



# Microsoft Access Session 2

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## Introduction

Access 2 is a course created for CAL PACT participants to learn more about the features of Access. This document serves as a supplement and future reference to the class. It covers intermediate material and applies to both the Windows and Macintosh computer platforms.

## What you will need to know to take this class

- How to use the mouse
- Familiarity with the Windows or Macintosh computing environment
- The material covered within the CAL PACT Access 1 class

## What you will learn in this class

- Customizing Queries
- Designing Advanced Queries
- Working With Relationships
- Enhancing A Table's Design
- Customizing Forms
- Enhancing a Form
- Creating Subforms
- Reports and Mailing Labels


## Filters and Customizing Queries


Access allows users to use filters or queries to select records that meet specific criteria. Using filters or queries can be used to search for data based upon specific values or data which contain partial values using modifiers, such as <, >, or \*.


### **FILTERS:**

Selection of records can be narrowed by using filters and customized queries.


Filters function similar to queries by allowing you to view data which match certain criteria.

Filters can be used to view records that share common data in the same field. This is accomplished by highlighting the common data within one of the record's fields and clicking the *Filter By Selection* button ()

Once the records have been filtered, sorting them can be done in a similar way as applying a filter. Select data from one of the records in the desired field to be sorted and click on the *Ascending/Descending* button ()

If you wish to remove a filter, click on the *Apply/Remove Filter* button () to go back to the original list of records.

### **FILTER BY FORM:**

More specific filtering can be accomplished by selecting the *Filter By Form* button () which will enable you filter data by making a filter based upon the data within a given field. Once the filter by form function has been engaged, field records will appear blank. This is to allow the user to specify the criteria for the filter. Clicking within any of the record cells will bring up a pull-down menu which allows you to create your filter based upon the data which was previously entered into your records.

Numeric values for fields may be altered to display data other than the specific entries from the records by including an < or > sign in front of the number. This will specify that you wish to filter data that is greater than or less than the number entered.

Id
>"en06"
EN01
EN03
EN04
EN05



You will also notice two tabs at the bottom of the screen labeled *Look for* and *Or*. The *Look for* tab contains the initial requirements for filtering while the *Or* tab allows you to include field data requirements from the same field as a secondary filtering option, if desired.

Once you have entered the desired criteria for the filter, select the *Apply Filter* icon to apply the filter and view the results.

## QUERIES IN DESIGN VIEW

Queries can be created using many of the same requirements as a filter. Once the desired fields have been selected for the query, additional requirements may be set in Design View. Design View will display each field and how they will function for the query. By clicking within the sort cell for any given field, data can be arranged in ascending or descending order. Similar to the Filter by Form function, requirements within the Criteria/Or cells can be modified to create a more narrow search

within the query by entering specific data to be included. Letters, numbers, and < or > modifiers may be used within each field's *Criteria* cell depending upon the data type of each field.

Field:	EmployeeID
Table:	Employees
Sort:	Ascending
Show:	<input checked="" type="checkbox"/>
Criteria:	<"en015"
or:	

Once all information has been customized for the query, click on the *Run* icon (!) to run the newly modified query.

## MORE OPTIONS FOR SPECIFYING CRITERIA

By including the wildcard modifier (\*) into your Criteria settings, data can be organized in a broader fashion. (Ex. \*/84) This criteria setting will grab all dates from the specified field that include 1984. Using the wildcard along with the "/84" will tell the query to grab all relevant record that have any month and day, but must include 84 as the year.

## Designing Advanced Queries

### Parameter Queries

Parameter queries can be created to query databases interactively. Instead of having to create multiple queries for various values within a field, such as creating separate queries for individuals departments, a parameter query can be created to allow the user to enter in a specific value to find.

\*Note: While this option allows a more dynamic way to query values within a field, you must know the value to enter because a pull-down menu/list is not available in Query View. The value entered can be in upper or lower case letters, it is not case sensitive.

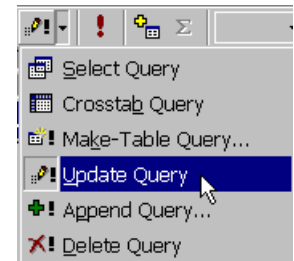
Parameter Queries are created in the Design View of an existing query. By entering a dialog parameter into the Criteria field, a pop-up window will be

created and initiated every time you open the query in Datasheet View. In the Criteria field, begin and end the text to be seen using the [ and ] to set up your parameter. Ex. "Entering [Please Enter an Employee #:]" will create a Enter Parameter Value dialog box every time you open the query that says "Please Enter an Employee #:". All one has to do is enter the value they wish to view to run the parameter search. To test the parameter query, click the Run button. A second and third value can be added to the search by creating a parameter with the [ and ] in the Or cell within the same field. This will prompt a second and third dialog box to appear once the initial value has been entered.

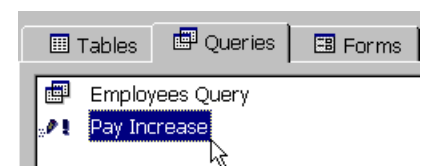
Field:	EmployeeID
Table:	Employees
Sort:	Ascending
Show:	<input checked="" type="checkbox"/>
Criteria:	[Please Enter Employee #:]
or:	

### Action Queries

Action Queries can be created to update and append multiple records. This type of query allows the user to quickly modify multiple records in a database. Once an existing query has been opened in Design View, select *Update Query* from the Query Type icon pull-down menu. You will notice that a new row (Update To:) has been added to the design grid. This property will allow you to update records by using the *Expression Builder* (⌘). Select the field you wish to modify, click inside the Update To: cell, then click the Expression Builder button. From the list of parts displayed in the columns and the appropriate arithmetic operators, select the fields you wish to modify and the type of operation. After you have finished the expression, click on the Run button to execute the expression. (Ex. Using an action query to modify the hourly pay of employees)

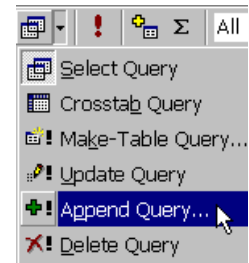
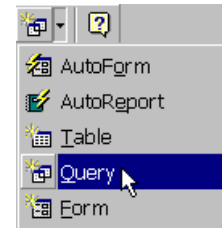


\*Note: Once the Action Query is closed, it will appear with an exclamation mark icon within the Query tab of the Database window. If you double-click the query, it will modify the records a second time, so it is usually helpful to delete the query once it has been run to prevent data from being modified again.




## Append Query


Append Queries are useful for copying information from one table to another without having to enter the data in manually. This is accomplished by opening the table with the information to be added in to Datasheet View and then selecting New Query from the New Object pull-down menu. Next, select Design View from the New Query display window and click Ok. After the Design View of a new query appears, select the (\*) from the table's field list. This will append ALL fields to the new table. Then, select Append Query from the Query Type button's pull-down menu and choose the table to be appended in the Append window. Click Ok and run the query using the Run button from the toolbar menu.

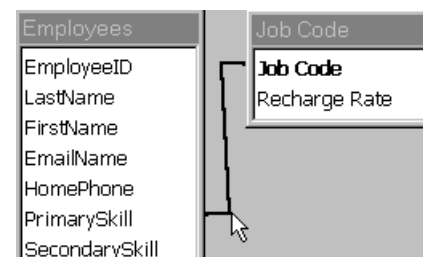
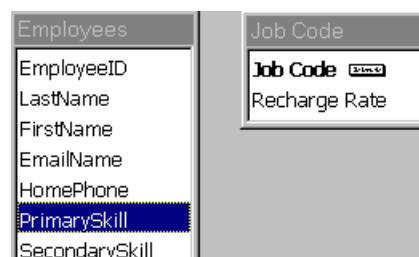


## Working With Relationships

Relationships provide a useful tool by creating links between two or more separate tables. By using relationships, the user can avoid making databases that contains multiple instances of the same information. This option also allows you to create queries that pull information from multiple tables into one query.

Relationships can be created between multiple tables by highlighting an existing table and clicking on the *Relationships* button (). A new screen will appear revealing relations by showing each table and what field has been chosen as the common link between the tables. Links/Relationships between tables will appear as lines connecting tables, where the start and end points reveal the fields that will form the basis for the link.

Tables can be added to a relationship by clicking on the *Show Table* button () , which will allow you to select an additional table to add to the rela-



tionship. Once the table has been added, select the common field to link between the table(s) and click and drag the field from one table to the other. (Ex. Dragging and dropping the PrimarySkill from the Employees table to the Job Code field in the Job Code table.) Next, click on the Create button of the Relationships window to create the relationship. You should now notice a link between the two fields. Likewise, relationships or tables can be deleted by selecting the link between tables or the table and selecting **Edit | Delete**.

Once relationships have been set, queries can be created which link information from different tables. Select New from the Queries tab and choose Design View. To add tables, click on the Show Table button and select the tables you wish to include in the query. Once you add the appropriate tables, close the window and you should see the tables and relationships between them on the upper portion of the design window. Finally, select the fields to be included in the query by double-clicking the field or selecting the field from the pull-down menu in the field cell and click on the Run button to run the query.

## Enhancing A Table's Design

Enhancing and customizing a table's design can help make data entry easier and more accurate by setting default values and parameters on a table's fields. This can help save time by specifying default values and upper case format. To automatically double-check data entries, Access can also designate validation rules and error messages.

These enhancements are made available in a table's Design View. Each field is assigned property values which may be customized to fit your needs. Properties for each field will appear in the General tab once you have clicked inside any of the field name cells. Below are examples of what type of enhancements

Access can create:

The validation rule will require that EN be included as part of the field's value and will display an error if not included. The error

General	Lookup
Field Size	5
Format	>
Input Mask	
Caption	
Default Value	
Validation Rule	Like "EN*"   <input type="text" value=""/>
Validation Text	Id must include EN followed by digits.
Required	No
Allow Zero Length	No
Indexed	Yes (No Duplicates)

message is designated by the validation text.

The < symbol included in the validation rule will ensure that values larger than 40 cannot be entered.

General	Lookup
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	
Validation Rule	<40
Validation Text	Pay rate cannot be more than \$40.
Required	No
Indexed	No

## Customizing Forms

Forms can be used to view entries individually or allow a more customized form of data entry. The easiest way to begin a form utilizes the built-in wizards. Select New from the forms window and select the Form Wizard along with the table you wish to include into the form. You will then be prompted to select the fields you wish to add into the form along with layout and style options. Next, select a name and open the form in Design View.

You will notice that there are three title bars: Form Header, Detail, and Form Footer. Information placed within the header and footer will always appear no matter what record is viewed. In the Detail section, you may notice that there are doubles of each field. The transparent boxes are labels, which will always appear with the text inside the box. The corresponding white boxes will contain the information for each specific record. Manipulation within the Detail section will retain form modifiers, such as text/background color and labels, though the information displayed within the boxes will change for each record.

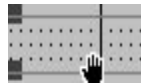
## Resizing and Moving Objects

Each of the title bar areas can be resized by moving the mouse cursor over the border of the title box until a double-headed arrow appears. Then, click and drag the box vertically/horizontally to resize each respective area. Likewise, labels and data boxes can be resized by clicking within the cell and using the *adjustment points*.



Access also allows you to form fit cells by double-clicking the cell on one of the *diagonal adjustment points*.

Cells can be rearranged in data pairs or cell by cell. By default, moving a label cell will also move its corresponding data cell and vice versa. Select the cell as if you were going to resize it and put the mouse cursor over one of the *border outlines*. Then, click and drag the cells to their new location.



Similarly, selecting the cell and moving the mouse cursor over the top left corner until a hand with a pointing finger appears can move single cells. This type of move will only affect the cell selected and not its corresponding cell.



### **Text and Colors**

New text can be added into the form by selecting the *Label* button (Aa) from the Toolbox menu (X). If you wish to change the label for a specific field, click within the cell and change the text.

\*Note: DO NOT change the text inside the data cells! This text tells Access which fields to extract data from.

Color changes can be made to any object in the design grid. Text, cells, and backgrounds can be assigned other colors than those designated by the Form Wizard. Select the background/cell and then select the color from the Fill/Back Color palette to make the change. Select the cell and then select a color from the Font/Fore palette to change text colors.

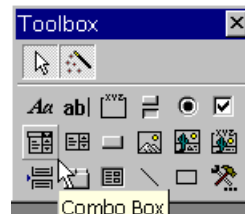
If you plan on applying the same formatting changes from one cell object to another, you can use the *Format Painter* button (Aa) to apply the same properties from one cell to another. Select the cell whose color/text properties you wish to copy, click on the format painter button, and click on the new cell to receive the same formatting.

\*Note: A single click on the format painter will only allow you to apply changes to one cell. Multiple copies of the same format can be accomplished by double-clicking the button which will leave the function on until the button is de-selected.

## Enhancing a Form

### Combo Boxes

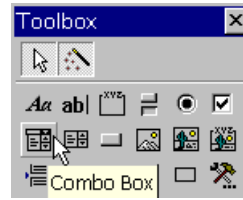
Combo boxes allow you to quickly call upon a list of records from a particular field to be added into a form. Instead of having to type in the field value manually, combo boxes allow you to select the proper value from a drop-down menu that can refer to separate tables. Combo boxes can be added to a form in Design View using the *Combo Box button* on the *Toolbar* menu. Select an area where you would like the box to be located and click on the spot.



You will then be guided through the Combo Box Wizard to help you set up this option. The first window allows you to designate where the data for the box will come from. To avoid confusion, it is usually best to refer to an existing table/query for the combo box to draw its values. Assuming the first option is selected, the next two windows ask for the table and fields it will reference. The following window will allow you to adjust the column width of the box. Next, the following two windows give you the option of what field to pick as the value to be stored in your form/database and the field it will be saved to. Finally, choose a name for the combo box and let the wizard do the rest.

### Text Boxes

Text boxes allow you to input information that you may find useful to include in a form, but not necessarily as a part of a table. (Ex. Displaying the annual income of an employee based upon weekly hours and hourly pay fields.) Similar to combo boxes, text boxes can be added to a form in Design View by clicking on the *Text Box icon* from the *Toolbox* window and clicking on a space within your form.



You will notice that a label and data cell have appeared, but they need to be given a function since they do not refer to any table's field. Double-click within the label cell and rename the cell, then click on the data cell and select the *Properties button* from the toolbar. For example, to calculate an employee's annual pay, I would want to multiply the my table's "weekly pay" by 52. I could do this by selecting Data under the cell's property window and select the *Expression Builder button* from the Control source cell. Then I could build an expression as with Action Queries mentioned previously.

## Creating Subforms

Subforms show related data on a form. As the name implies, a subform exists as a form within a form. (Ex. A form which displays departments with a subform of the type of equipment they have.) When creating a new form, subforms can be created by using the Form Wizard. Select the primary table/query where the data will come from in the pull-down menu. Then select and add the fields you wish to add from the primary table and from the table/query for the subform. At the next window, make sure the "Form with subform(s)" target is checked off. Then select the desired layout, style, and form names as you would create a normal form.

## Reports and Mailing Labels

Once a report has been created, Access allows you to easily customize it with features like time stamps and graphics. Since the main purpose of a report is to produce a hard copy of your information, these options serve as nice additions.

### Time Stamps

A time stamp can be easily integrated into your report by adding a text box (see previous section) and altering its properties in Design View. Once you have added the text box, select it and view its properties using the *Properties*

button (📅). Click on the Format tab and select the date layout from the Format cell's pull-down menu. Then, switch to the Data tab and use the Expression Builder from the Control Source's cell. At the bottom of the folders column, select the Common Expressions folder and choose the appropriate expression and close the window.

### Integrating Graphics

Access also allows you to integrate a wide range of pictures in varying graphic formats. In Design View, select *Unbound Object Frame* from the Toolbox window and click on the area you wish to place the image.



The Insert Object window will appear which allows you to select your graphic. Click on "Create from File" and browse your computer until you locate an appropriate image and click Open.

### Mailing Labels

Another nice feature that has been added is the ability to extrapolate data from a table or query to be used in address labels. This is accomplished by selecting the Label Wizard and the proper table/query when creating a new report. You will then be prompted to select a label size and layout options; when creating a prototype label, feel free to use spaces, commas, and returns. Your labels will have an identical layout to your prototype. Next, select how you would like your labels sorted and finish by choosing a name for your mailing label report.