

Normalization

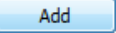
Normalization is a process of efficiently organizing data in a database to accomplish:

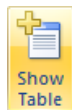
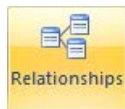
- Minimizes redundancy by eliminating duplicate information in tables.
- Eliminates inconsistency by assigning fields to the most logical table.
- Accommodates future design changes in tables.
- Minimizes the impact of design changes on user applications.

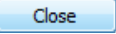
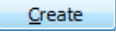
The rules for normalizing are known as **normal forms**. If the first three rules of normalization are observed, the database is said to be in "third normal form." The first three rules are described below:

Level	Tasks
1st Normal Form	Eliminate repeating groups in individual tables. Store only one value within a field. Do not use multiple fields in a single table to store similar data
2nd Normal Form	Eliminate redundant data
3rd Normal Form	Eliminate fields that do not depend on the key

Creating an Explicit Relationship

1. Open the table.
2. Select the Datasheet context tab.
3. Click the **Relationships** button in the Relationships group.
4. Click the **Show Table** button.
5. Select the table to be related.
6. Click .



7. Click .
8. Drag the common field from one table to the associated field in the other table.
9. Verify the related fields are correct.
10. Check the **Enforce Referential Integrity** option.
11. If you wish to update the linked value in the child table if the Parent ID is changed, select the **Cascade Update Related Fields** option.
12. If you wish to automatically delete any child records if the Parent record is deleted, select the **Cascade Delete Related Records** option.
13. Click .

Calculating Totals with the Query

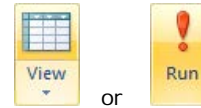
1. Design the query containing only the fields you need for the summary.
2. Specify any criteria for the query.
3. Click the **Totals** button on the toolbar. This will add the Total row to the QBE Grid. Each field in this new row will contain the value Group By.
4. In the Total row, select the appropriate calculation function:



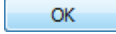
Function	Action
Group By	Used to group the calculations
Sum	Totals the values in the field
Avg	Averages the values in the field
Min	Displays the lowest value in the field for the group
Max	Displays the highest value in the field for the group
Count	Counts the number of values in the field. Null or missing values are not counted.

StDev	Calculates the Standard Deviation
Var	Calculates the Variance of the values in the field
First	Displays the value from the first record in the underlying table or query
Last	Displays the value from the last record in the underlying table or query
Expression	Use to create an expression in the query
Where	Use for fields that are used to specify criteria, but are not included in the final result

5. When finished, click the **Datasheet View** or **Run** buttons:

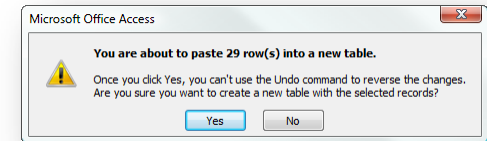



Using the Make-Table Query

1. Create and test the Select query to be used to create the new table. Make sure that it gathers the exact data needed for the table.
2. While in Design view, click the **Make-Table** button.
3. The Query Properties dialog box gives you two choices:
4. Save new table in the current or in a new table in another database.
5. Enter the name of the new table in the Table Name text box.
6. Click the  button.
7. Click the **Run** button.



When you run the query, Access will not display a Dynaset. Instead, it will display the following stating how many records will be placed into the new table:



8. Click  if you want Access to place the records into the new table.

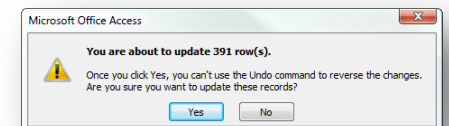
Using the Update Query

1. Create and test the Select query. Insure that you have chosen all of the necessary fields for the update.
2. Click the **Update Query** button.
3. When you click on this button, QBE Grid will change to look like the following:



Field:	Director#				
Table:	Movies				
Update To:					
Criteria:	Is Null				
or:					

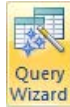
4. In **Update To** cell for the field you want to update, enter an expression or a value to change data.
 5. Click the **Run** button.
- When you run the Update query, Access will search the table and find all records matching the criteria and perform the update. Before it saves any changes, it will first display the following dialog box.



6. Click  to save the updates.

Creating Crosstab Queries

A Crosstab query is used to summarize numeric or currency data in a spreadsheet-like format.





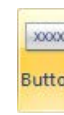




















1. Select the Create tab.
2. Click the **Query Wizard** button. Access opens the Query Wizard dialog box.
3. Select the Crosstab Query Wizard option.
4. Click the **OK** button. Access moves to the next step on the Crosstab Wizard.
5. The first Crosstab Query dialog box contains a listing of available tables to use for the query - select the table or query to use for the query.
6. Click **Next >** to continue. The next dialog box asks you for the field that will be placed in the left-most column of the Crosstab result.
7. Select one or more of the fields in the Available Fields column and place them in the Left-most columns field. To select:
 - Select the field and click **>** or
 - Double-click the field in the list.
8. Once the field(s) have been selected, click **Next >**. The next dialog box asks for the field that will be placed in each of the column headings at the top of the new table.
9. Click **Next >**. The next dialog box asks for the field and the type of calculation to perform for that field.
10. Click **Next >** after you select the field and the Function.
11. The final Crosstab Query Wizard dialog box asks for a name for the new Crosstab query. It also gives the option to automatically execute the query.

12. Click **Finish** when you are done entering all query details.

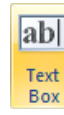
Understanding Controls

When you add fields to a form, you are adding bound controls, or controls that are attached to a table or query.

Control	Use
	Select Mode - use to select a control, section, or form.
	Use Control Wizards - turns control wizards on or off.
	Text Box - allows you to display, enter, or edit data in a form's or report's underlying record source
	Label - displays descriptive text, such as a title, a caption, or instructions on a form or report. Access automatically attaches labels to the controls you create
	Button - use to perform many actions - i.e. printing a record,
	Combo Box - combines features of a list box and a text box.
	List Box - displays a scrollable list of values.
	Subform/ SubReport - use to display data from more than one table
	Draw a line
	Draw a rectangle
	Bound Object Frame - A frame for displaying OLE objects. This control is for objects stored in a field in

	the form's or report's underlying record source.
	Option Group - control to which you add check boxes, option buttons, or toggle buttons to display a set of alternative values
	Check Box - stand-alone control bound to a Yes/No field.
	Option Button - control can only have values: True or False
	Toggle Button - a stand-alone control bound to a Yes/No field.
	Tab Control - inserts tabs on the form. Controls can be added to each Tab sheet.
	Add Page - adds new Tab Pages to the currently selected Tab Control
	Insert Chart - inserts a chart into the form.
	Unbound Object Frame - A frame for displaying an unbound OLE object, such as an Excel spreadsheet, on a form or report.
	Image - a frame for displaying a static picture on a form or report
	Page Break - begins a new screen on a form, a new page on a printed form, or a new page of a report
	Inserts hyperlink
	Attachment - Creates an area on the form to display the contents of any attachment stored in the database.

Creating Calculated Controls


1. Open the report in Design View.
2. Select the Design tab.
3. Select the **Text Box** button in the Controls group. 
4. Click in the report where you want to place the field.
5. Click inside the Text Box, and enter an equals sign followed by the desired expression.
6. Click inside the attached label, and enter the desired text for the label.

Creating Dynamic Reports

You can tailor your reports to ask the user for information before it prints. Another use for this feature might be to have the page number start with a number other than 1. To make a dynamic report, you still use the Text Box object. Some examples are:

Expression	Example Result
= [Please Enter Report Title]	Place this field in the Report Header and format the Font appropriately. When executed, the input from the user will be entered as the Title.
= "Page: " & Page + [Enter New Page Number] - 1	This expression will prompt the user for the new page number and place the word Page in front of the result.

Defining a Sorted Field

1. View the Report in Design View.
2. Select the Design tab.
3. Click the **Group & Sort** button. 
4. Access opens the Group, Sort, and Total pane.
5. Click the **Add a sort** button.
6. Access adds a Sort band that allows you to select the field to sort.
7. Select the field to sort. Access shows the detail in the Sort band