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Introductory Access

TeachUcomp, Inc.

...it's all about you

INTRODUCTORY ACCESS

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Welcome to Teachucomp, Inc.'s Introductory Access course. This class is the first of the Microsoft Access classes. Access is one of the most popular database programs available today. This class is designed to familiarize the student with little or no knowledge of Access or relational database design with the basic components of the program and some of the fundamental aspects of relational data modeling.

Access is an excellent program to learn, as the skills that you learn in Access can save valuable time and money by automating, organizing and structuring the data processing capabilities of your company's databases.

Access is a multi-featured database program in which you can create powerful relational databases that can store data for you. It is a very powerful program, and has many features that can automate and simplify your work. Whether you want it to create charts, reports, entry forms, or data sources; Access can assist you in accomplishing your tasks quickly and easily.

This class will focus giving the student with little to no knowledge of using Access the basic overview of how Access works, the components needed to create a simple database, and their basic functionality.

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CHAPTER 8-
ADVANCED QUERIES

8.1- Using the "Between…And" Condition:

You can use the "BETWEEN…AND" condition to look for values within a field that are between and inclusive of "Value X" and "Value Y," as specified. For example, if you had a date/time field in your table and wished to view any records where the date/time value was on any date in February 2010, you might place this criteria into the criteria row: BETWEEN #02/01/2010# AND #2/28/2010#. This is an "inclusive" selection in that it also includes any records that are equal in value to the criteria specified. Essentially, it is equivalent in value to writing the criteria >= #02/01/2010# AND <= #2/28/2010#. It is simply a more intuitive way of expressing the same thing. This is handy for finding records when you are searching for a range of records that fall between two specified values.

8.2- Using Wildcard Characters in Criteria:

You can also use "wildcard characters" to add an additional level of flexibility to your queries. Wildcard characters represent unknown values. There are two main wildcard characters that you need to know: the asterisk "*" and the question mark "?." The asterisk represents multiple unknown characters. For example, the criteria "N*" would find all "N" words like "Nebraska," "Ned," "Not," "Never Ever," etc.

The question mark represents one unknown character. So using a criteria like "N?D" would only find three letter "N…D" words like "Ned" and "Nod." You can type in as many question marks as you need to fill in the requisite unknown characters. So typing "N??D" will find words like "Need" and "Nerd."

When you type wildcard characters into the criteria row of the QBE grid, Access will place the word "Like" before them. This is simply the required syntax. It isn't necessary for you to type it in yourself, if you do not wish to, as Access will add it for you. But also, don't worry if it appears in your criteria either.

8.3- Creating a Calculated Field:

You can create calculated fields in queries. A calculated field is a field that is derived by performing some type of function upon values gathered from other table fields, or entered by hand. The data is displayed only for the duration of the query, and is not actually stored in the tables in the way that your other query fields are. They can perform almost any function and can use any available query field or data entered by hand as the basis for their calculations.

To enter a calculated field into a query, just open the query into which you want to insert the calculated field in design view. In the "Field Name" text box in the first available, blank column, type a name for the new calculated field, followed by the colon symbol (:).

Next, enter the expression or formula that you want to evaluate and display in the new field immediately following the colon symbol. If you are referencing fields, the name of the field must appear within brackets. If you happen to have two fields with the same name in two different tables, then you must specify the name of the table in brackets first ([]), then a period (.) followed by the field name enclosed in brackets ([]). For example: [Table 2].[Field4]. You can only refer to fields that are available in the tables within the query, not just from any table within your database.

8.4- Creating "Top Value" Queries:

You can also create "Top Value" queries that will return the top or bottom results of a query, instead of all results. For instance, you could create a query that would show you the top performing salespeople in your sales region. You could also find the bottom performing salespeople just as easily.

8.4- Creating "Top Value" Queries (cont.):

To create a "Top Value" query, you create the query as normal in design view and then just select a choice from the "Return:" drop-down in the "Query Setup" group on the "Design" tab of the "Query Tools" contextual tab within the Ribbon.

From the list you can select a number or a percentage of records to display. If the number of records or percentage of records that you want isn't shown in the drop-down list that appears, you can click into the box directly and then type your own number or percentage into the drop-down box and press "Enter" on your keyboard to set a custom amount to show.

It is important to note that you **must** have the records **sorted by the column values for which you want to see the Top 10 values** in either "Ascending" or "Descending" order for this function to be of any use! If you have an "Ascending" sorted **number** field (1-10), requesting the "Top 10" will actually show you the smallest values! So it is important that you are aware of the way the query sorts its data. To display all records again, click the "Return" drop-down in the "Query Setup" group on the "Design" tab of the "Query Tools" contextual tab within the Ribbon again, and select "All" from the menu of choices.

8.5- Function Queries:

You can create summary queries that can perform a mathematical function on another grouped field in a query. These are usually shorter queries often used for reporting. For example, if you wanted to know the sum of sales for each salesperson in your company, you could show this in a summary query, assuming that you were recording the salesperson for each sale that occurred. You would need to first create a query that has the "Salesperson" field, followed by the "SalesAmount" field.

To create a summary query, open the query in design view and then click the "Totals" button in the "Show/Hide" group on the "Design" tab in the "Query Tools" contextual tab within the Ribbon. This will add an additional row into your query: the "Total:" row. Under each field in the query within this row, you will see the words "Group By."

The "Group By" value indicates that the query will group all records in that field that contain the exact same value. So, using our example, under the "Salesperson" fields you would leave the "Group by" value intact, which will then group all records where the "Salesperson" value is the same. Next, under the "SalesAmount" field you would click into the "Total:" row and select the function you wanted to perform on this field for each unique grouping created by the other field (or fields) by which you grouped the records. So, in this example, you would select the "Sum" function under the "SalesAmount" field. This query would then show you the "Sum" of the "SalesAmount" field for each set of records grouped by the values shown in the "Salesperson" fields. These type of functions are often called "aggregate functions," as they perform a function upon the aggregation of values in a field.

8.6- Parameter Queries:

You can also create parameters in your query criteria that will prompt you to enter in the value which will then be used as the query criteria value for the query before returning the result set. This is tremendously helpful, as it prevents many hours of editing and changing query criteria. Each query with parameters in the criteria becomes more reusable, as each time the query is run it will prompt the user to input the parameter values used as the query criteria, which you can now easily change "on-the-fly" when you run the parameterized query. For example, suppose that every day hundreds of donation records were entered a non-profit organization's donations database. Let's also suppose that you were responsible for
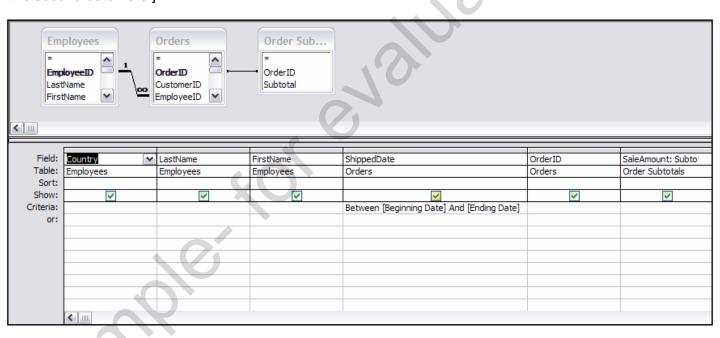
8.6- Parameter Queries (cont.):

finding all records entered from the previous day and double-checking their spelling accuracy and address information. You certainly wouldn't want to have to sort through all of the records in the database tables to find the ones that were entered the day prior. Even if you created a query that found the records for the previous day's data entry, without parameters you would have to open the query in design view each day and edit the criteria values before running it. Instead, you can create a parameterized query that will prompt you to enter a value for a specified field (in this case the "EntryDate" field), that the query will then use to find those records that match the value which you entered when you opened the query.

To create a parameter query, construct your query as usual. Then click into the QBE grid underneath the field for which you want to set up a criteria parameter. To enter the parameter, type an open bracket ([), followed by what you want the parameter prompt to display, and ended with a closed bracket (]). (E.g.. [Please type the date here:]).

Parameters can be also be used in conjunction with other operators and conditions, like the "BETWEEN…AND" clause. This can be helpful in finding records in a range that you specify when you run the query. The syntax would be similar to the following: BETWEEN [Type the first date here:] AND [Type the second date here:].

ACTIONS-
Advanced Queries

<u>USING THE "BETWEEN…AND" CONDITION:</u>

1. Open the query into which you would like to insert the "Between…And" condition in query design view.
2. Click into the "Criteria:" row underneath the field into which you want to place the criteria.
3. Type "Between," then the first criteria value, followed by "And," ending with the last criteria value.
4. Click "Save" in the Quick Access toolbar to save your changes.

<u>USING WILDCARD CHARACTERS IN QUERY CRITERIA:</u>

1. Open the query into which you would like to insert wildcard character criteria in query design view.
2. Click into the "Criteria:" row underneath the field into which you want to place the criteria.
3. Type in the criteria for which you want to search, using the appropriate wildcard characters:
   ? = a single unknown character.
   * = multiple unknown characters.
4. Click "Save" in the Quick Access toolbar to save your changes.

<u>CREATING A CALCULATED FIELD:</u>

1. Open the query into which you would like to insert a calculated field in query design view.
2. Click into the "Field:" row in the first available blank column in the query.
3. Type the name you want to give to the new calculated field, followed by a colon (:).
4. Next, type the expression (formula) required to give the field a value. Remember that when you reference field names they must be enclosed in brackets ([]).
   E.g. NewField: [Field5]*20%
5. Click "Save" in the Quick Access toolbar to save your changes.

<u>CREATING A "TOP VALUE" QUERY:</u>

1. Open the query which you wish to restrict to displaying the top values in query design view.
2. Click into the "Sort:" row under the field by which you wish to sort the records and select the desired sort order: "Ascending" or "Descending."
3. Click the "Return" drop-down in the "Query Setup" group on the "Design" tab of the "Query Tools" contextual tab within the Ribbon and then select the desired value from the list, or click into the "Return" drop-down and type your own value as a number or a percentage. If you enter your own value or percentage, press "Enter" on your keyboard when you are finished.
4. Click "Save" in the Quick Access toolbar to save your changes.

ACTIONS-
Advanced Queries

<u>CREATING FUNCTION FIELDS IN QUERIES:</u>

1. Open the query into which you would like to insert a function field in query design view.
2. Click the "Totals" button in the "Show/Hide" group on the "Design" tab in the "Query Tools" contextual tab within the Ribbon to add the "Totals:" row to the QBE grid.
3. Click into the "Totals:" row under the fields by which you want to group the records and select "Group By" from the drop-down menu.
4. Click into the "Totals:" row under the field upon whose values you wish to perform a function for each unique grouping created by the other field, and then select the mathematical function that you want to perform from the drop-down menu.
5. Click "Save" in the Quick Access toolbar to save your changes.

<u>CREATING PARAMETER QUERIES:</u>

1. Open the query into which you would like to insert criteria parameters in query design view.
2. Click into the "Criteria:" row underneath the field into which you want to place the criteria parameters.
3. Type an comparison operators or conditions, as needed, and then type an open bracket ([), the text for the parameter prompt, and a closed bracket (]) to finish creating the criteria.
4. Click "Save" in the Quick Access toolbar to save your changes.

EXERCISES-
ADVANCED QUERIES

Purpose:

1.   To be able to create an advanced query on your data.

Exercises:

1.   Open your Access application.
2.   Open the "test" database you completed from the Exercise at the end of the previous chapter.
3.   Click the "Query Design" button in the "Queries" group ("Other" group in 2007) on the "Create" tab in the Ribbon.
4.   In the "Show Table" dialog box, select "Employees" and click "Add."
5.   In the "Show Table" dialog box, select "Sales" and click "Add."
6.   In the "Show Table" dialog box, select "SalesDetails" and click "Add."
7.   Click "Close" in the "Show Table" dialog box.
8.   Double-click on the "FirstName" field in the "Employees" table to place it in the QBE grid below.
9.   Double-click on the "LastName" field in the "Employees" table to place it in the QBE grid below.
10.   Double-click on the "Saledate" field in the "Sales" table to place it in the QBE grid below.
11.   Click into the next available column in the QBE Grid and click into the "Field:" row.
12.   In that cell, type "SaleAmount: [Price]*[Quantity]."
13.   Click the "Totals" button in the "Show/Hide" group on the "Design" tab in the "Query Tools" contextual tab within the Ribbon.
14.   In the "Totals" row, under the "Saledate" column, select "Where" from the drop-down.
15.   In the "Criteria" row, under the "Saledate" column, type "Between #1/1/2007# And #1/31/2007#."
16.   In the "Totals" row, under the "SaleAmount" column, select "Sum" from the drop-down.
17.   Click the "Save" button in the Quick Access toolbar and name the query "qryJanuaryTotalSalesByEmployee."
18.   Click the "OK" button to save the query.
19.   Close the query.
20.   In the Navigation Pane, double-click the name of the query that you just created to view the results.
21.   Close the result set.
22.   Close the database.

qryJanuaryTotalSalesByEmployee		
FirstName ▾	LastName ▾	SaleAmount ▾
Fred	Smith	$662.00
Greg	King	$159.00
Jack	Wells	$357.50
Joe	Smith	$366.00
Mary	Jones	$254.00