

# Introduction to Microsoft Office Access 2003



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# Introduction to Microsoft Office Access 2003

## INTRODUCTION TO ACCESS DATABASES

### **What is a relational database?**

Microsoft Office Access 2003—a relational database—is used to store related groups of data that users can retrieve by filtering, sorting, and combining information from separate datasheets, or tables. This process of information retrieval is known as a query.

### **How is an Access database structured?**

A database is made up of different objects, such as tables, forms and queries. Listed below are descriptions of the object types that are used to create databases.

<b>Object</b>	<b>Purpose</b>
<b>Tables</b>	Where data is entered and stored.
<b>Queries</b>	Organize, combine and filter data in order to retrieve just the information you want.
<b>Forms</b>	Allow you to view, enter and update data outside of a table.
<b>Reports</b>	Allow you to print information assembled from Tables/Queries in a custom layout.
<b>Pages</b>	Data displayed in a web page.
<b>Macros</b>	Automated tasks created by a series of instructions.
<b>Modules</b>	Run Visual Basic Code.

In most applications, these objects would be saved as separate files. In Access, however, the entire database is saved as one file, using the extension of **.mdb**. All objects are contained within this file.

The basic building blocks of a database are its tables, where data is initially entered. A separate table is created for each type of information. For instance, if you were a business keeping track of inventory bought and sold, you might create three separate tables: one with information about your suppliers, one with buyer information, and one listing your current inventory. The inventory table would likely contain a list of suppliers and buyers for the items. In this way, the inventory table shares common information with the two other tables. They are linked.

### **Access vs. Excel**

Why store categories of information in separate tables? Why not create one all-inclusive spreadsheet, using Microsoft Excel? Excel is ideally suited to storing numerical data because of its ability to perform complex calculations and to graph data. Access, on the other hand, is designed to manage records by means of storing related data in separate tables whose information can then be combined and retrieved based on criteria that you define. A business wanting to keep track of suppliers, buyers and orders would be best served by using a database, since those three categories contain relational data.

## About saving in Access

Access automatically saves data as you move from one record to another. (**NOTE:** This means once you type over old information, that old information is lost and you'd need to re-enter it to get it back.)

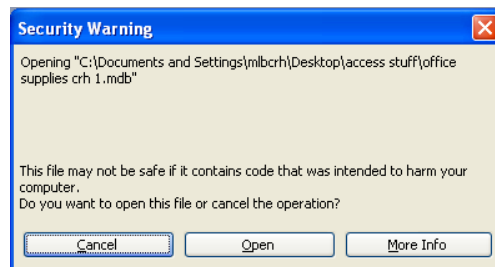
Access does prompt the user to save newly created objects before closing them out, and to save objects to which you made structural changes. The user can choose to save those changes or not.

## CREATE A NEW DATABASE

- Open Access. 


### *About the Security Warning*

- Access may display a **Security Warning** alert whenever you try to open a file.
- If you trust that the file is from a safe source—that it doesn't contain any malicious programming code—click **Open** to bring up the file.

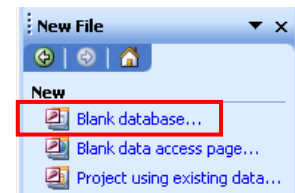


If you want to stop this warning from appearing,

- Click on **Tools** on the menu bar.
- Choose **Macro** and then select **Security**.
- Click on the **Security** tab, select the **Low** option, and click OK.
- If Access asks whether you want to allow unsafe expressions, choose No.

- Click on the **New** button on the Database toolbar. 

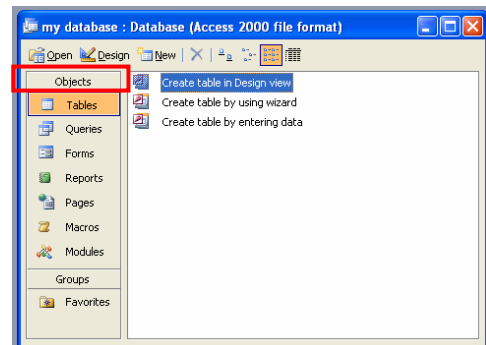
- Select **Blank Database** from the **New File** task pane on the right-hand side of the screen.



You are prompted to create a filename and save the database.

- Assign a filename, choose a location to store the database, and press **Create**.

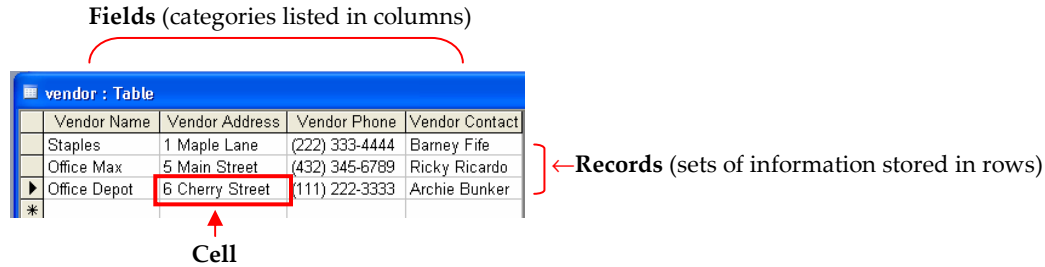
The database window appears with a list under the **Objects** heading of all the components that can be used to create a database.



# TABLES

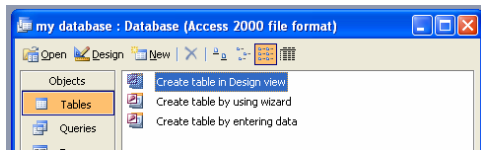
## Table structure

A table in Access is basically a datasheet made up of columns and rows. The columns contain fields and the rows contain records. A **field** is a category, such as unit price, phone number, user ID, into which you enter information. A **record** is all the pieces of information from the various fields that apply to one entity, such as an employee, a department, or a vendor. An employee record, for example, might include Employee ID, Phone, E-mail address, and Department. The intersection of a row and a column is referred to as a **cell**.



## Create a table

- Click on **Tables** under the **Objects** listing.



To the right, you'll see several methods listed for creating a table: using Design view, using the Wizard, and by directly entering data in a datasheet.

## Methods for creating a table:

<b>Design view</b>	Offers the most control and flexibility in the creation of your table.
<b>Wizard</b>	Walks you through the steps, but offers less creative control to the user.
<b>Enter data (into a datasheet)</b>	"From scratch" method. Will probably need to use Design View to refine.

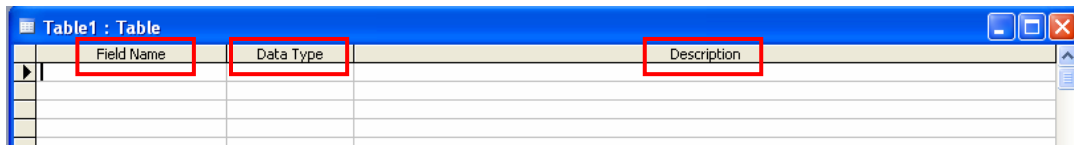
Design view allows you first to define the structure of your table in one area and then to enter data in another. Even if you use another method, you'll likely need to turn to Design view to refine the structure and layout of the table. It's the most useful method to become familiar with.

## Create a table using Design view

- Double-click **Create table in Design view**.

The Design view screen allows you to enter field names, define the data type for each, and add an optional description.

<b>Field Name</b>	A category heading, such as Address or Phone Number
<b>Data Type</b>	The type of data being entered, such as text, numbers, currency, date/time, etc.
<b>Description</b>	Describes the category and/or how to enter data in a consistent way (e.g., "Enter 12/pk rather than 12/pack or pack of 12").



- Enter your first field name in the upper-left cell, beneath the Field Name heading. (NOTE: it's recommended that you use no spaces when typing a field name. Type PhoneNumber, for example, rather than Phone Number.)
- Press Enter to move to the Data Type field for that entry. Click on the down arrow that now appears and choose from the list of Data Type options.

Data Type	Use
<b>Text</b>	Text and/or numbers not used in calculations (e.g., phone numbers, street addresses, zip codes). Limit of 255 characters per entry.
<b>Memo</b>	Text and/or numbers requiring more than 255 characters per entry (e.g., notes)
<b>Number</b>	Numeric data being used in calculations, excluding currency AND excluding numbers that should not be rounded off during calculations.
<b>Date/Time</b>	Date or time
<b>Currency</b>	Currency (e.g., \$5.00 or \$0.75) or numbers that should not be rounded off during calculations.
<b>AutoNumber</b>	Usually sequential, auto-generated numbers, each which uniquely identifies a record. A new number is generated as each new record is created.
<b>Yes/No</b>	Use in fields where the entry can only be one of two values, such as Yes/No or True/False.
<b>OLE Object</b>	Formatted text, long documents, images, or other objects created in other applications that are being inserted into or linked to from Access.
<b>Hyperlink</b>	A link usually to a website.
<b>Lookup Wizard...</b>	A field that allows you to choose an entry from another table or from a list of values that you determine.

- **NOTE:** If you are prompted at any point to save your table, choose **Yes**.
- If you are saving for the first time, Access prompts you to enter a **Table Name** and click OK. Do so.
- **TIP:** Enter as clear and descriptive a name as possible. If you create many tables in a database, it may be hard otherwise to tell them apart.

Access will then prompt you that no **primary key** has been assigned and asks if you'd like to create a primary key now.

- Choose **No** to create your own or **Yes** to allow Access to create one for you. It's preferable to set your own, although that is not always possible. See below for more information about primary keys.

## THE LOOKUP WIZARD

The Lookup Wizard creates what's called a lookup column. The lookup column lets you see a drop-down list containing entries from a linked table, allowing you to click on an entry rather than typing it in manually. Not only does this simplify data entry, it also cuts down on typos and inconsistencies in how data is entered.

Let's say you've created a Supplier table with a Supplier Name field. Next, you create an Inventory table with a Supplier Name field in it. When you click on the Supplier Name field in your Inventory Table, a **combo box** containing a drop-down list of all the supplier names from the Suppliers table appears for you to choose from. Click on your choice and the name appears in the field. **NOTE:** Should you later add names to the Supplier Name field in the Supplier table, those names will then automatically appear the next time you click on the combo box for that field in the Inventory Table.

### **To use the Lookup wizard,**

- Choose **Lookup Wizard...** from the **Data Type** list in **Design view**.
- Choose **I want the Lookup column to choose the values in a table or query**.
- Select the table you want to use as your link and click Next.
- Click on the field you want to link and then press > to move it into the **Selected Fields** window and press Next.
- To sort the listings, click on the down arrow by the first **Sort Order** window and click on your field.
- To sort in Ascending order, click Next. To sort in Descending order, click on the **Ascending** button next to the window—this changes it to **Descending**—and click Next.
- Click **Finish**.
- Press **Yes** when prompted to save your table.

## PRIMARY KEYS

A **primary key** is used to establish links between tables that allow you to combine and retrieve data from them. It is a field (or multiple fields) that uniquely identifies each record in your table. A SSN field, for

instance, could be used as a primary key field in an employee database, since no two people have the same one. A primary key is all but essential for your database to operate efficiently.

### Create a primary key

Once you save a table, Access prompts you that no primary key has been defined, and asks if you'd like to create one. You can either set a primary key yourself, or you can let Access do it for you.

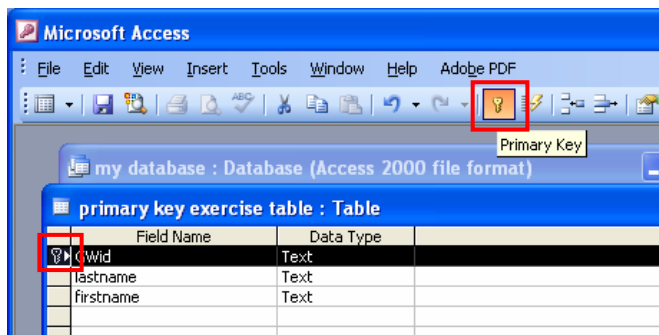
*Which should you choose?*

If your table contains a field, such as employee IDs, that guarantees no duplicate entries, you should use that field as your primary key.

If all your fields could potentially contain duplicate entries, let Access create a primary key for you. The program creates an **ID field** with automatically generated, consecutive numbers. A new number is generated each time you create a record. Because these numbers are meaningless, except to identify uniquely each individual record in your table, you should always try to create a primary key from amongst your table fields.

*If Access prompts you that a primary key has not been defined,*

- **Click Yes if you want Access to assign one.** Access inserts an ID field above all your other fields. Its data type is **AutoNumber**. An image of a key appears in the gray box—called a **row selector**—to the left of the ID field name. (**TIP:** You can rename this field name by clicking in the cell, deleting the text, and typing your own text in its place.)
- **Click No if you plan to assign your own primary key.**
- To assign a primary key, click anywhere on the field name you plan to use.
- Click on the key icon from the Database toolbar. An image of a key appears in the row selector.



**NOTE:** The primary key should be the top field on the list. To change a row's position,

- Click once inside the gray cell to the left of that row.
- Click again in the cell and hold down the left mouse button.
- Drag the row to its new location and release the mouse button.


**NOTE:** To remove a primary key from a field, click anywhere inside the field name and click on the primary key icon from the Database toolbar. To designate a different field name, click inside that field name and click on the primary key icon.

### Field Properties in the Design view screen

Field properties allow you to control even further how data is entered in the fields of your table. If, for instance, you've set a data type to Date/Time, you can dictate in Field properties exactly how a date should be typed. For example, you may want all years to be typed out completely rather than entered using only the last two digits (2006, rather than 06).

Here are some of the more commonly used Field Properties:


Field property	Use
Field size	Limits how many characters/numbers you can type in an entry.
Format	Determines how text or various types of data appear. For instance, regardless of how a date is entered—with hyphens or slashes—it will appear uniformly as one way or the other.
Input mask	Establishes a pattern for how non-calculated numbers—phone numbers, zip codes, SSNs, etc.—or dates/times are to be entered.
Caption	The label for a field, used in place of the field name, where desired. Since field names are usually typed without spaces, you might choose to type the caption <b>Phone Number</b> to appear as a label in tables, forms, reports, etc., rather than the field name <b>PhoneNumber</b> .
Required	Designate whether data entry is required or not in a particular field
Indexed	Marks the data in selected fields for faster sorting and searching. If you index a Last Name field, it will be quicker in a large database to search out that name from amongst all the records.

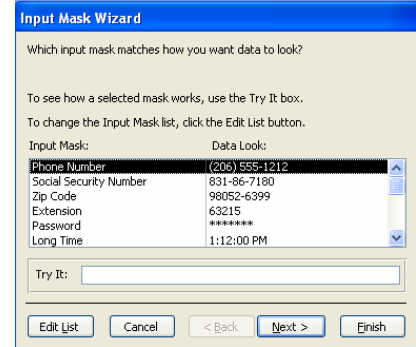
**NOTE:** Field properties may display down arrows with drop-down menu lists, or, in the case of input masks, you'll be prompted to click on the **Build** button  to the right of the window.

### INPUT MASK

The **input mask** sets rules for how non-calculated numbers such as dates and phone numbers are entered in a field. For instance, to display 9/25/1925, you might require users to type it as 09/25/1925. In datasheet view, you'd see two spaces rather than one for the month entry: \_\_ / \_\_ / \_\_\_\_\_. If a value is entered incorrectly, Access rejects it.

**To select an input mask for a field**

- In Design view, click in the Data Type window for the field to which you want to apply the input mask.
- In the Field Properties window below, click on Input Mask and then click on the Build button  that now appears.
- The Input Mask Wizard appears. Scroll through the list of input masks.
- Select the appropriate one and click **Finish**.
- The input mask field now displays a series of characters representing how text/numbers are to be entered. The default syntax for entering a phone number, for instance, is:  
!(999) "000\-0000;;\_



**Syntax**

Here is a list of common characters used to create masks, borrowed from *Microsoft Access 2003 Step by Step*:

Character	Description
0	Required digit (0 through 9).
9	Optional digit or space.
#	Optional digit or space; blank positions are converted to spaces; plus and minus signs are allowed.
L	Required letter (A through Z).
?	Optional letter (A through Z).
A	Required letter or digit.
a	Optional letter or digit.
&	Required character (any kind) or a space.
C	Optional character (any kind) or a space.
<	All characters that follow are converted to lowercase.
>	All characters that follow are converted to uppercase.
!	Characters typed into the mask fill it from left to right. You can include the exclamation point anywhere in the input mask.
\	Character that follows is displayed as a literal character.
<b>Password</b>	Creates a password entry box. Any character typed in the box is stored as the character but displayed as an asterisk (*).

It is not necessary to know what each bit of syntax means, since Access creates masks automatically for you. But it can be useful to understand the syntax behind a mask. For example, one of the date mask defaults is: **99/99/0000;0;\_** In this mask the year, represented by **0000**, must be entered using all four digits. If you wanted the year to be configured so that you'd only need to enter the last two digits, you could delete two of the zeroes in the year portion of the mask. The mask would now look like this: **99/99/00;0;\_** and a date would change in its appearance from, say, 10/29/1960 to 10/29/60.

#### To insert a new field name between rows


- Position the mouse pointer on the gray cell (row selector) in front of the row above which you want to add a new field name.
- Click with the right mouse button and select **Insert Rows** (with the left mouse button).
- Enter the new field name.

#### Save the table

Before moving ahead, you will need to (re)save your table.

- Press **Save** from the Table Design toolbar.
- If you are saving for the first time, Access prompts you to enter a **Table Name** and click OK. Do so.
- **TIP:** Enter as clear and descriptive a name as possible. If you create many tables in a database, it may be hard otherwise to tell them apart.
- If you are saving for the first time, Access will then prompt you that no **primary key** has been assigned and asks if you'd like to create a primary key now.
- Choose **No** to create your own or **Yes** to allow Access to create one for you. It's preferable to set your own, although that is not always possible. See page 5 for more information.

#### To enter data in your table

- Press **Save** one last time.
- Click on the **View** icon from the **Table Design** toolbar. 
- Type your data in the table, pressing Enter to move from field to field and then from record to record. (**NOTE:** Access automatically adds additional rows as necessary to accommodate your data.)

#### To freeze a column or columns so that they remain in view as you type across your datasheet

If you have many fields to enter information into, you may wish to freeze your initial column so that you know you're entering data on the correct row.

- Click inside the column you want to freeze. (**NOTE:** To select multiple columns, click and hold down the left mouse button on the field name—a column selector—and drag the mouse across the other adjacent column selectors. Then release the mouse button.)
- Choose **Format** from the menu bar and select **Freeze Columns**.

#### To unfreeze a column or columns

- Choose **Format** from the menu bar and select **Unfreeze All Columns**.

### To return to Design view to make any structural or layout changes

- Click on the **Design view** icon on the **Table Datasheet** toolbar.



- Make any needed changes and then click on the View icon to return to data entry.

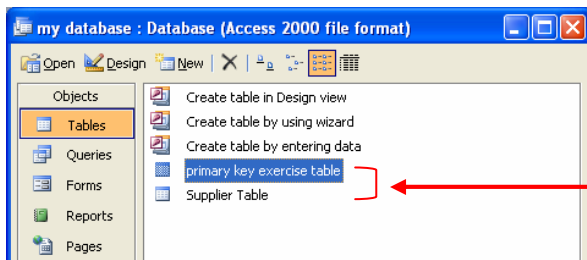


### When done

- Close the table by clicking on the red x in the table's (not the program's!) upper right corner.

**NOTE:** You are only prompted to resave the table if you made structural or layout changes to it. Additions, deletions, and changes in data entry are saved automatically.

All tables you've created so far appear in a list beneath the Create table options in the Database window.



List of tables created thus far

### To delete a table

- Right mouse click on the table listing and choose **Delete**.
- Click **Yes** to confirm the deletion.

## RELATIONSHIPS

Setting up relationships between tables links them so that you can combine the data stored in each. One way of linking tables was already mentioned: the Lookup Wizard. Another way to establish relationships is to choose **Relationships** from the Tools menu on the menu bar. But first,

### In order to set up relationships,

- Two tables must have a field in common. Note the example below.

Supplier : Table		
Supplier	Contact Name	Phone Number
Demco	Daffy Duck	(222) 333-4444

Inventory : Table		
Item	Supplier	Cost
Chalk	Demco	\$2.39

A red line starts from the "Supplier" field in the "Inventory : Table" and extends upwards and to the left, then turns right to point at the "Supplier" field in the "Supplier : Table".

- The field in one table is usually designated as the primary key (each entry in that field uniquely identifies its record).
- The matching field in the second table references that in the first, and is known as a **foreign key**.

In the Supplier table above, the Supplier field is the primary key. In the Inventory table beneath it, the Supplier field is a foreign key.

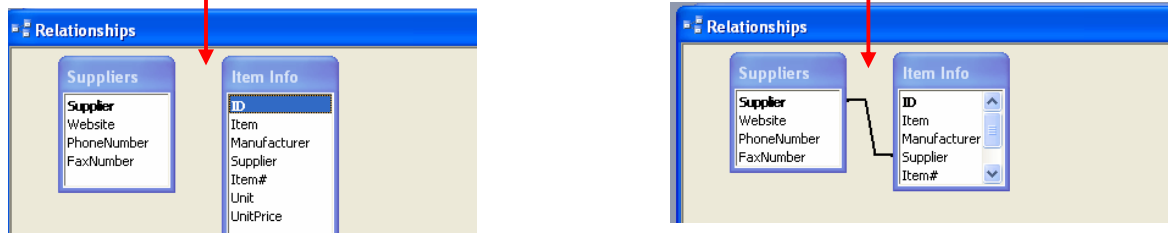
### One-to-many relationship

- This relationship is an example of the most common type in Access: the **one-to-many relationship**. That is, the item chalk only has one supplier, Demco. But Demco may supply many additional products to the business setting up this database. Demco may supply erasers, chalkboards, pens and pencils, each of which would appear in the Item column, with Demco listed in the next column over as its supplier.

### Set up relationships between tables

- Close out any tables that are currently open. Relationships cannot be set up while tables are open.
- Select Tools from the Menu Bar and choose **Relationships...**

The **field lists** from the tables in your database will appear side-by-side in the Relationships window. If during the creation of any tables, you used the Lookup wizard to create a lookup column in a data type field in Design view (see page 5), then you'll see a **join** line that connects the tables. Access has in this case already set up a relationship between the two tables.



*If no relationship exist between tables,*

- Position your mouse pointer on the field name in common in one of the field lists, hold down the left mouse button and drag it over the same field name in the other field list. (**TIP:** If the field name in either or both field lists isn't displaying, use the vertical scroll bar to scroll down until you see the field name displayed.)
- The line that appears connecting the two represents the link between tables.

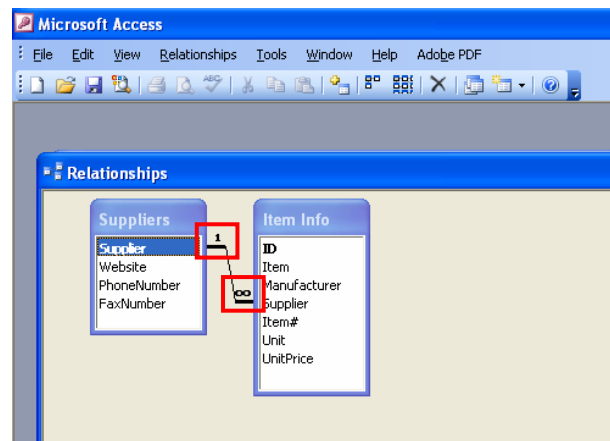
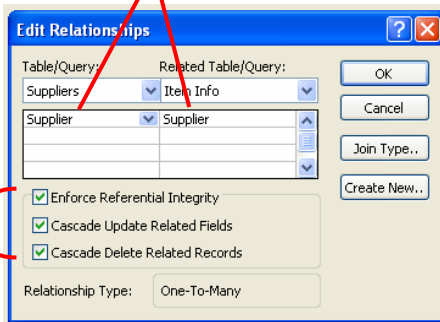
## REFERENTIAL INTEGRITY

You will likely want to maintain the consistency of the link between tables by enforcing **referential integrity**. This rule ensures that a record cannot be added to the foreign key field unless the record already exists in the primary key field.

When enforcing referential integrity, you should also choose to enforce the rule by which any changes made to records in the primary key—e.g., change in a supplier’s name listed in the field—will also be changed automatically in the linked table. This rule is known as: **Cascade Update Related Fields**. Another rule—**Cascade Delete Related Records**—guarantees that any deletions made to entries in the primary key field will also be deleted in linked tables.

**To enforce referential integrity, as well as the cascading options,**

- Place the mouse pointer tip directly on any part of the join line between field lists.
  - Double-click on the line to open the **Edit Relationships** window.
  - In the Edit Relationships window, the fields in common will appear side-by-side.
  - Checkmark the three boxes: **Enforce...**, **Cascade Update...**, and **Cascade Delete...**. Then click OK.
- You will see a 1 on one end of the join line and the ∞ symbol at the other in the Relationships window.



These designate the link as a **one-to-many relationship**. (An item in an inventory can only have one supplier, for example, but the supplier may supply multiple items to the business managing the inventory.)

- Press **Save** and close out the Relationships window.

**To delete a relationship**

- Position the mouse pointer tip anywhere on the join line in the Relationships window and right-mouse click.
- Choose **Delete** from the pop-up menu.
- Choose **Yes** to confirm the deletion.

**NOTE:** You can add new relationships and edit/delete old ones at any point by re-opening the Relationships window and repeating the steps listed above.

## FORMS

Forms allow for easier data entry and editing than tables do. In a large table, with so many rows and columns, it's possible to type information in the wrong column or in the wrong row accidentally. Forms allow you to edit and add data in a format that displays fields for just one record at-a-time. **NOTE:** Any information typed in a form is automatically added to the source table.

**TIP:** If you'd rather enter all your data in a form than type it directly in the source table, feel free. Simply set up your field names, data types, and field properties in the table's Design view, save and close the table, and then create your form. As information is entered into the form, it is added automatically to the source table.

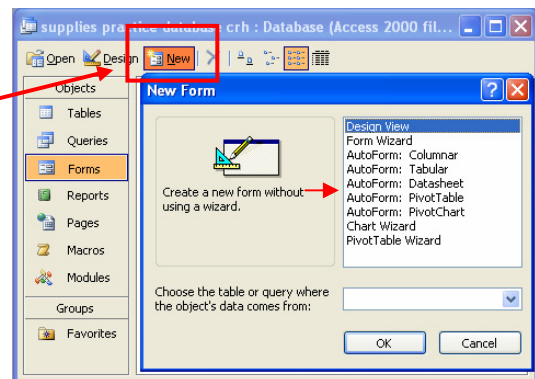
### Create a form

- In the Database window, choose **Forms** from the Objects menu.
- Choose **New** on the Database window toolbar.

**AutoForm: Columnar** is the fastest and simplest method to use in designing a form.

### Use AutoForm: Columnar to create a form

- Click on **AutoForm: Columnar** in the **New Form** dialog box.
- Click on the down arrow by the **Choose table or query...** window and select the table you'd like to base your form on. Then click OK.
- All the fields from the source table appear in columnar format.
- Type your data, pressing enter between fields.
- To bring up a new record, press Enter after you've completed the last field of the current record.

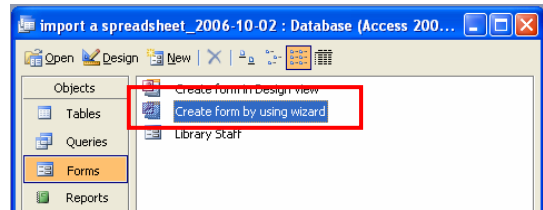


### Create form by using wizard

The Form wizard is another method for creating a form. In contrast to using AutoForm, the Form wizard allows you to determine whether or not all fields appear in the form. If, for instance, your form contains an auto-numbered ID field, you might not want it to appear on your form if other users are adding data. They might think they need to enter a value in that field, not realizing that numbers are generated automatically.

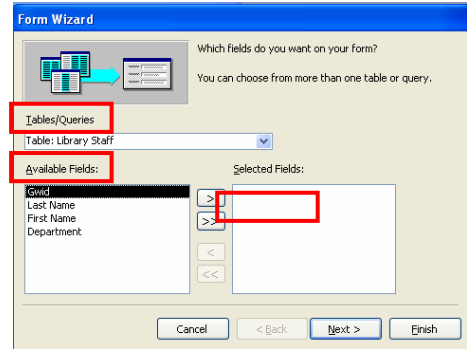
### Use the Form wizard to create a form

- Double-click **Create form by using wizard** from the Database window.



### Select tables/queries:

- Click on the down arrow beside the **Tables/Queries** selection window and choose the table or query you're using to create your form. (**NOTE:** You can select more than one. Repeat the step to add any additional tables/queries.)



### Add fields:

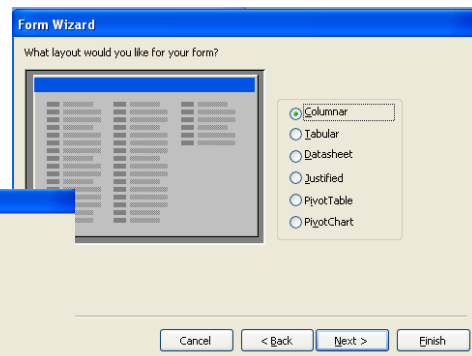
- All the fields from your selected tables/queries appear in the **Available Fields:** window.
- Use the **>** button to add fields to the **Selected Fields** window, one-at-a-time.
- Use the **>>** button to move all available fields into the Selected Fields window.
- To remove individual fields from Selected Fields, click on each field and press **<**.
- To remove all fields, press **<<**.

**NOTE:** The order in which you add fields to the Selected Fields window determines their default order in the form.

- When done, click Next.

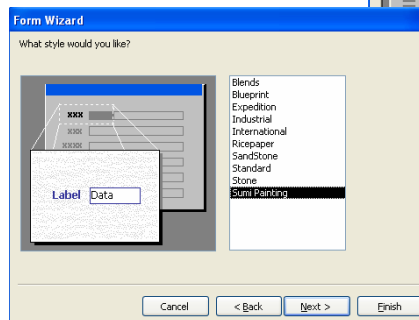
### Choose a layout

- Choose from the various layout options and click Next.



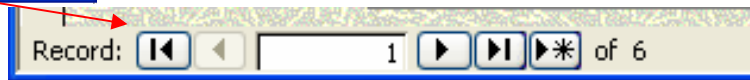
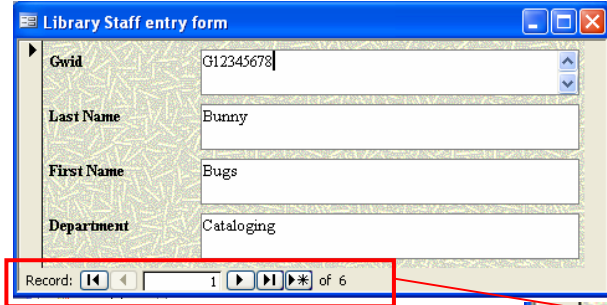
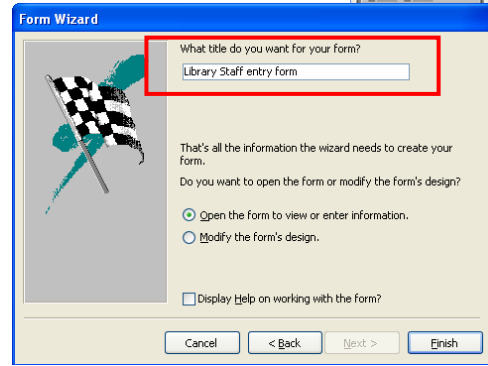
### Choose a style

- Select a style for your form from the list and click Next.



*Assign a title*

- Assign a title to your form, or accept the default already entered at the top.
- Make sure that **Open the Form to view or enter information** is selected and then click **Finish** to view your form.



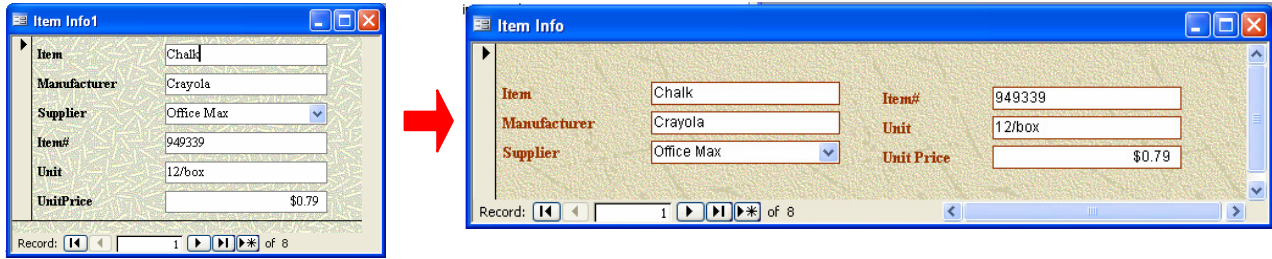
The **record navigator** at the bottom of the form allows you to move from record to record, or to create a new record into which you can enter information.

**Navigate through a form**



	Move forward or backward between records.
	Move to the first or last record.
	Create a new record.
	Type a record number and press Enter to locate that record.
	The total number of records currently entered.

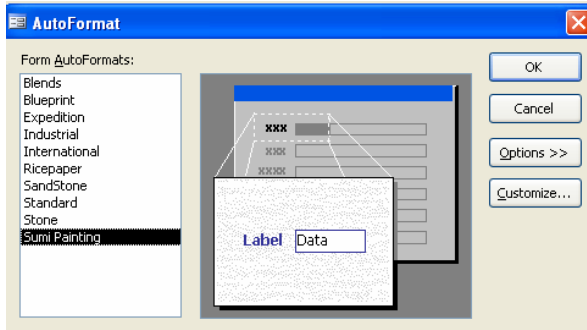
## To change the look of your form

You can change the look of your form, as well as the placement of fields within the form. For example:



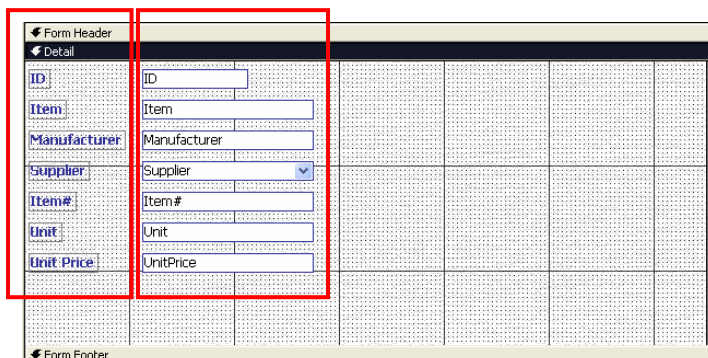
The forms above contain the same field names and data. But the background and color scheme of the second form have changed.

- Click on the **Design view** icon on the **Form View** toolbar. 
- Maximize the form screen if it isn't already by clicking on the Maximize button in the upper-right corner. This will ensure that all your fields display.
- Click on the **AutoFormat** icon from the **Form Design** toolbar. 
- Select a design from the **Form AutoFormats** menu and click OK.



A note about form fields: the labels on a form are referred to as **label controls**. The fields where you enter/edit data are called **text box controls**.

**Label Controls**      **Text Box Controls**

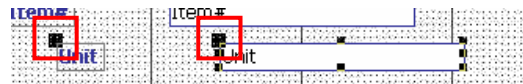


To move a label control and its text box control elsewhere on the form,

- Click and hold down the left mouse button anywhere inside either. The mouse pointer changes to an open black hand. (NOTE: If you've already clicked inside either and released the mouse button, simply position the pointer anywhere around the border—except on a handle—and the mouse pointer will change to the open black hand. Then click on the border.)
- Drag the controls to a new location and release the mouse button.

To move either a label control or its text box control separately,

- Click once inside either.
- Then position the mouse pointer tip on the large upper left corner handle by the item and click and hold down the left mouse button.
- Drag the control to a new location and release the mouse button.



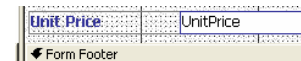
**NOTE:** Your workspace may not appear wide enough to move your controls around in.

To create more horizontal space to work in,

- Drag your label control and/or text box control to the right; the background will automatically expand to accommodate the new placement.

To create more vertical space to work in,

- Position the mouse pointer tip at the bottom edge of your section, where it meets the Form Footer section selector until the mouse pointer changes to a two-sided arrow.
- Hold down the left mouse button and drag vertically to stretch your form background area.
- Release the mouse button when done.

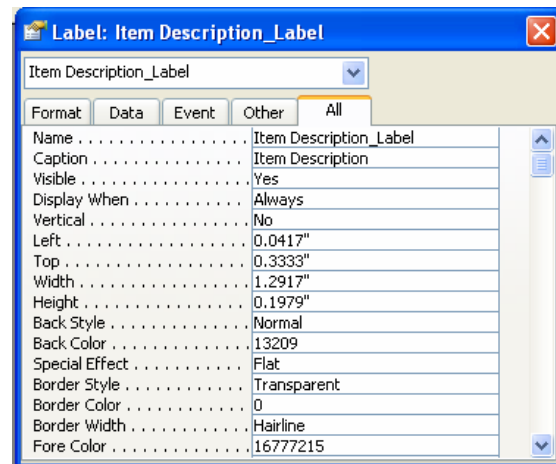


To make further changes to the formatting or to other properties of a control,

- Click on the control so that handles appear around it.
- Click on the **Properties** icon on the **Form Design** toolbar.




- Navigate the **Properties** window and make any desired changes before closing out the window.




**NOTE:** To make identical changes to all controls at once,

- Choose **Select All** from **Edit** on the menu bar. All controls are now selected. Any changes you make in the Properties window will apply across the board.

**NOTE:** To make changes to selected controls at once, hold down the shift key and click on each control you wish to change.

**NOTE:** A number of properties display a build button  when you click on them. **Back color** and **Fore Color**, for example, allow you to click on the build button and then select from a color palette. Otherwise, you'd have to enter a number to represent a given color (notice how they're entered in the Properties window; it's difficult to figure out what color they're referring to when they say 16777215, rather than showing a color swatch.)

To see the changes in Form view,

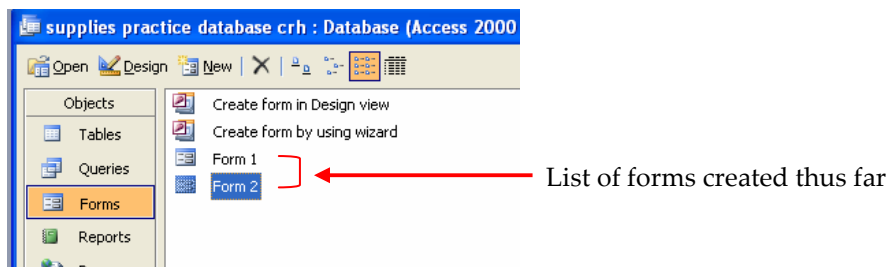
- Press **Save** to store changes to the structure and layout of your form in **Form Design** view.
- Click on the **Form view** icon on the **Form Design** toolbar. 

### To exit a form

You only need to press Save if you've made changes to the physical design of the form. Data entries are automatically saved.

- Press **Save** if necessary.
- Close out the form by clicking on the red x in the form's upper right corner.

A list of created forms appears in the Database window when you select Forms from the Objects menu.



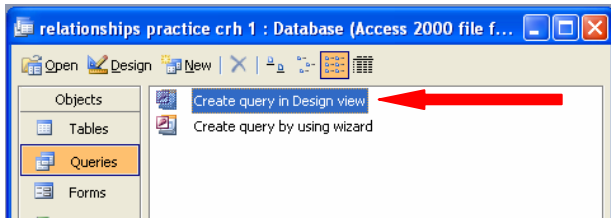
### To delete a form

- Right mouse click on the form and choose **Delete**.
- Click **Yes** to confirm the deletion.

## QUERIES

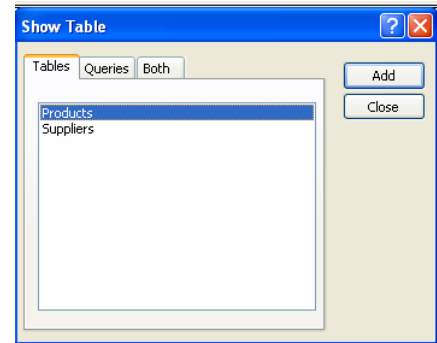
Queries in Access allow you to combine data from multiple tables (and/or other queries) into a new datasheet. It also allows you to extract data from an individual table or other query. Users can create a number of different types of queries, but this section will focus on the most common type: **Select Queries**.

- To create a query, choose **Query** from the **Objects** menu in the Database window.
- Double-click on **Create query in Design view**. (**NOTE:** you can use the Query wizard to create a query, but you'd likely need to turn to Design view to fine-tune it.)

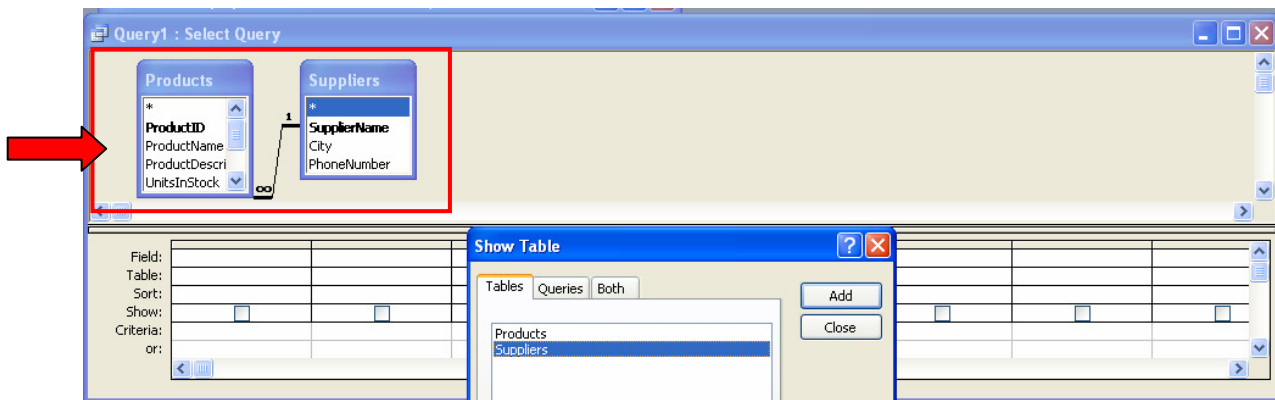


The **Show Table** window appears.

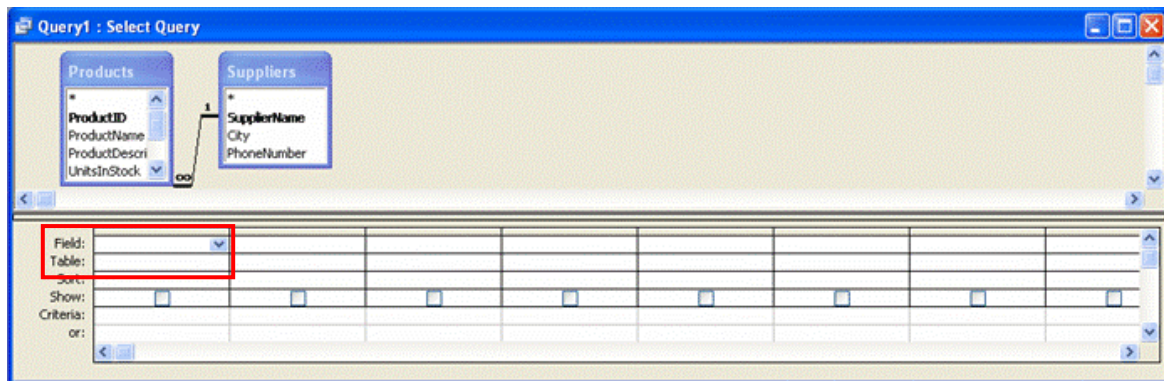
- Click on the **Tables, Queries, or Both** tab, depending upon what you're basing your query on.
- A list of tables and/or queries appears.
- Double-click on each query/table from which you'd like to build your query.



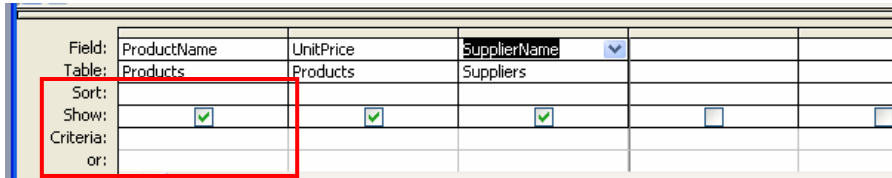
As you double-click on each, a list of field names for them appears in the upper pane of the **Select Query** window.



- Close the Show Table window.



- To choose fields to appear in your query, double-click on each field you want to include from each list. (NOTE: You may need to scroll through the list to see every field listed.)
- As you double-click, field names appear below in the **Field** window, one beside the other, and the tables/queries they come from are listed in the row beneath.



Notice the other options listed in this screen: Sort, Show, and Criteria.

**Sort** allows you to sort listings in a field in ascending or descending order.

**Show** gives you the option to display or hide a particular field on the query datasheet.

**Criteria** lets you set limits to which data from a field will appear on the query datasheet. For example, you may wish to display only those items whose unit price is less than \$10.00. Or, in an employee database, you may only wish to display in a State Residence field those employees who live in Virginia.

**NOTE:** the Criteria field lets you add additional limits—note the “**or**” row beneath it.

#### Common syntax used to limit query searches

- To search for a range of values—such as a price range—in a field, use any of the following operators: > (greater than), < (less than), >= (greater than or equal to), or <= (less than or equal to).
- To search for all entries in a field which have a particular word or name, type an asterisk followed by the word. (NOTE: Access enters it as **Like “\*word”**, but you don’t have to type it that way.)
- To search for listings that start with a given letter, type the letter, followed by an asterisk.

Compare the two following datasheets:

The first one is a query in which the user combined Item and Supplier tables.

	Item Description	Manufacturer	Supplier	Product #	Unit	Unit Price	
	Blank CD-Rs	Imation	Office Max	S717301	Pack of 50	\$20.82	w
	Chalk	Binney and Smith Crayola	Office Max	949339	box of 12	\$0.79	w
	Chalkboard eraser	Quartet	Office Depot	309443	Each	\$2.39	w
	Dry Erase Markers	Expo	Office Max	N280074	Set of 4	\$6.44	w
	Spray Mount Adhesive	3M	Office Depot	A16065	Each	\$18.27	w
	Tattle-Tape Security Strips for CDs/DVDs	3M	Demco	WS25352430	Box of 200	\$259.99	w
	Tattle-Tape Security Strips for Videos	3M	Demco	WS15352390	Box of 200	\$51.59	w
	Whiteboard Erasers	Expo	Office Max	N281505	Each	\$3.25	w
	*						




The second is a query in which the user combined the two tables, and then limited their results in the Supplier field to Office Max, and then sorted the results by price.

	Item Description	Manufacturer	Supplier	Product #	Unit	Unit Price	Web
▶	Chalk	Binney and Smith Crayola	Office Max	949339	box of 12	\$0.79	www.offi
	Whiteboard Erasers	Expo	Office Max	N281505	Each	\$3.25	www.offi
	Dry Erase Markers	Expo	Office Max	N280074	Set of 4	\$6.44	www.offi
	Blank CD-Rs	Imation	Office Max	S717301	Pack of 50	\$20.82	www.offi
*							

By the way, notice the conditions that were set in Design view to produce the second query:

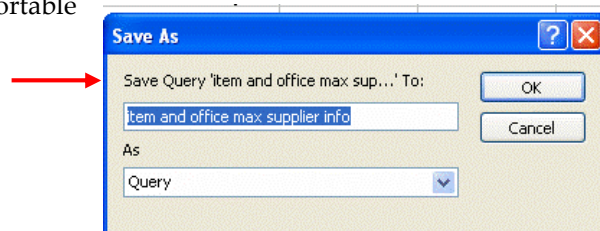
Field:	Item Description	Manufacturer	Supplier	Product #	Unit	Unit Price	Web
Table:	Item Info	Item Info	Item Info	Item Info	Item Info	Item Info	Supp
Sort:						Ascending	
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			Like "*Office Max"				

### Run the query

- To run the query, press 
- If you need to tinker with the design of your query, click on  from the **Query Datasheet** toolbar.
- To run the query again, press 

### Save your query

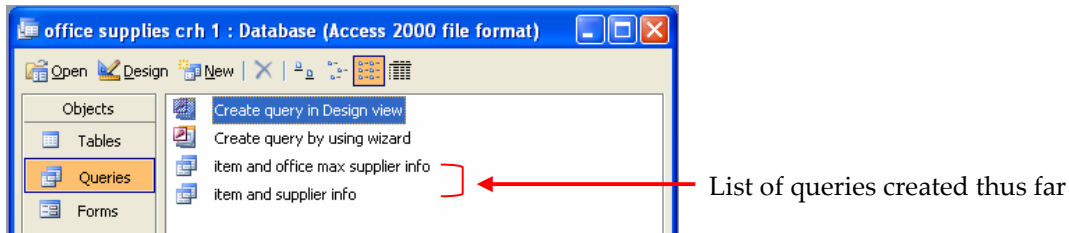
- Press **Save** to store your query.
- Enter a name in the **Query Name** window and click OK.
- (NOTE: if you further refine an existing query, you'll probably want to choose **Save As** so that you can give it a separate filename, rather than overwriting the original query.
- Enter your new filename in the Save...To:** Window and click OK. NOTE: You can also save it as a form, report, or data access page, which is exportable to a web page as an html file.



### Close your query

- Click on the x in the upper right corner of the Query window.

All queries you've created so far appear in a list beneath the Create query options in the Database window.





### To delete a query

- Right mouse click on the table listing and choose **Delete**.
- Click **Yes** to confirm the deletion.

## SORTING RECORDS

To sort records in a datasheet in ascending or descending order (either alphabetically or numerically) by a particular field,


- Click on the column selector above the column whose field you wish to sort on.
- Choose the **Sort Ascending** button  or the **Sort Descending** button. 

**NOTE:** Numbers in fields that have **Text** set as their Data Type, will not sort in numeric order. To sort these kinds of numbers, you'll need to change the Data Type to Number or Currency in Design view.

## FILTERS

You can also limit data to a table or query by filtering records for a selected value. For instance, you might only want to display in an inventory table those items purchased from a particular manufacturer. The easiest filtering method is called **Filter by Selection**.

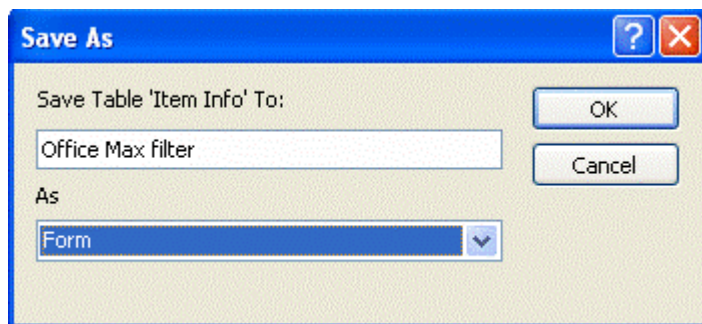
### To filter by selection

- In your datasheet, click on the value you want to select for filtering.
- Press the **Filter by Selection** icon  on the **Table** or **Query Datasheet** toolbar.

(NOTE: To remove a filter, you'd click on the **Remove Filter** icon  on the **Table** or **Query Datasheet** toolbar.

The result resembles that of a query in which records are limited. Filters, however, are temporary. Once you close the table or query, the filter is automatically removed, even if you are prompted to save. Unfiltered data reappears once you reopen the table or query.

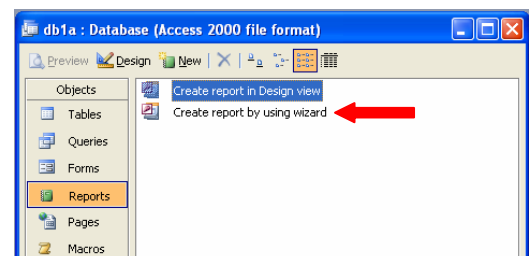
- If you expressly want to save your filter, choose **Save As** from File on the menu bar.
- Enter a filename in the **Save...To** window and choose what to save it as (form, report or data access page). Then press OK.



- Close the table or query.

## REPORTS

Reports in Access allow you to print assembled data in a custom layout. You can create reports based on tables and/or queries.



### To create a report,

- Click on **Reports** from the **Objects** menu in the Database window.

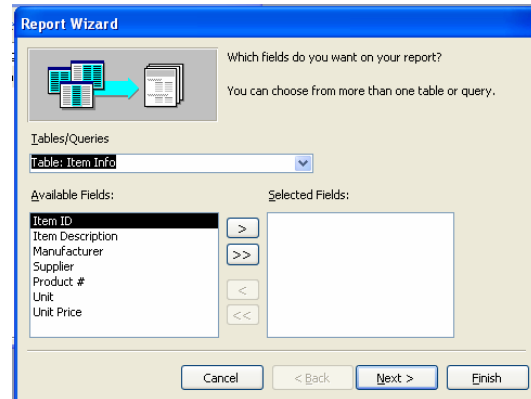
There are several methods for creating a report. We will focus on the **Reports wizard**.

### Use the Reports wizard to set up a report

- Double-click **Create report by using wizard** in the Database window.
- The Report wizard launches.

#### Select tables/queries:

- Click on the down arrow beside the **Tables/Queries** selection window and choose the table or query you're basing your report on. (NOTE: You can select more than one. Repeat the step to add any additional table/queries.)



#### Add fields:

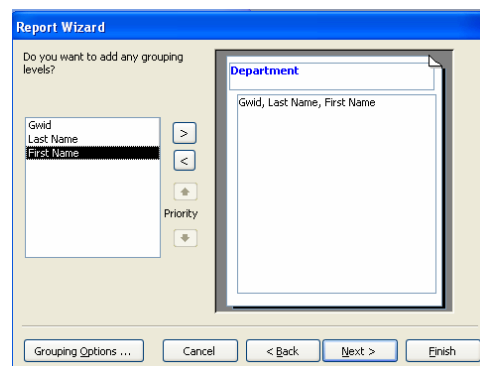
- All the fields from your selected tables/queries appear in the **Available Fields:** window.
- Use the **>** button to add fields to the **Selected Fields** window, one-at-a-time.
- Use the **>>** button to move all available fields into the Selected Fields window.
- To remove individual fields from Selected Fields, click on each field and press **<**.
- To remove all fields, press **<<**.

**NOTE:** The order in which you add fields to the Selected Fields window determines their default order in the report.

- When done, click Next.

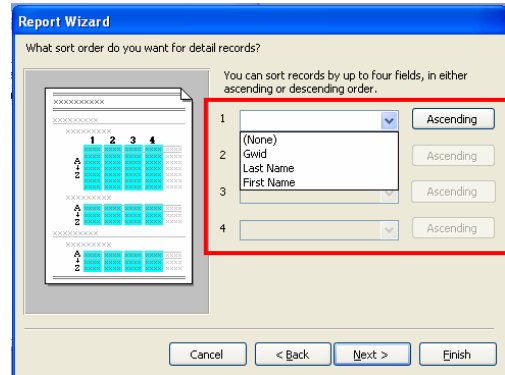
#### Create grouping levels

- If desired, use the right arrow button to create grouping levels (group your report listing by a category or categories), and use the up and down arrow buttons to promote or demote a field's position. The left arrow button removes selected fields from grouping levels.
- When done, click Next.



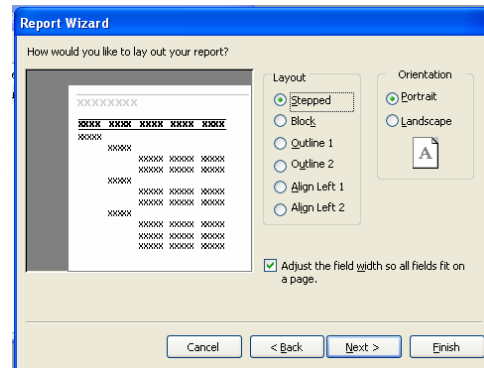
### Sort by category (field)

- You can select a sort order for up to four fields. Click on the down arrow to select a field and then choose ascending or descending order.
- When done, click Next.



### Choose a layout

- Choose from the various layout options and click Next.
- Choose a page orientation—portrait or landscape.



### Choose a style

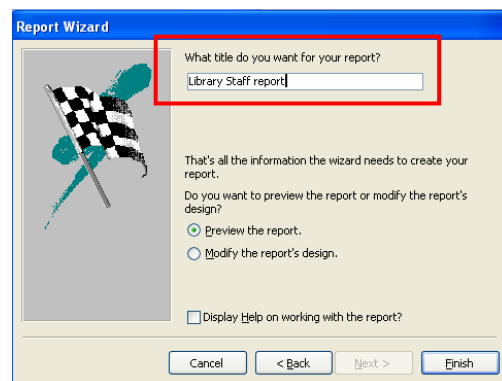
- Select a pre-formatted report style and click Next.



### Assign a title

- Enter a title for your report, or stick with the default title assigned by Access.
- Make sure that **Preview the report** is selected and click **Finish**.
- The report appears in Print Preview.

**NOTE:** Any changes to data in the source tables/queries are automatically updated in your report.



### If the report runs off the side of the page

Before playing with the placement of report controls, consider changes you can make to the page setup of the report.

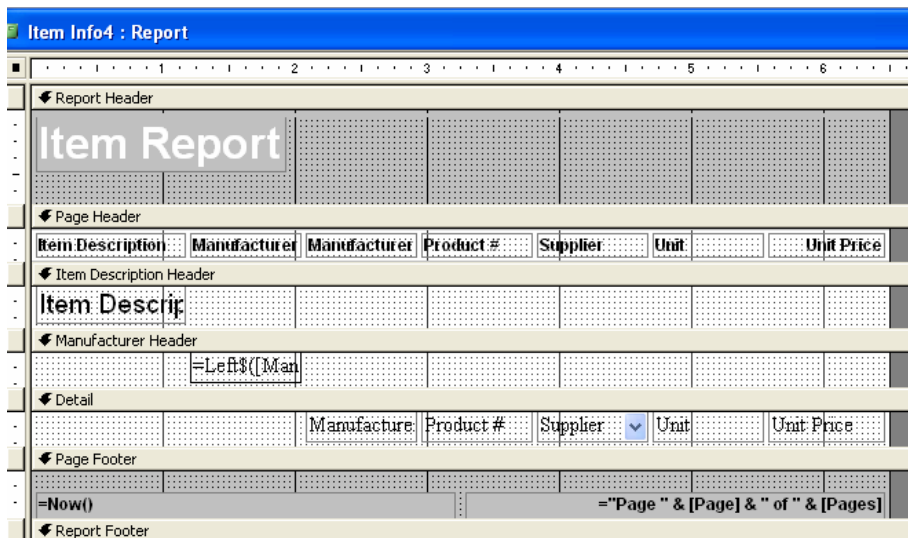
- To reduce the size of the page margins, choose **Page Setup** from File on the menu bar, click on the **Margins** tab, and reduce the margin size.
- To print landscape rather than portrait (this gives you much more horizontal room across the page), click on the **Page** tab in Page Setup and select **Landscape**.
- Press OK when done.

If you need to fine-tune further the placement of columns in your report, Design view allows you to modify the layout.

- Click on the Design view icon on the Print Preview toolbar.



### Report in Design view



To move a control, position the mouse pointer anywhere inside the control, click and hold down the left mouse button, and drag it to a new location. Release when done.

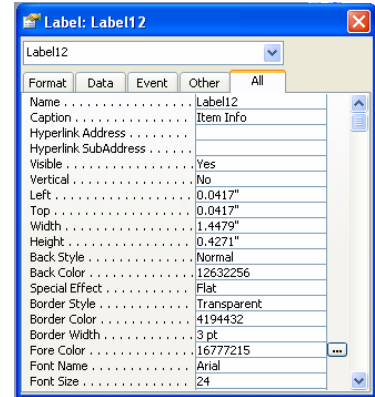
- To stretch or shrink the size of a control, click once inside the control. Next, position the mouse pointer tip directly on one of the control's handles that surround it, hold down the mouse button, and drag the handle. Release when done.
- To make a section longer, position the mouse pointer tip at the very bottom of the section, until it becomes a two-sided arrow. Click and hold down the left mouse button and drag it. Release when done.

If you need to make further changes to formatting or to other properties of a control,

- Click on the control so that handles appear around it.
- Click on the **Properties** icon on the **Formatting (Form/Report)** toolbar.




- Navigate the **Properties** window and make any desired changes before closing out the window.



**NOTE:** To make identical changes to all controls at once,

- Choose **Select All** from **Edit** on the menu bar. All controls are now selected. Any changes you make in the Properties window will apply across the board.

**NOTE:** To make changes to selected controls at once, hold down the shift key and click on each control you wish to change.

**NOTE:** A number of properties display a build button  when you click on them. **Back color** and **Fore Color**, for example, allow you to click on the build button and then select from a color palette. Otherwise, you'd have to enter a number to represent a given color (notice how they're entered in the Properties window; it's difficult to figure out what color they're referring to when they say 16777215, rather than showing a color swatch.)

### View your report

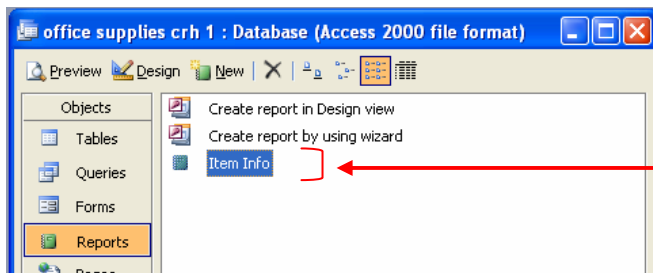
- To see how your changes look in the report, click on **Print Preview** on the **Formatting (Form/Report)** toolbar.



### Close your report

- Click on the x in the upper right corner of the report.
- If prompted to save, choose **Yes** or **No** depending on what you want to do.

All reports you've created so far appear in a list beneath the Create report options in the Database window.



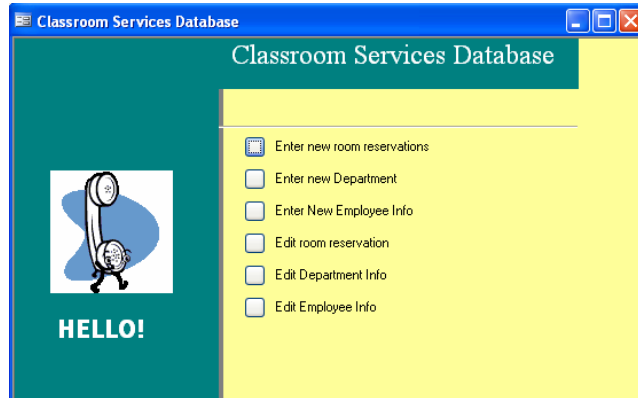
List of reports created thus far

### To delete a report

- Right mouse click on the table listing and choose **Delete**.
- Click **Yes** to confirm the deletion.

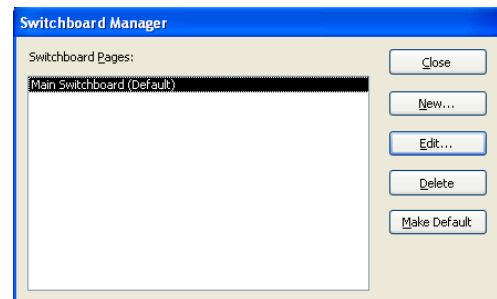
## SWITCHBOARDS

A **switchboard** is a navigational form that uses buttons to link you to various parts of your Access database. You decide what buttons appear on it and which forms, reports, queries, etc., they open. Switchboards commonly appear as “greeting” screens when you open up a database. Their direct link capability to designated objects in the database helps prevent users from accidentally going to a part of the database that mustn’t be tampered with.



### Create a switchboard

- On the **Tools** menu, click on **Database Utilities**, and then select **Switchboard Manager**.
- If Microsoft Access prompts you that a valid switchboard has not been found and then asks if you’d like to create one, say Yes.
- Click **New**.
- Enter a name for the new switchboard and click **OK**.
- Microsoft Access now lists your switchboard in the **Switchboard Pages** window.
- Click on the new switchboard and choose **Edit**.
- Click on **New...**

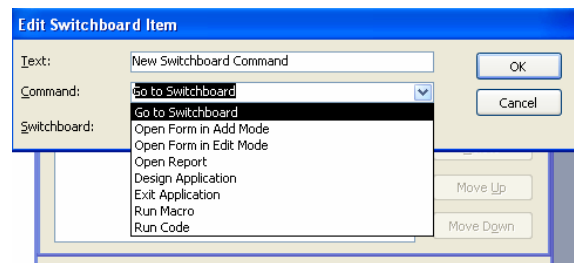


You can link to forms, reports, or other switchboards.

- Click on the down arrow by the Command window and choose from the list of options.

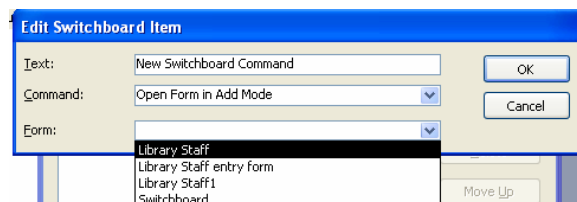
**NOTE:** Forms can be opened either in **Add Mode** (if you’re adding new records) or in **Edit Mode** (if you’re editing records already entered in a form). In the **Command** window,

- Select either **Open Form in Add Mode** or **Open Form in Edit Mode**.



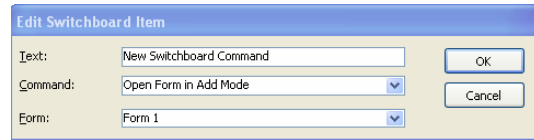
Depending on the command you select, Microsoft Access asks in the bottom window of the dialog box which form/report/switchboard/etc. you want to link to.

- Make your selection from the list.

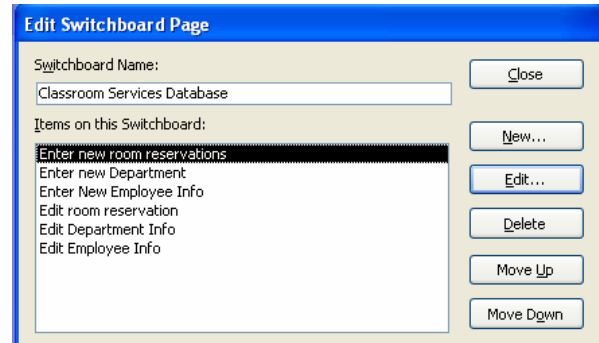


To create a label for your switchboard command:

- Enter a label in the Text box and click OK.



- Repeat the process until you've finished adding items for your switchboard.
- To edit or delete an item, click on it in the **Items On This Switchboard** window. Then choose the **Edit** or **Delete** button.
- If you want to reorder how items are listed on the switchboard, click on an item in the box and click on the **Move Up** or **Move Down** button.
- Once you have finished creating the switchboard, click **Close**.



- To make the switchboard appear automatically upon opening the database, click on the switchboard name in the **Switchboard Manager** window and choose **Make Default**.
- Click **Close** when done.
- Choose **Startup** from Tools on the menu bar.
- In the Startup window, click on the down arrow beneath the **Display Form/Page** option and click on **Switchboard**. Then click OK.

**To delete a switchboard,**

- Choose **Database Utilities** from **Tools** on the menu bar and then click on **Switchboard Manager**.
- In the **Switchboard Manager** window, choose the switchboard you want to delete and press **Delete**.
- Click **Close** when done.

**NOTE:** If you have made your switchboard the default, you'll need to restore **Main Switchboard** as the default before you can delete yours.

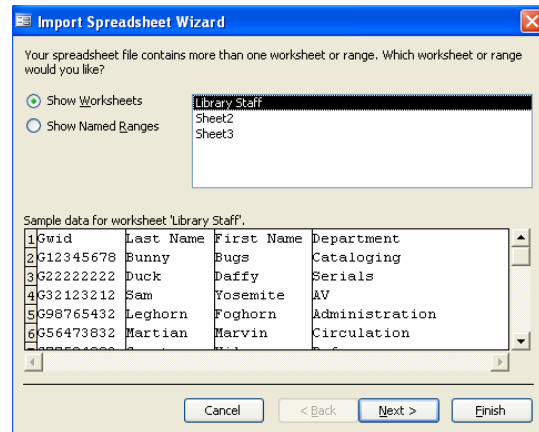
- Click on **Main Switchboard**.
- Click on **Make Default**.
- Now press **Delete** and then **Close**.

## IMPORT AN EXCEL FILE INTO ACCESS

- Choose **File** from the menu bar.
- Choose **Get External Data** and then select **Import**.
- Under **Files of type** in the Import window, choose **Microsoft Excel** in order to display only Excel files.
- Choose your file and click on **Import**.
- Access launches the **Import Spreadsheet Wizard**.

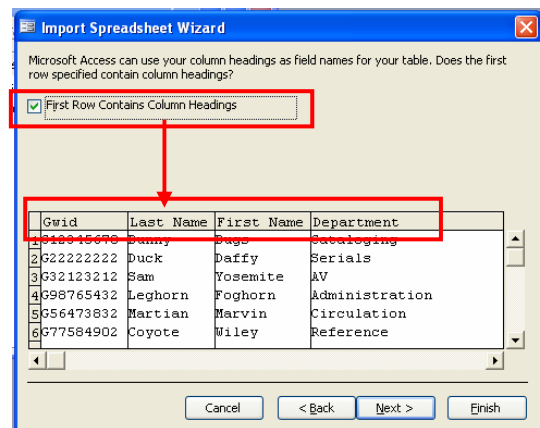
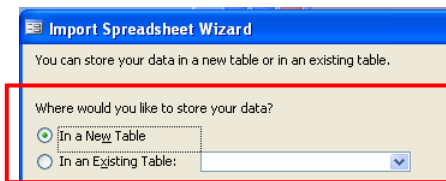
- The first step of the wizard asks you to select the worksheet or named range you'd like to import from the Excel file (usually a worksheet is selected).

Data from the worksheet is partially displayed below. Do not be concerned by its appearance in this window. It won't look like this in Access.



- Click Next.

- If your first rows are headings, click on the **First row contains column headings** option and they will be converted to field names in Access.
- Click Next.
- Choose whether the data is going into a new table or an existing one (a combo box lets you select the table).



- The next screen lets you specify information about your fields. (You can change the field names here as well.)
- When done with this screen, click Next.
- You can specify a primary key (a combo box lets you select which field) or you can have Access create one for you. (NOTE: If you assign the primary key, make sure all entries in that field are unique.)
- Click Next.
- Choose a name for the table and click **Finish**.

**NOTE:** Excel spreadsheets do not always translate well in the importing process. You may need to consult Access's **Online Help** menu to troubleshoot any problems you encounter.

## ONLINE HELP

- Choose **Help** from the menu bar and then select **Microsoft Office Access Help**.
- Enter a topic in the **Search** window and press Enter.
- Choose from the list of topics offered to see help for your question or problem.
- Close Online Help when done.

## BACK UP YOUR DATABASE

- Save and close all objects in the database.
- Choose **Back Up Database** from **File** on the menu bar.
- In the **Save Backup As** dialog box, Access adds to your filename the current date. You can accept that as your backup filename or you can assign a different one.
- Choose where to save the backup and press **Save**.

## OPEN AN ACCESS FILE

- Choose **Open** from **File** on the menu bar.
- Locate your file using the **Look in** window, click on the file, and then choose **Open**.

(1/29/07)