Click "Next >" to continue.
23. In the "Chart" screen, select the "Pie Chart" option button.
24. Type "Employees by Job Type" into the "Chart Title" text box.
25. Click "Next >" to continue.
26. Skip the "Record Selection" screen and click "Next >" to continue.
27. Select the "No Template" option from the "Available Templates" list at the left side of the dialog box.
28. Click the "Finish" button to finish the report.
29. Select "File| Save As…" from the Menu Bar.
30. Use the "Save in:" drop-down to select the "My Documents" folder.
31. Type "Employees by Job Type" into the "File name:" text box.
32. Click "Save" to save the report.
33. Select "File| Close" from the Menu Bar to close the report.

Sample- for evaluation purposes only!

CHAPTER 17-
ADVANCED DATABASE CONCEPTS

Sample- for evaluation purposes only!

17.1- Viewing the SQL Code:

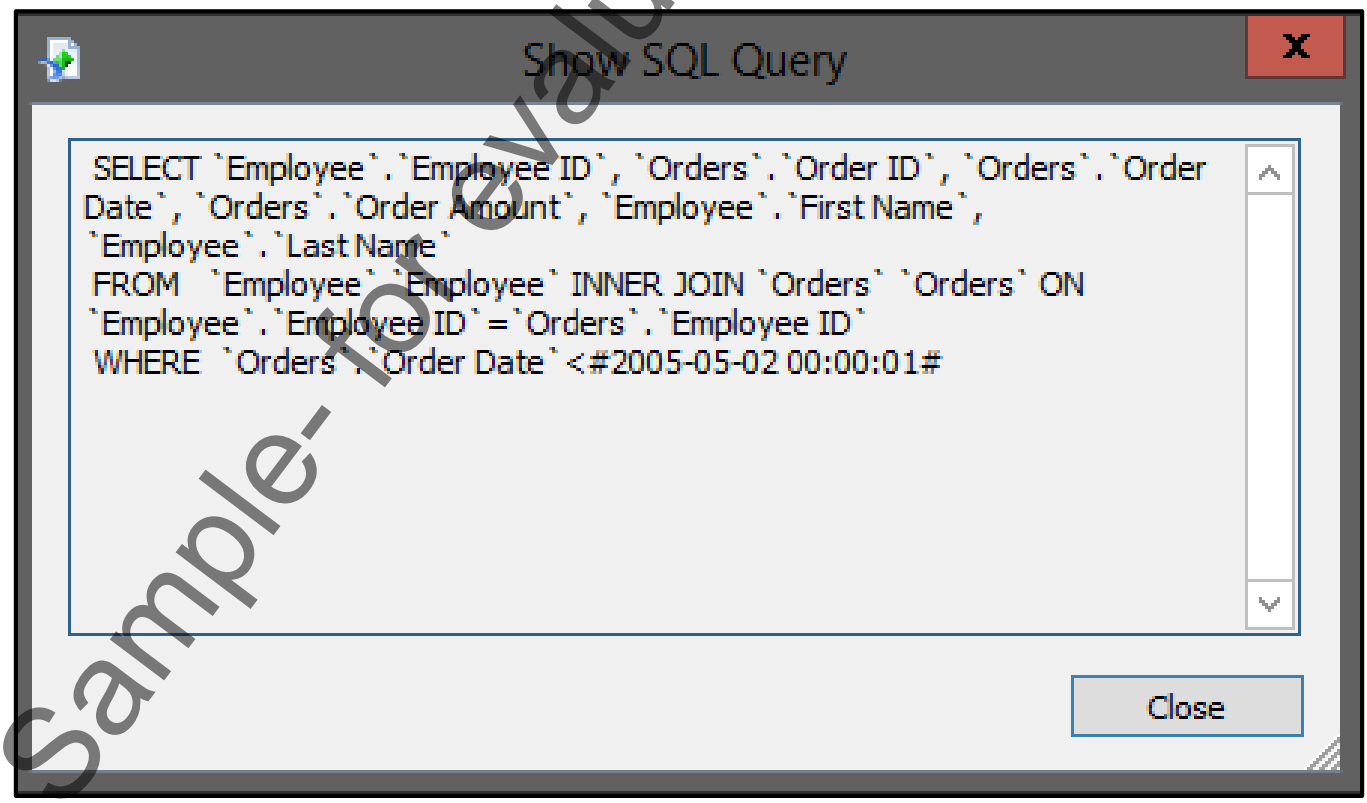
SQL (ess-cue-el), is an acronym that stands for "Structured Query Language." It is the language used in relational database applications for record selection, modification, and creation. You may also often hear it referred to as SQL (sequel), which is not technically correct but often used.

In Crystal Reports you focus on the ways in which you can use the SQL statements to select the data which you then use as the basis for your reports. Almost all of the reports which you create have an SQL statement as their basis. There is really only one statement used for record selection in the SQL language, and it is called the SELECT statement. Every report has the SELECT statement as the basis of the report, but with variations on the specific clauses used in the statement. The general syntax of the SELECT statement in SQL is as follows:

SELECT *fields*
FROM *tables*
WHERE *criteria*
ORDER BY *field*

There are also several variations within this general framework. Many different database vendors use slightly different SQL code, and there are also additional clauses, such as INNER JOIN, OUTER JOIN, GROUP BY and others which may also be used in more complex expressions of SQL.

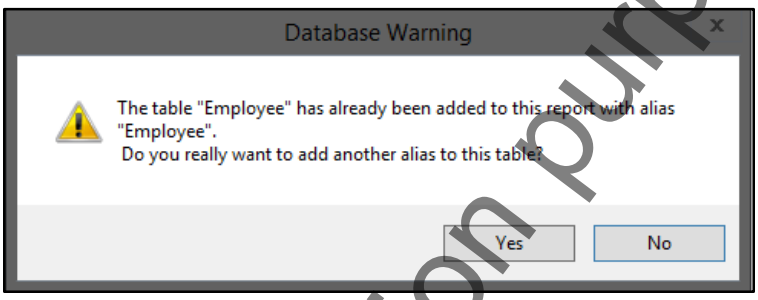
If you would like to study the SQL code for a report based on tables, you can do so by choosing "Database| Show SQL Query…" from the Menu Bar. This will then display the "Show SQL Query" dialog box, where you can view the specific SQL code used to generate the report's data set. This statement is not editable, so when you have finished examining the SQL statement, click the "Close" button to close the box.



Sample- for evaluation purposes only!

17.2- Using Table Aliases:

You can add a table to a report more than one time in order to create a "self-join" between two related fields within a single table. However, you cannot add the same table twice without giving it a different name the second time. This is called specifying a table "alias." When you attempt to add the same table to a report twice, Crystal warns you that you already have a table with that name added to the report, and prompts you to add an alias for this table. If you click "Yes" to this prompt, Crystal will then add the name of the table, followed by the underscore character, and then a sequential number (1, 2, 3, etc…) increasing the number for each alias. You can then change the name of the alias by selecting the name of the alias in the "Database Expert" dialog box and then pressing the "F2" key on your keyboard to rename the table alias.



17.3- Verifying the Database:

At times you will find that the computer or network environment in which you have created your Crystal Reports has changed and caused your Crystal Reports to no longer function. Database files can be moved about on the network, re-designed, or otherwise changed in some way that can create an improperly working report. Crystal Reports provides three tools to assist you in fixing reporting issues caused by changes to the database to which the report is connected. Using these tools can prevent you from having to scrap your report and start over creating an entirely new report. The first tool to discuss is the "Verify Database" command. This is a useful tool for detecting new field additions to the database from which the report results are drawn.

When you verify the database, Crystal will either automatically make the corrections to the report or it will prompt you to make the corrections manually through the "Map Fields" dialog box. Crystal Reports will automatically find new fields added to the database, note changes to field data types, change the order of the fields if needed, and remove fields which have not been used in the report from the "Field Explorer" pane. Other types of changes, will invoke the "Map Fields" tool which requires user assistance in order to resolve report and database inconsistencies.

To verify a database, simply open the report which attaches to the database that you want to verify. Then select "Database| Verify Database" from the Menu Bar. If the database to which the report is attached is current, then you will see a message box appear and tell you that the database is up to date. You can then click "OK" to close the message box.

If there are errors in the underlying table, you will see a message box appear and tell you that the file has changed and that Crystal will now proceed to fix up the report. When you click "OK," Crystal will then attempt to fix any database errors. Some of the alterations made may require that you manually make the change to the report field using the "Map Fields" dialog box. After it is done, you will then see any database changes in the "Field Explorer" pane.

Sample for evaluation purposes only!

17.4- Setting the Datasource Location:

If you need to change the database connection used by the report, you can use the "Set Datasource Location" dialog box to reset the data source association used for the selected report. In order to accomplish this, open the report which contains the data source connection which you wish to change and then choose "Database| Set Datasource Location…" from the Menu Bar.

This will then open the "Set Datasource Location" dialog box where you can view the current data source choice shown in the "Current Data Source:" section at the top of the dialog box. Here you can select the table to replace from the list displayed.

At the bottom of the dialog box, in the "Replace with:" section, you can select the name of the table with which you want to replace the table you previously selected. Once you have the tables which you wish to change selected, click the "Update" button at the right side of the dialog box. Unless the tables which you switched have identical field names, you will then need to use the "Map Fields" dialog box to re-map the data fields within the report. If they do happen to have the exact same names, then simply clicking the "Update" button is enough.

17.5- Mapping Fields:

When you switch the data source used for a report from one database to another, or even make simple structure modifications to the existing database which involve renaming the fields within the tables used in the report, Crystal Reports will then need to re-map the fields in the report to the new (or changed) fields within the associated database tables. You use the "Map Fields" dialog box to accomplish this. This dialog box is often invoked as a secondary process involved with database verification and changing the report's data source. It is used to manually make corrections between the report and the underlying data source.

In the "Map Fields" dialog box you will see four separate lists of fields. The upper left list shows "unmapped" fields within the report which have not been associated with a field in the underlying data source. The potential fields with which the "unmapped" fields could be associated are listed in the upper right corner. In the lower left corner are report fields which have successfully been mapped by Crystal Reports based on the field names. In the lower right corner you can see the database fields with which the "mapped" report fields have been associated.

You can manually create associations between the unmapped report fields and the potential database fields by selecting the field to map from the "Unmapped Field" list, and then clicking on a "matching" field in the list of database fields to the right. Then click the "Map" button at the right to create an association between the two fields. In order to make this process easier, ensure that the "Match Type" checkbox is selected. This will ensure that when you select an unmapped field, only potential fields of the same data type will be displayed in the list to the right.

If you have mapped fields that shouldn't be mapped, you can select a report field from the list in the lower left corner of the "Map Fields" dialog box. You can then click the "Unmap" button to the right to dissociate the selected report field from its database partner in the list at the right. They will then both move into the lists of unmapped report and database fields above. Once you have associated the desired report fields with the database fields, click "OK." Note that you will often have to change additional information in the report, such as data labels used for the original report fields, after mapping the data fields.

Sample- for evaluation purposes only!

ACTIONS-
ADVANCED DATABASE CONCEPTS

VIEWING THE SQL CODE IN A REPORT:

1. Open the report based on database tables.
2. Choose "Database| Show SQL Query…" from the Menu Bar.
3. In the "Show SQL Query" dialog box, you can view the SQL code used to generate the report's data set.
4. This statement is not editable, so when you have finished examining the SQL statement click the "Close" button to close the box.

CREATING SQL EXPRESSION FIELDS:

1. Open a report which is based on tables (versus an SQL Command) and select the "SQL Expression Fields" option in the "Field Explorer."
2. Click the "New" button in the toolbar at the top of the "Field Explorer" pane.
3. This will launch the "SQL Expression Name" dialog box, where you will type the name of the SQL Expression field which you are about to create.
4. When you are ready to create the SQL Expression, click "OK" to continue to the "Formula Workshop – SQL Expression Editor" window.
5. Create the SQL statement in the "Formula Text" window and make sure that you double-check the syntax. You will, however, be notified of any error in your expression when you try to click "Save and Close" when you are finished creating the SQL statement.
6. The SQL field will then appear in the "Field Explorer" pane, where you can insert it into your report and use it much as you would use a "Formula Field."

USING TABLE ALIASES:

1. Open the "Database Expert" dialog box.
2. Select the name of the table which you would like to add to the report from the listing of "Available Tables:" and click the right-pointing arrow button ">" to move it into the list of "Selected Tables."
3. Select the same table again and click the right-pointing arrow button again.
4. Crystal warns you that you already have a table with that name added to the report, and prompts you to add an alias for this table.
5. Click "Yes" to this prompt and Crystal will add the name of the table, followed by the underscore character, and then a sequential number (1, 2, 3, etc…) increasing the number for each alias added.
6. You can then change the name of the alias by selecting the name of the alias in the "Database Expert" dialog box and then pressing the "F2" key on your keyboard to rename the table alias.

VERIFYING THE DATABASE:

1. Select "Database| Verify Database" from the Menu Bar.
2. If the database to which the report is attached is current, then you will see a message box appear and tell you that the database is up to date. You can then click "OK" to close the message box.
3. If there are errors in the underlying table, you will see a message box appear and tell you that the file has changed and that Crystal will now proceed to fix up the report.
4. When you click "OK" Crystal will then attempt to fix any database errors. Some of the alterations made may require that you manually make the change to the report field using the "Map Fields" dialog box. After it is done, you will then see any database changes in the "Field Explorer" pane.

Sample- for evaluation purposes only!

SETTING THE DATASOURCE LOCATION:

1. Open the report which contains the data source connection which you wish to change and then choose "Database| Set Datasource Location…" from the Menu Bar.
2. This will then open the "Set Datasource Location" dialog box where you can view the current data source choice shown in the "Current Data Source:" section at the top of the dialog box. Here you can select the table to replace from the list displayed.
3. At the bottom of the dialog box, in the "Replace with:" section, you can select the name of the table with which you want to replace the table you just selected.
4. Once you have the tables which you wish to change selected, click the "Update" button at the right side of the dialog box.
5. Unless the tables which you switched have identical field names, you will then need to use the "Map Fields" dialog box to re-map the data fields within the report. If they do happen to have the exact same names, then simply clicking the "Update" button is enough.

MAPPING REPORT FIELDS:

1. You use the "Map Fields" dialog box to manually make corrections between the report and the underlying data source.
2. In the "Map Fields" dialog box you will see four separate lists of fields.
3. The upper left list shows "unmapped" fields within the report which have not been associated with a field in the underlying data source.
4. The potential fields with which the "unmapped" fields could be associated are listed in the upper right corner.
5. In the lower left corner are report fields which have successfully been mapped by Crystal Reports based on the field names.
6. In the lower right corner you can see the database fields with which the "mapped" report fields have been associated.
7. You can manually create associations between the unmapped report fields and the potential database fields by selecting the field to map from the "Unmapped Field" list, and then clicking on a "matching" field in the list of database fields to the right.
8. Click the "Map" button at the right to create an association between the two fields.
9. In order to make this process easier, ensure that the "Match Type" checkbox is selected. This will ensure that when you select an unmapped field, only potential fields of the same data type will be displayed in the list to the right.
10. If you have mapped fields that shouldn't be mapped, you can select a report field from the list in the lower left corner of the "Map Fields" dialog box.
11. You can then click the "Unmap" button to the right to dissociate the selected report field from its database partner in the list at the right.
12. Once you have associated the desired report fields with the database fields, click "OK."

Sample- for evaluation purposes only!

EXERCISES-
ADVANCED DATABASE CONCEPTS

Purpose:

1. There are no exercises for this chapter.

Exercises:

1. None

Sample- for evaluation purposes only!

Crystal Reports Keyboard Shortcuts

Menu Bar Shortcut Keys	Key
New Report	Ctrl + N
Open Report	Ctrl + O
Save Report	Ctrl + S
Print Report	Ctrl + P
Cut	Ctrl + X
Copy	Ctrl + C
Paste	Ctrl + V
Delete	Del
Select All	Ctrl + A
Find	Ctrl + F
Go To Page	Ctrl + G
Design View	Ctrl + D
Refresh Report Data	F5
Formula Editor Shortcut Keys	**Key**
Browse selected field	Alt + B
Check for Errors	Alt + C
Toggle the “Shows Field” tree	Alt + F
Comments the current line	Alt + M
Sort tree content	Alt + O
Toggles the “Shows Operator” tree	Alt + P
Save formula	Alt + S
Toggles the “Shows Function” tree	Alt + U
Select all	Ctrl + A
Copy	Ctrl + C
Move to end of last formula line	Ctrl + End
Find	Ctrl + F
Set a bookmark	Ctrl + F2
Clear all bookmarks	Ctrl + Shift + F2
Move to beginning of file	Ctrl + Home
Move to start of word at left	Ctrl + ←
Select through start of word at left	Ctrl + Shift + ←

Formula Editor Shortcut Keys (cont'd.)	Key
Opens a dialog to create a new formula	Ctrl + N
Save and close Formula Editor	Ctrl + S
Focus to the syntax name list box	Ctrl + T
Switch to previous control box	Ctrl + Shift + Tab
Switch to next control box	Ctrl + Tab
Paste	Ctrl + V
Cuts	Ctrl + X
Undo	Ctrl + Z
Repeat	Ctrl + Shift + Z
Keyword Auto Complete	Ctrl + Space
Move to end of line	End
Copies object from list to formula box	Enter
Go to next bookmark	F2
Find next item	F3
Go to previous bookmark	Shift + F2

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