# ACCESS 2002 (XP)

# LEVEL 2: DESIGN TECHNIQUES FOR TABLES AND FORMS

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# LEVEL 2: DESIGN TECHNIQUES FOR TABLES AND FORMS

# LESSON 1 -
# CREATING TABLES

In this lesson, you will learn how to:

- Use the Database Wizard

- Create a new database

- Design tables

- Create a table in Design view

- Use Design view

- Add field names

- Assign data types

- Add a field description

- Set a primary key

- Save a new table

- Use the Table Wizard

# USING THE DATABASE WIZARD

## Discussion

When you create a database in Access, you are creating a container for related tables, forms, queries, reports, and other database objects. You can create a new database manually or with the help of the Database Wizard. If you create a new database manually, you must then create your own tables, queries, and other objects. To save time, you can use the Database Wizard.

Access 2002 offers several Database Wizard templates you can use to quickly create a database. The Database Wizard templates include preformatted database objects, such as tables, forms, and reports. A variety of business and personal Database Wizard templates are available on the **Databases** page in the Templates dialog box. If you use any Database Wizard template, Access creates not only the database, but also the tables, queries, and other objects in it.

When you use the Database Wizard, you select the fields you want to use in the database tables, the desired screen style, and the desired report style. Lastly, you can add a database title, include a picture on reports, and choose whether to open the database in the Database window or start the database from its Switchboard. The first time you start the database, a message box prompts you to enter your name and address information. After you have provided this information, the Main Switchboard (a form containing command buttons and other objects to help you navigate and use the database) opens.

After you have used a Database Wizard template, a link to it appears under **New from template** in the **New File** task pane. You can click this link to quickly create another database using the same template and settings.
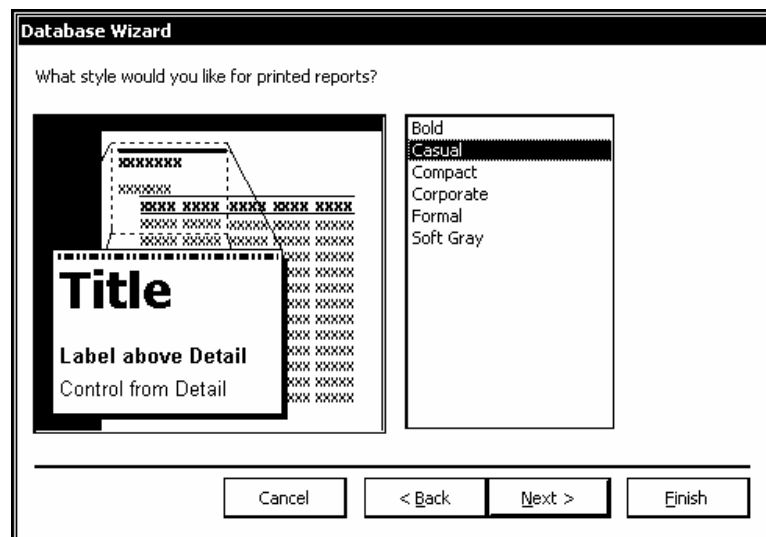


*Using the Database Wizard to create a new database*

> 📖    When you create a new database, it is saved in the default file format for Access 2000 so that it can be opened in Access 2000 as well as Access 2002. To create databases to be used strictly in Access 2002, you can change the default file format by selecting the **Tools** menu, the **Options** command, and the **Advanced** tab in the Options dialog box. Then, select the **Default File Format** list and **Access 2002**.

# ✅ **Procedures**

1. Click the **New** button ⬜ on the **Database** toolbar.

2. Select the **General Templates** link under **New from template** in the **New File** task pane.

3. Select the **Databases** tab.

4. Select the desired Database Wizard template.

5. Select **OK**.

6. Type the desired file name.

7. Select the **Save in** list.

8. Select the drive where you want to store the file.

9. Open the folder where you want to store the file.

10. Select **Create**.

11. Select **Next >**.

12. Select the table in the **Tables in the database** list box for which you want to view the fields.

13. Select or deselect fields in the **Fields in the table** list box to include them in or to exclude them from the database, respectively.

14. Select **Next >**.

15. Select the desired screen style.

16. Select **Next >**.

17. Select the desired report style.

18. Select **Next >**.

19. Type the desired database title.

20. Select **Next >**.

21. Indicate whether or not you want to start the database after the Database Wizard has built it.

22. Select **Finish**.

23. Select **OK**.

# CREATING A NEW DATABASE

## Discussion

You can create a new database in Access without using the Database Wizard; however, you must then create the tables, queries, and other objects in the database.

When you create a new database, you must specify the desired file name, as well as where you want to store the database file.

After you have created the database, the Database window opens. Its toolbar buttons allow you to open objects, modify the design of existing objects, and create new objects. The **Objects** bar in the Database window allows you to access the following object types: **Tables**, **Queries**, **Forms**, **Reports**, **Pages**, **Macros**, and **Modules**. Created objects can belong to any of these categories.

> The **New File** task pane closes as soon as you create a new, blank database.

> You can also create a new, blank database by selecting the **General Templates** link on the **New File** task pane and the **Blank Database** icon on the **General** page in the Templates dialog box.

> To open the **New File** task pane, select the **File** menu and the **New** command.

## ✔ Procedures

1.  Click the **New** button ⬜ on the **Database** toolbar.

2.  Select the **Blank Database** link under **New** in the **New File** task
    pane.

3.  Type the desired file name.

4.  Select the **Save in** list.

5.  Select the drive where you want to store the file.

6.  Open the folder where you want to store the file.

7.  Select **Create**.

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# DESIGNING TABLES

## Discussion

In Access, there are five steps to designing a table. The first step is to develop a
thorough understanding of the system, including all the data to be entered and all the
reports, statistics, labels, and other output you want to generate. It is helpful to gather
all the forms you use for input and all the reports generated from the data. This
process serves two purposes. First, these forms and reports are invaluable when you
begin detailing exactly what information you want stored in each table. Second, once
you have collected a set of these forms, you can make sure that every item of
information on your reports is either included in your database or can be derived from
data in your database.

The second step is to determine how many tables you need and what information to
store in each table. Once you have gained an overview of the system, you are ready to
begin designing your database. The most important decision you must make before
you begin creating tables is how many tables you want the database to include.

The third step is to design the tables by selecting the fields you want to include, the
type of data you want to store in each field, and the size of the fields. Once you have
developed an overview of your application and a list of tables, you can make a
preliminary list of fields, based on the categories of information that each table will
include. You can refine the list by considering the following: if the data is to be sorted
or selected, it should be in a separate field; if the data is to be calculated from other
fields, you do not need to store it in its own field; and, if the table is to be linked to
another table, both tables should contain common fields.

The fourth step is to create the table structures by defining the name, data type, and size of the fields.

The fifth and final step is to enter sample data. This step is important because it helps you determine whether or not the table fields are the correct size and if all the necessary fields have been included. You can then modify the tables as necessary.

# CREATING A TABLE IN DESIGN VIEW

## Discussion

A table is the basic building block of a database. All queries, reports, and forms use the fields and records in the database tables as the basis for their output. You must create at least one table in the database before you can create any other object.

When you create a new table, you can use either **Datasheet** or **Design** view, work in the Table Wizard, import data from another data source, or link to data in another data source. Usually, a table is created in **Design** view, which gives you the most control over the database design.
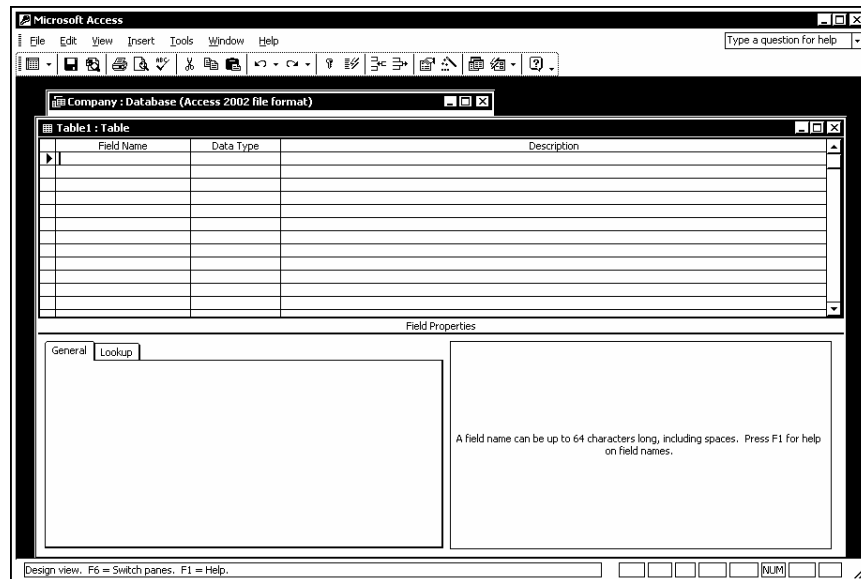


*The blank table in Design view*

> You can also create a new table in **Design** view by double-clicking the **Create table in Design view** object in the **Tables** object list.

> **Datasheet** view displays a grid of rows and columns. Field names are entered as column headings.

> 📖    The Table Wizard uses a series of steps to help you create a
>        table. You can select a sample table on which to base your
>        table and choose field names from commonly used fields, such
>        as **LastName** and **CompanyName**.

## ✅ **Procedures**

1.  Display the **Tables** objects.

2.  Select the ▦ **New** button on the Database window toolbar.

3.  Select **Design View**.

4.  Select **OK**.

# USING DESIGN VIEW

## 🔍 **Discussion**

The **Design** view window is split into two panes. The upper pane displays a design
grid. You can use the rows and columns in this design grid to enter the field names,
data types, and field descriptions for each field in the table. The small box to the left
of each field name is the row selector. A black triangle in the row selector indicates
the current field.

The lower pane displays the properties of the selected field. A property is a
characteristic of a field, such as the number of characters a field can contain. Access
automatically assigns default field properties, which you can modify as desired.

> 📖    Once you have entered at least one field, you can press the
>        **[F6]** key to move between the upper and lower panes of the
>        **Design** view window.

# ADDING FIELD NAMES

## Discussion

Field names are entered into the **Field Name** column in the **Design** view window. Field names are labels that identify the data stored in a field. For example, the **OrderNumber** field will most likely contain order numbers.

Field names can be up to 64 characters long and can include letters, numbers, and spaces. (Field names, however, cannot begin with a space.) Field names cannot contain a period (.), an exclamation point (!), a back quote (`), brackets ([ ]), or ASCII control characters. In addition, field names within a table must be unique.

Making field names descriptive and meaningful can help with data entry and data retrieval. However, you should avoid long and complicated field names because they can be cumbersome to remember and difficult to reference when performing database functions.

> The order in which the field names appear in **Design** view determines the order in which the columns appear in **Database** view.

> Do not include spaces in field names if you work with other database formats or plan to use macros with VBA (Visual Basic for Applications) code.

## ✔ Procedures

1. Open or create a table in **Design** view.

2. Type the desired field name.

3. Press **[Down]**.

# ASSIGNING DATA TYPES

## Discussion

The field data type tells Access what kind of values you plan to store in a field and how much storage space to set aside for the field. Although you can change a data

type after a field contains data, doing so may erase some or all of the information in the field.

The following table describes the available data types:

| Data Type | Description |
|---|---|
| **Text** | **Text** is the default data type; a text field can contain any combination of letters, numbers, punctuation marks, and spaces. The default width is 50 characters and the maximum length is 255 characters. |
| **Memo** | A memo field is similar to a text field, except that a memo field can contain up to 65,535 characters. You can use memo fields for notes or long descriptions in a database. |
| **Number** | A number field can contain only numeric characters, a comma (used as a thousands separator), a period (used as a decimal point), and a hyphen (used as a negative number sign). You should use a number field only when you want to perform calculations using the field values. For example, even though zip codes and telephone numbers consist of numeric characters, you would not use them in calculations; therefore, they should be entered in text rather than number fields. |
| **Date/Time** | The **Date/Time** data type is used for dates and/or times. Access automatically validates all entries to ensure that they are valid dates and/or times. For example, Access will not allow you to enter 2/31/99 because February does not have 31 days. Date/Time fields are useful in performing calculations on dates and times. |
| **Currency** | The **Currency** data type is similar to the **Number** data type and can be used in calculations. However, the values in a currency field can have a maximum of four decimal places and automatically appear with dollar signs and thousands separators (commas). You should use currency fields whenever possible because they use fixed point calculation, which is faster than the floating point calculation used in number fields. |
| **AutoNumber** | The **AutoNumber** data type allows Access to automatically assign a unique number (consecutively from 1) to each record in the database. You cannot manually enter a value into an AutoNumbered field or change a number Access has assigned to a record. You use this data type when you want a unique identification number for each record. |

| Data Type | Description |
|---|---|
| **Yes/No** | A **Yes/No** data type is used to signify one of two conditions, **Yes** or **No**. You use a yes/no field when only two possibilities (i.e., **True** or **False**) exist for a field value. |
| **OLE object** | The **OLE object** data type allows you to either embed an object created in another Windows application or create a link to such an object. You use an **OLE object** data type for graphics, spreadsheets, or sound files. |
| **Hyperlink** | A **Hyperlink** data type is used to store a link to anywhere you choose. The link could go to an Internet page, a Word document on an intranet, or even a form in the current database. A hyperlink field can contain a description, an address, and a sub-address [separated by number signs (#)], as well as up to 2,048 characters; only the address, however, is mandatory. |
| **Lookup Wizard** | The **Lookup Wizard** data type allows you to create a lookup field. A lookup field displays a list of values that are either stored in another table or created by you. A lookup field allows you to choose values from a list during data entry, thereby reducing repetitive typing and eliminating typing errors. |
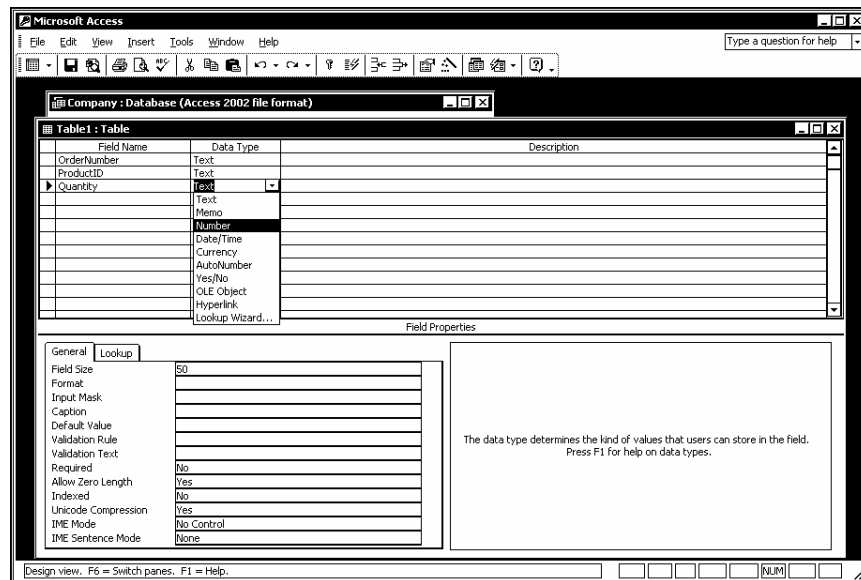


*Assigning a data type*

## ✔ **Procedures**

1.   Open or create a table in **Design** view.

2.   Enter field names as desired.

3.   Select the **Data Type** column in the field for which you want to change the data type.

4.   Select the **Data Type** list.

5.   Select the desired data type.

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# ADDING A FIELD DESCRIPTION

## 🔎 **Discussion**

You can use the **Description** column in the design grid to enter a description for each field. The description appears on the status bar when the field is accessed on a form. You can enter brief comments as to the purpose of the field or the data that should be stored in it.

## ✔ **Procedures**

1.   Open or create a table in **Design** view.

2.   Enter field names as desired.

3.   Select the **Description** column in the field to which you want to add a description.

4.   Type the desired description.

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# SETTING A PRIMARY KEY

## 🔎 **Discussion**

Access works most efficiently if you specify a primary key for each table. The primary key is a field or group of fields that uniquely identifies each record in the table. Therefore, the value of the key field, or the combined values of a group of key fields, must not be found in more than one record. Consequently, a **LastName** field

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would be a poor primary field, because several records may have the same last name; it would not, therefore, be unique.

There are several advantages to setting a primary key. First, the primary key is automatically indexed, which makes information retrieval faster. Second, when you open a table, the records are automatically sorted in order by the primary key. Finally, a primary key prevents the entry of duplicate data because Access does not allow duplicates in the primary key field.

> 📖 If you have trouble identifying the primary key field, you can create an AutoNumber field and designate it as the primary key.

> 📖 You cannot choose a memo, OLE, or hyperlink field as the primary key.

> 📖 To create a multi-field primary key, hold the **[Ctrl]** key, click the desired fields, and then click the **Primary Key** button on the **Table Design** toolbar.

# ✔ **Procedures**

1. Open or create a table in **Design** view.

2. Enter field names as desired.

3. Select the field you want to designate as the primary key.

4. Click the **Primary Key** button 🔑 on the **Table Design** toolbar.

# SAVING A NEW TABLE

# 👤 **Discussion**

After you have designed the fields for a table, you must save the table before you can add any data. When you save a new table, you should give it a name that describes the records it stores. You can use up to 64 characters, including spaces. These characters can include letters, numbers, and spaces. They cannot contain a period (**.**), an exclamation point (**!**), a back quote (**`**), brackets (**[]**), or ASCII control characters.

After you have saved a table, an icon for it appears in the **Tables** object list in the Database window.

> When you save a table for the first time, Access opens the Save As dialog box, in which you enter the desired table name.

> When you save a table, you are not creating a file. You are adding an object to the existing database.

## ✓ Procedures

1. Create a table in **Design** view.

2. Enter the desired table data.

3. Click the **Save** button on the **Table Design** toolbar.

4. Type the desired table name.

5. Select **OK**.

# USING THE TABLE WIZARD

## Discussion

The Table Wizard leads you through the steps needed to create a new table. The Table Wizard provides many table templates for typical business and personal use. You select the type of table you want to create, and then the fields you want to add to the table.

The Table Wizard allows you to relate your new table to an existing table in your database. However, if your database does not contain any tables when you begin the Table Wizard, you will not be prompted to relate tables.

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**Table Wizard**

Which of the sample tables listed below do you want to use to create your table?

After selecting a table category, choose the sample table and sample fields you want to include in your new table. Your table can include fields from more than one sample table. If you're not sure about a field, go ahead and include it. It's easy to delete a field later.

⦿ Bu**s**iness
○ **P**ersonal

Sample **T**ables:

Mailing List
Contacts
Customers
Employees
**Products**
Orders

Sample Fields:

**ProductID**
ProductName
ProductDescription
CategoryID
SupplierID
SerialNumber
UnitsInStock
UnitsOnOrder
UnitPrice
ReorderLevel

Fields in **m**y new table:

>   >>   <   <<

Rename Field...

Cancel     < **B**ack     **N**ext >     **F**inish

*The Table Wizard*

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📖    You can use the right-pointing, double arrow button on the first page of the Table Wizard to add all the fields in the **Sample Fields** list to your new table. The left-pointing arrow buttons allow you to remove either the selected field or all fields from the **Fields in my new table** list box.

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📖    You can rename any field in the **Fields in my new table** list box by selecting it and then selecting the **Rename Field** button.

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📖    You can also activate the Table Wizard by double-clicking the **Create table by using wizard** object in the **Tables** object list.

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# ✔ Procedures

1. Display the **Tables** object list.

2. Select the 🔲 **New** button on the Database window toolbar.

3. Select **Table Wizard**.

4. Select **OK**.

5. Select the **Business** or **Personal** option, as desired.

6. Select the desired table from the **Sample Tables** list box.

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7. Select a field you want to add to your table from the **Sample Fields** list box.

8. Select ⊳ to the right of the **Sample Fields** list box.

9. Add other fields as desired.

10. Select **Next >**.

11. Type the desired table name in the **What do you want to name your table?** box.

12. Select the desired primary key option.

13. Select **Next >**.

14. If you chose to set your own primary key, select the **What field will hold data that is unique for each record?** list.

15. Select the desired field.

16. Select the desired data option for the primary key field.

17. Select **Next >**.

18. Review or create table relationships, as desired.

19. Select **Next >**.

20. Select the desired view option.

21. Select **Finish**.

# LESSON 2 -
# SETTING FIELD PROPERTIES

In this lesson, you will learn how to:

- Use field properties

- Limit field size

- Set number formats

- Set date/time formats

- Set yes/no formats

- Set default values

- Set validation rules

- Create an input mask - wizard

- Create an input mask manually

- Create a custom input mask

- Type a lookup list

- Modify Lookup properties

# USING FIELD PROPERTIES

## Discussion

Each field has a set of properties that control the way it stores, handles, and displays data. Since forms and reports you create use the fields in your tables, setting field properties in the early stages of building a database can save you time later on; you will have less design work to do in later stages if you set the desired field properties before you create any forms and reports.

You normally set field properties when you create a table in **Design** view. If you have created and saved a table using default field properties, you can open the table in **Design** view to change its property settings.

The properties available in the **Field Properties** pane depend on the data type assigned to the selected field. Some of the property types you can set are listed in the following table:

| Property type | Description |
| --- | --- |
| **Field Size** | Limits a **Text** field to a specific number of characters; limits a **Number** field to a specific type of number |
| **Format** | Controls the way values appear in **Datasheet** view |
| **Decimal places** | Available for **Number** and **Currency** fields only, determines how many decimal places will appear in the field; this property type has no effect on **Number** fields using the **General** format |
| **Input Mask** | Creates a pattern for data entered into the field (such as adding hyphens within a telephone number) |
| **Caption** | Creates a label other than the field name; the caption will appear in the table and on forms and reports |
| **Default Value** | Specifies the value you want to appear in the selected field in all new records |
| **Validation Rule** | Forces data entered into the selected field to meet a specified requirement; for example, you can specify that the **Credit Limit** field not be over $10,000 |

| Property type | Description |
|---|---|
| **Validation Text** | Creates an error message to appear when the data entered violates a validation rule |
| **Required** | Specifies that the field cannot be left empty |
| **Allow Zero Length** | Determines whether or not you can enter quotation marks (" ") in a **Text**, **Memo** or **Hyperlink** field to indicate that there is no data for that field |
| **Indexed** | Speeds up retrieval of data in a field; all primary key fields are automatically indexed |

A brief description of the selected property appears in the **Field Properties** pane.

You can press the **[F1]** key for help with the selected property.

# LIMITING FIELD SIZE

# Discussion

Setting a field size limits the number of characters or the type of characters you can enter into a field. After typing the maximum number of characters allowed, further keystrokes are not permitted. The **Field Size** property is available only for **Text**, **Number**, and **AutoNumber** data types; all other data types have default sizes that are set automatically.

For a **Text** field, the field size is the maximum number of characters you want to allow in the field, up to the maximum of 255 characters allowed by Access. For a **Number** field, you can select one of the following **Field Size** options:

| Field Size | Size Range | Decimal Places |
|---|---|---|
| **Byte** | 0 to 255 (no fractions) | None; data is rounded |
| **Integer** | -32768 to 32767 (no fractions) | None; data is rounded |
| **Long Integer** | -2,147,483,648 to 2,147,483,647 (no fractions) | None; data is rounded |
| **Single** | $-3.4 \times 10^{38}$ to $3.4 \times 10^{38}$ | Up to 7 |

| Field Size | Size Range | Decimal Places |
|---|---|---|
| **Double** | $-1.797 \times 10^{308}$ to $1.797 \times 10^{308}$ | Up to 15 |
| **Replication ID** | Globally unique identifier. | Not available |
| **Decimal** | $-10^{38}$ to $10^{38}$ | Up to 28 |

For an **AutoNumber** field, only the **Long Integer** and **Replication ID** options are available.

> The default field size for **Number** fields is **Long Integer**, which is also the largest field size. You should use the smallest possible field size whenever possible, however, so that the database uses less storage space and can be processed more quickly.

> You may lose existing data if you decrease the size of a field. In addition, you cannot undo design changes after you have saved the table.

## ✔ Procedures

1. Open the desired table in **Design** view.

2. Select the field for which you want to set the field size property.

3. Select the **General** page in the **Field Properties** pane, if necessary.

4. Select the **Field Size** property.

5. Select the **Field Size** list, or type the desired value.

6. Select the desired option, if applicable.

# SETTING NUMBER FORMATS

## Discussion

The **Format** property affects how data appears in **Datasheet** view, not how it is stored in the table nor how it is used in calculations. If a **Number** data type field is formatted with 0 decimal places, for example, a value of 1.5 would appear as 2 in the datasheet; if the value is multiplied by 2 in a calculation, however, the answer would be 3, not 4.

The available formats for fields with **Number** data types are listed in the following table:

| Format | Description |
|---|---|
| **General Number** | Displays a number exactly as it is entered; this is the default format |
| **Currency** | Displays a dollar sign, a thousands separator, and two decimal places; the defaults for this format are determined by the system settings |
| **Euro** | Displays a euro sign, a thousands separator, and two decimal places; the defaults for this format are determined by the system settings |
| **Fixed** | Displays at least one digit and is rounded to the default number of decimal places; the defaults for this format are determined by the system settings |
| **Standard** | Displays a thousands separator and is rounded to the default number of decimal places; the defaults for this format are determined by the system settings |
| **Percent** | Multiplies the number by 100, displays a percent sign (**%**), and is rounded to the default number of decimal places; the defaults for this format are determined by the system settings |
| **Scientific** | Expresses numbers in standard scientific notation (as multiples of exponents of 10) |
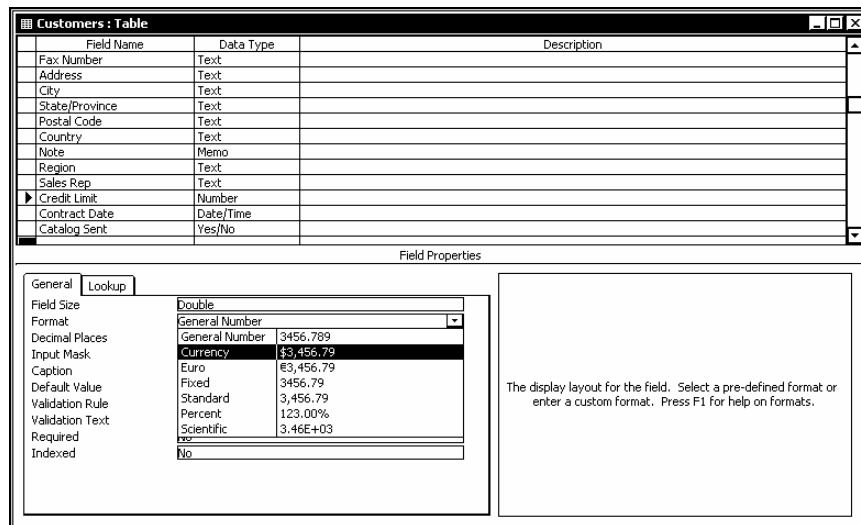


*Selecting a number format*

> 📖   You can change number defaults on your system by opening the Control Panel and selecting the **Regional Options** icon.

> 📖   The **Format** property list displays how a number will be formatted for format types other than **Text** and **Memo**.

# ✅ Procedures

1. Open the desired table in **Design** view.

2. Select the field for which you want to set a number format.

3. Select the **General** page in the **Field Properties** pane, if necessary.

4. Select the **Format** property.

5. Select the **Format** list.

6. Select the desired format.

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# SETTING DATE/TIME FORMATS

# 💡 Discussion

You can also change the format of a **Date/Time** field to change the way the date or time appears in the table. The available formats for **Date/Time** fields are listed in the following table:

| Format | Description |
|---|---|
| **General Date** | The default format; if the value is only a date, no time appears; if the value is only a time, no date appears |
| **Long Date** | The day and month names are spelled out (e.g., Tuesday, July 4, 1995) |
| **Medium Date** | The month name is abbreviated, and the name of the day is omitted (e.g., 04-Jul-95) |
| **Short Date** | The date appears as numbers separated by slashes (e.g., 7/4/95) |

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| Format | Description |
|--------|-------------|
| **Long Time** | The time is displayed as hours, minutes, and seconds, separated by colons, and followed by an AM or PM indicator (e.g., 6:30:15 PM) |
| **Medium Time** | The time is displayed the same as in the **Long Time** format, except that no seconds appear (e.g., 06:15 PM) |
| **Short Time** | The time is displayed as hours and minutes, separated by a colon, in 24-hour clock format (e.g., 18:30) |

> You can change the date and time defaults for your system by selecting the **Regional Options** icon from the Control Panel.

# ✔ **Procedures**

1. Open the desired table in **Design** view.

2. Select the field for which you want to set a date/time format.

3. Select the **General** page in the **Field Properties** pane, if necessary.

4. Select the **Format** property.

5. Select the **Format** list.

6. Select the desired format.

# SETTING YES/NO FORMATS

# **Discussion**

A **Yes/No** field is limited to either a positive or a negative response and can be displayed as a text box, a check box, or a combo box. You select the display of the field on the **Lookup** page in the **Field Properties** pane.

If the **Yes/No** field displays its values in a text box, you can select one of three **Yes/No** data type formats; **True/False**, **Yes/No**, and **On/Off**. Regardless of the format selected, the positive responses of **True**, **Yes**, and **On** are equivalent, just as the negative responses of **False**, **No** and **Off** are equivalent. Consequently, if the **Yes/No**

field is set to the **True/False** format and a user enters **Yes**, Access automatically converts it to **True**.

When a **Yes/No** field displays a check box, a selected check box indicates a positive response and a deselected check box indicates a negative response. The check box is the default setting for a **Yes/No** field.



*Selecting a Display Control property*

> 📖   If no format is set, an entry of **Yes**, **True** or **On** displays a field value of **-1**, and an entry of **No**, **False**, or **Off** displays a field value of **0**.

# ✔️ Procedures

1.  Open the desired table in **Design** view.

2.  Select the field for which you want to set a yes/no format.

3.  Select the **General** page in the **Field Properties** pane, if necessary.

4.  Select the **Format** property.

5.  Select the **Format** list.

6.  Select the desired yes/no format.

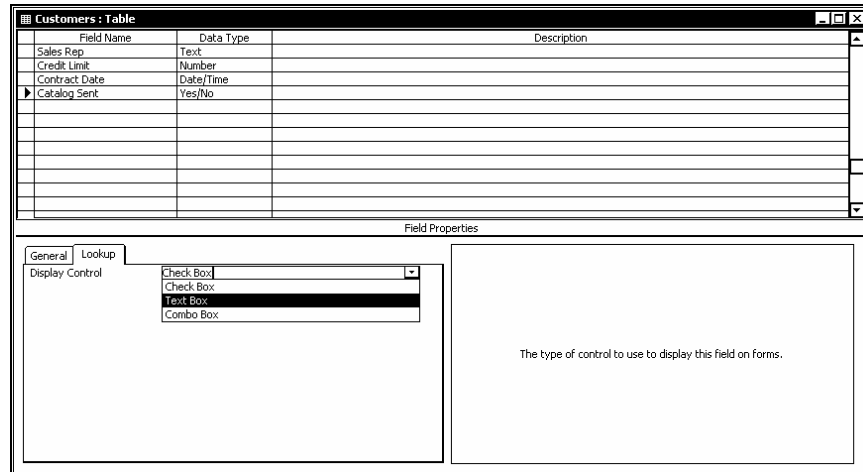7.  Select the **Lookup** tab.

8.  Select the **Display Control** list.

9.  Select the desired yes/no control.

# SETTING DEFAULT VALUES

## Discussion

When you set a default value for a field, that value automatically appears in the field for all new records. You can, however, modify the default field value as needed when entering a new record.

A default value can save you time when entering data. For example, if a table stores the names and addresses of clients and most of the clients have addresses in New York, you can set the default value of the **State** field to **NY**. If you then enter a new record for a client in Connecticut, or if a client moves out of New York, you can change the value in the **State** field just for that individual record. Setting a default value for an established table, however, does not modify existing records.

You can set a default value by entering the desired value or expression in the **Default Value** box. An expression consists of operators (i.e. =, +, -, *, /) and/or values.

If you create a default value for a **Text** field, the default text must be enclosed in quotation marks (**" "**); for example, **"Net 30"**. Values for **Date** fields must be enclosed in number signs (**#**); for example, **#1/15/95#**. If you do not enter the number signs, however, Access will automatically enter them.

> You cannot set a default value for fields with **AutoNumber** or **OLE object** data types.

> You can also use the Expression Builder to create a default value.

## Procedures

1. Open the desired table in **Design** view.

2. Select the field for which you want to set a default value.

3. Select the **General** page in the **Field Properties** pane.

4. Select the **Default Value** box.

5. Create the desired default value.

6. Press **[Enter]**.

# SETTING VALIDATION RULES

## Discussion

Databases can contain incorrect information due to data entry errors. One method of controlling the accuracy of data is to impose restrictions on the values entered into a field.

You can impose restrictions on data entered into your table by creating validation rules in the **Validation Rule** box of one or more fields. When you enter data into a new record or modify data in an existing record, Access checks each field for existing validation rules. If an entry does not meet the conditions of the corresponding validation rule, a warning box notifies you of the error. When you set a validation rule, you use the **Validation Text** box to specify the text you want to appear in the warning box.

Setting a validation rule is different from setting the data type or field size properties. Access uses data type and field size properties to determine that the correct type of data is being entered. Validation rules are more specific in their restrictions. For example, you can create a validation rule to ensure that numbers entered in a particular field are between 500 and 1000.

| Customers : Table | | |
|---|---|---|
| **Field Name** | **Data Type** | **Description** |
| Note | Memo | |
| Region | Text | |
| Sales Rep | Text | |
| Credit Limit | Number | |
| Contract Date | Date/Time | |
| Catalog Sent | Yes/No | |

Field Properties

General | Lookup

| | |
|---|---|
| Field Size | Double |
| Format | Currency |
| Decimal Places | Auto |
| Input Mask | |
| Caption | |
| Default Value | |
| Validation Rule | <=10000 |
| Validation Text | The Credit Limit may not exceed $10,000. |
| Required | No |
| Indexed | No |

The error message that appears when you enter a value prohibited by the validation rule. Press F1 for help on validation text.

*Creating a validation rule with validation text*

> You can also use the Expression Builder to set a validation rule.

# ✔ **Procedures**

1. Open the desired table in **Design** view.

2. Select the field for which you want to set a validation rule.

3. Select the **General** page in the **Field Properties** pane, if necessary.

4. Select the **Validation Rule** box.

5. Enter the desired validation rule.

6. Select the **Validation Text** box.

7. Enter the desired validation text.

---

# CREATING AN INPUT MASK - WIZARD

# 💬 **Discussion**

Input masks control how data is entered into a table, as well as the format in which it is stored. You can use an input mask to control how many characters are entered into a field; define each individual character as numeric, text, or either; and specify each individual character as mandatory or optional, as well as add literal characters to format the entry. Since the input mask controls the values users can enter into a field, it often makes data entry easier.

You can create an input mask by entering the criteria directly into the **Input Mask** box. However, it is often easier to use the Input Mask Wizard to set the property for you. The Input Mask Wizard offers several predefined input masks for items such as dates and times, ZIP codes, telephone numbers, etc. In addition, you can modify any predefined input mask to meet your needs.

```
┌─────────────────────────────────────────────────┐
│ Input Mask Wizard                                 │
├─────────────────────────────────────────────────┤
│ Which input mask matches how you want data to look? │
│                                                   │
│ To see how a selected mask works, use the Try It box. │
│                                                   │
│ To change the Input Mask list, click the Edit List button. │
│                                                   │
│ Input Mask:              Data Look:               │
│ ┌─────────────────────────────────────────────┐ ▲ │
│ │ Phone Number          (206) 555-1212         │ │ │
│ │ Social Security Number 531-86-7180           │ │ │
│ │ Zip Code              98052-6399             │ │ │
│ │ Extension            63215                   │ │ │
│ │ Password             *******                 │ ▼ │
│ │ Long Time            01:12:00 PM             │ ▼ │
│ └─────────────────────────────────────────────┘   │
│ ┌─────────────────────────────────────────────┐   │
│ │ Try It: │                                   │   │
│ └─────────────────────────────────────────────┘   │
│                                                   │
│ [ Edit List ] [ Cancel ] [ < Back ] [ Next > ] [ Finish ] │
└─────────────────────────────────────────────────┘
```

*The Input Mask Wizard*

> 📖　　You can get help on creating or modifying input masks by selecting the **Input Mask** box and pressing the **[F1]** key.

> 📖　　An input mask only affects new entries; data that has already been entered into a field is not affected if an input mask is later.

# ✔ Procedures

1. Open the desired table in **Design** view.

2. Select the field to which you want to apply an input mask.

3. Select the **General** page in the Field Properties pane, if necessary.

4. Select the **Input Mask** property.

5. Click the **Build** button.

6. Select the desired option from the **Input Mask** list.

7. Select **Next**.

8. Select the **Placeholder Character** list.

9. Select the desired placeholder.

10. Select **Next**.

11. Select the desired option for storing the data.

12. Select **Next**.

13. Select **Finish**.

---

# CREATING AN INPUT MASK MANUALLY

# Discussion

An input mask controls what values you can enter in a field, as well as how the data will appear. Although it is usually easier to use the Input Mask Wizard, you may need to create an input mask that is not included in the list of predefined masks in the Input Mask Wizard. Access allows you to create an input mask by entering criteria directly into the **Input Mask** box.

When you create an input mask manually, you use special characters to define it. These special characters act as placeholders, controlling the type of character that can be entered into each position, as well as which characters are required. For example, the **(999) 000-0000** input mask allows you to enter only digits, and the area code is not required; consequently, both **( ) 555-6545** and **(804) 555-6545** are valid entries for this input mask.

The following table defines some of the special characters that can be used in an input mask. To define a literal character, enter any character other than one of those shown in the table. If you want to define a character listed in the table as a literal character, you must precede that character with a backslash (\).

| Character | Description |
|-----------|-------------|
| 0 | A required numeric entry (0-9); plus and minus signs are not allowed |
| 9 | An optional numeric entry (0-9) or space; plus and minus signs not allowed |
| # | An optional numeric entry (0-9) or space; plus and minus signs allowed |
| L | A required alphabetic entry (A-Z) |
| ? | An optional alphabetic entry (A-Z) |
| A | A required alphabetic (A-Z) or numeric (0-9) entry |
| a | An optional alphabetic (A-Z) or numeric (0-9) entry |
| & | Any character or space; entry required |

---

| Character | Description |
|-----------|-------------|
| **C** | Any character or space; entry optional |
| < | Causes all characters that follow to be converted to lowercase |
| > | Causes all characters that follow to be converted to uppercase |
| **!** | Enters the input mask from right to left, instead of from left to right |
| \ | Causes the character that follows to be displayed as a literal character |

> 📖 The **Input Mask** property can be set in **Design** view of any table, query, or form. Most of the time, you will want to apply an input mask to a field in table **Design** view, because it will then be automatically applied to the field in queries, forms, and reports.

> 📖 The Input Mask Wizard can only be used for **Text** and **Date/Time** fields. You must manually enter an input mask for **Number** and **Currency** fields.

# ✔️ Procedures

1. Open the desired table in **Design** view.

2. Select the field to which you want to apply an input mask.

3. Select the **General** page in the **Field Properties** pane, if necessary.

4. Select the **Input Mask** box.

5. Type the desired input mask.

# CREATING A CUSTOM INPUT MASK

## ⧆ Discussion

The Input Mask Wizard provides a list of predefined input masks. If you frequently use an input mask that is not included with the predefined masks in the Input Mask Wizard, however, you may want to create a custom input mask. You may want to use an input mask, for example, to ensure that product numbers are always correctly entered.

You can create and save a custom input mask in the Input Mask Wizard, where it is available to tables and forms at any time. In this way, you will only need to create a custom input mask once.



*Creating a custom input mask*

| ⚠ | Input masks are saved to your user profile on your system, not to the individual database file. If you create a new mask, or modify a default one using the Customize Input Mask Wizard dialog box, the changes are permanently saved to your system settings. |
|---|---|

## ✔ Procedures

1. Open the desired table in **Design** view.

2. Select the field to which you want to apply a custom input mask.

3. Select the **General** page in the Field Properties pane.

4. Select the **Input Mask** box.

5.  Click the **Build** button ...

6.  Select **Edit List**.

7.  Select the **New** button .

8.  Type the desired description for the custom input mask.

9.  Select the **Input Mask** box.

10. Type the custom input mask.

11. Select the **Placeholder** box.

12. Type the desired placeholder.

13. Select the **Sample Data** box.

14. Type some sample data.

15. Select **Close**.

16. Select the custom input mask from the **Input Mask** list

17. Select **Finish**.

# TYPING A LOOKUP LIST

## Discussion

You can increase data accuracy by adding a lookup field to a table. The user can then select the desired value from the lookup list, rather than having to type it. The values in a lookup list are usually stored in a field in a different table. If you want the initials of the sales rep to appear in the **Sales Rep** field of the **Customer** table, for example, you can create a lookup to the **Initials** field in the **Reps** table. If the desired data is not stored elsewhere, you can type the lookup list values.

The Lookup Wizard creates a combo box field for the lookup list; a combo box field displays a drop-down list that displays all of the available data values. By default, a lookup field does not limit input to values on the lookup list; the user can type an entry not on the list if desired. However, you can limit a field to only those values on the lookup list.

A lookup list can contain multiple columns. If you are typing a new list of values, you can designate the number of columns desired and then type the desired values into each column. In addition, you can add a second field to a lookup list. For example, if you are creating a lookup list in the **Customer** table, you can add both the **Initials** and the **Last Name** fields from the **Reps** table to the lookup list.

**Lookup Wizard**

What values do you want to see in your lookup column? Enter the number of columns you want in the list, and then type the values you want in each cell.

To adjust the width of a column, drag its right edge to the width you want, or double-click the right edge of the column heading to get the best fit.

Number of columns:    [ 2 ]

| | Col1 | Col2 | |
|---|---|---|---|
| | 1 | UPS | |
| | 2 | DHL | |
| | 3 | FedEx | |
| | 4 | US Mail | |
| ∅ | 5 | Emery | |
| * | | | |

[ Cancel ]    [ < Back ]    [ Next > ]    [ Finish ]

*Typing a lookup list*

> 📖  If you are creating a lookup list for a field that is the related field in a join, you must delete the join before using the Lookup Wizard.

# ✔ Procedures

1. Open the desired table in **Design** view.

2. Click in the **Data Type** column of the field for which you want to create a lookup list.

3. Select the **Data Type** arrow.

4. Select **Lookup Wizard...**.

5. Select the desired lookup source.

6. Select **Next**.

7. Enter the desired number of lookup columns.

8. Select the box below the **Col1** heading.

9. Type the first desired lookup value.

10. Enter additional lookup values as desired.

11. Select **Next**.

12. Select the column that contains the values you want to store or use.

13. Select **Finish**.

---

# MODIFYING LOOKUP PROPERTIES

# ☝ Discussion

You can use the **Lookup** page in the Field Properties pane to modify the properties of a lookup list.

If the lookup list was manually typed, you can use the **Row Source** property to edit it or add to it. Column values are separated by semi-colons (**;**) and text entries are enclosed in quotation marks (**"**).

The **Bound Column** property indicates which lookup column is used to store field values. For instance, if the lookup list consists of two columns, and column 1 is the bound column, the data in column 1 will be stored in the lookup field.

Although you may want the values in the bound column to be stored in the field, they may be confusing and uninformative to the user; the descriptive text in an unbound field may have more meaning. You can suppress the display of the bound column and display only the descriptive text in the unbound column of a lookup list by changing the width of the bound column to zero (**0"**) in the **Column Width** box.

By default, a lookup field allows the user to add data values to the lookup list simply by typing them into the field. You can limit data entry to just those values on the lookup list by selecting **Yes** in the **Limit to List** box; the default value of **No** allows free entry.

# ✔ Procedures

1. Open the desired table in **Design** view.

2. Select the lookup field you want to modify.

3. Select the **Lookup** tab in the **Field Properties** pane.

4. Select the property you want to modify.

5. Modify the property as desired

# LESSON 3 -
# MODIFYING TABLES

In this lesson, you will learn how to:

- Insert a column into a table

- Change a column name

- Delete a column

- Insert a lookup column

- Insert a hyperlink column

- Create a many-to-many relationship

# INSERTING A COLUMN INTO A TABLE

## 🦤 Discussion

You may find it necessary to add fields to a table. One way of doing this is to insert one or more columns into the table. Inserting a column automatically adds a new field to the table.

Columns are inserted to the left of the currently selected column; consequently, you can position a new field in the desired location. Although Access sets a default field width, provides a default field name, and assigns a default data type (**Text**), you can change any of these default settings as desired.

> 📖  You can also insert a column by right-clicking any column heading and selecting the **Insert Column** command.

> 📖  After adding a column, you should change the default field name to one that clearly identifies its contents.

## ✔ Procedures

1.  Open the desired table in **Datasheet** view.

2.  Click in the column to the left of which the new column is to be inserted.

3.  Select the **Insert** menu.

4.  Select the **Column** command.

# CHANGING A COLUMN NAME

## 🦤 Discussion

A column name should clearly indicate the information contained in the column, in order to make working with data easier. When you rename a column, you are also changing the corresponding field name; keep in mind that you cannot create duplicate field names.

Column names can be up to 64 characters long, but shorter names are recommended.

| | | Product ID | Product Description | Vendor | Unit Price |
|---|---|---|---|---|---|
| ⊞ | | 10-1437 | shoes, soccer | | 65.75 |
| ⊞ | | 10-2562 | skates, hockey | | 98.5 |
| ⊞ | | 10-3827 | shoes, baseball | | 97.81 |
| ⊞ | | 10-4430 | shoes, basketball | | 62.25 |
| ⊞ | | 10-6025 | shoes, tennis | | 59.39 |
| ⊞ | | 10-7381 | shoes, golf | | 72.95 |
| ⊞ | | 10-8121 | boots, downhill ski | | 175.17 |
| ⊞ | | 10-8122 | boots, cross-country ski | | 162.73 |
| ⊞ | | 10-8137 | shoes, running | | 51.27 |
| ⊞ | | 10-8142 | boots, hiking | | 76.73 |
| ⊞ | | 10-9106 | shoes, aerobic | | 41.93 |
| ⊞ | | 11-2041 | mask, hockey | | 53.71 |
| ⊞ | | 11-2235 | shin guards, hockey | | 42.36 |
| ⊞ | | 11-5337 | goggles, ski | | 32.41 |
| ⊞ | | 11-8239 | elbow pads | | 11.27 |
| ⊞ | | 11-8652 | wrist guards | | 11.63 |
| ⊞ | | 11-8771 | helmet, biking/skating | | 26.17 |
| ⊞ | | 11-8994 | knee pads | | 12.46 |
| ⊞ | | 12-1687 | ball, soccer | | 16.43 |
| ⊞ | | 12-2587 | puck, hockey | | 4.56 |
| ⊞ | | 12-3167 | baseball | | 2.63 |
| ⊞ | | 12-3964 | glove, baseball | | 37.47 |
| ⊞ | | 12-4090 | basketball | | 16.74 |

*Renaming a column*

📖 You can also rename a column by right-clicking its heading and selecting the **Rename Column** command.

📖 Column names can contain spaces, numbers, and many special characters; a column name, however, cannot include a period (**.**), an exclamation point (**!**), or square brackets (**[ ]**).

📖 The column heading is also called the field selector.

# ✔ Procedures

1. Open the desired table in **Datasheet** view.

2. Double-click the heading of the column you want to rename.

3. Type the desired column name.

4. Press **[Enter]**.

# DELETING A COLUMN

## 🕮 **Discussion**

You can delete a column from a table. When a column is deleted, the columns to the right of it automatically adjust.

In addition, if other database objects (such as lookup tables) contain references to a deleted field, the appropriate error messages will be generated.
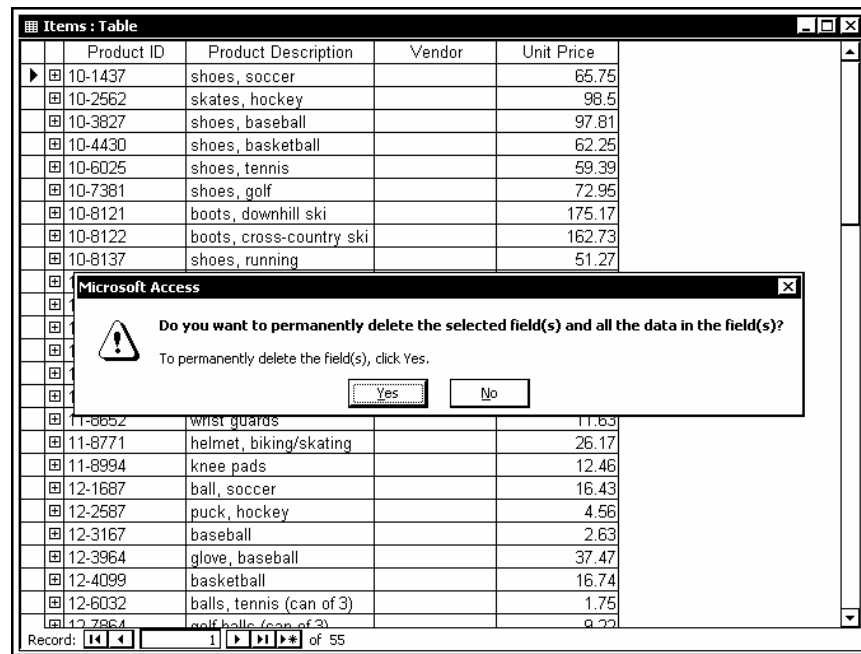


*Deleting a column*

| 📖 | You can also delete a column by right-clicking its heading and selecting the **Delete Column** command. |

| 📖 | You cannot delete a field that has a relationship to another table unless you first delete the relationship. |

| ❗ | All data contained in a deleted column is permanently deleted as well, and you cannot undo the deletion. |

# ✔ **Procedures**

1.  Open the desired table in **Datasheet** view.

2.  Click in the column you want to delete.

3.  Select the **Edit** menu.

4.  Select the **Delete Column** command.

5.  Select **Yes** to confirm the deletion.

# INSERTING A LOOKUP COLUMN

# **Discussion**

A lookup column looks up data stored in another data source, thereby eliminating the need to search for information when you add a record. In addition, a lookup column saves time because it reduces the amount of information you must type and increases accuracy because a list of available data values is provided.

The Lookup Wizard can assist you in creating a lookup column. The values in a lookup column can come from another table or a query, or you can create your own list. For example, you may have a list of customers in one table and a list of customer types and information related to each customer type in another; you can use a lookup column in the customer table to look up customer type data in the customer type table; choosing the customer type from a list helps ensure the accuracy of the data.

During data entry, a lookup column displays a drop-down arrow. You can use the arrow to access the available list of values, or you can type the desired value into the column.

**Lookup Wizard**

What label would you like for your lookup column?

Market Type

Those are all the answers the wizard needs to create your lookup column.

☐ Display Help on customizing the lookup column.

Cancel    < Back    Next >    Finish
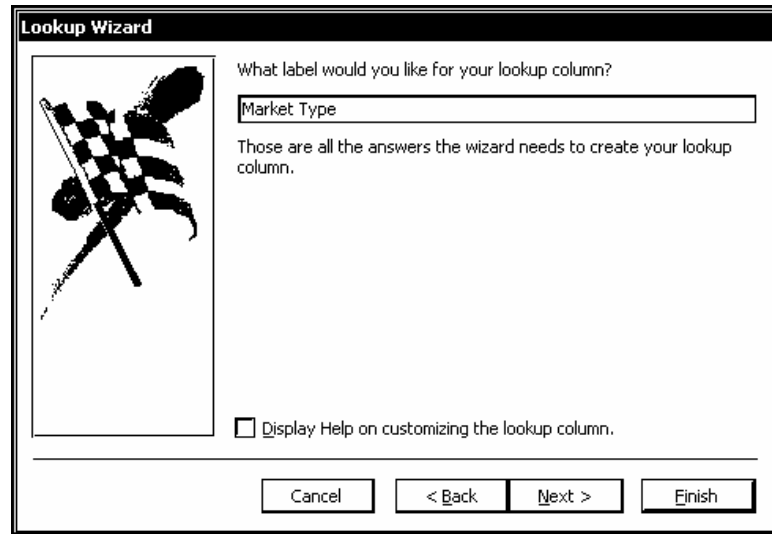
*Using the Lookup Wizard*

📖     You can also insert a lookup column by right-clicking the column heading to the left of which you want to insert the lookup column and then selecting the **Lookup Column** command.

📖     You can click at the right side of a lookup column to automatically display the lookup list.

📖     You can also use the Lookup Wizard in **Design** view to create a lookup for an existing field by selecting **Lookup Wizard...** from the **Data Type** drop-down list to the right of the field in which you want to create the lookup. If the field happens to be a join field, you may have to delete the join before creating the lookup.

# ✓ Procedures

1. Open the desired table in **Datasheet** view.

2. Click anywhere in the column to the left of which you want to insert the lookup column.

3. Select the **Insert** menu.

4. Select the **Lookup Column** command.

5. Select the option that specifies how you want the lookup column to get its values.

6. Select **Next**.

7. Select the table or query that will provide the values for the lookup column.

8. Select **Next**.

9. Double-click the field containing the values you want to look up to move it from the **Available Fields** list to the **Selected Fields** list.

10. Select **Next**.

11. Double-click the separator line to the right of any column header to automatically adjust the corresponding column width.

12. Select **Next**.

13. Type a label for the lookup column.

14. Select **Finish**.

# INSERTING A HYPERLINK COLUMN

## Discussion

You can insert a hyperlink column into a table; a hyperlink field contains a path to another location, such as a network server or a page on the Internet. When you insert a hyperlink column, its name defaults to **Field1**; you can rename the hyperlink column as desired.

After inserting a hyperlink column, you can type the hyperlink text for each record directly into the column, and each record can contain a different hyperlink address. Hyperlinks are underlined and appear in a different color.

> After inserting a hyperlink column, you should change the default field name to one that clearly identifies its contents.

## Procedures

1. Open the desired table in **Datasheet** view.

2. Click in the column to the left of which the hyperlink column is to be inserted.

3. Select the **Insert** menu.

4.  Select the **Hyperlink Column** command.

# CREATING A MANY-TO-MANY RELATIONSHIP

# 🏛 **Discussion**

Although one-to-many relationships are more common by far, there are times when you may need to create a many-to-many relationship. In a many-to-many relationship, a record in one table can have many matching records in another table and vice versa. Many-to-many relationships often apply to order and product relationships, in which an order can include many products and a product can appear in many orders.

This type of relationship is made possible through the use of a third table, called a junction table, that includes its own primary key field and two foreign key fields, one from each of the two tables being related. A many-to-many relationship is really two one-to-many relationships, linked by the junction table.

> 📖    The Show Table dialog box opens automatically if no tables have been added to the Relationships window.

> 📖    You can also create relationships in the Show Table dialog box by selecting the tables you want to relate and pressing the **[Enter]** key.

# ✅ **Procedures**

1.  Display the Database window, if necessary.

2.  Click the **Relationships** button on the **Database** toolbar.

3.  Click the **Show Table** button on the **Relationships** toolbar, if necessary.

4.  Select the tables you want to join.

5.  Select **Add**.

6.  Select **Close** in the Show Table dialog box.

7.  Drag the desired field for the first join from the junction table field list to the corresponding field in the related table field list.

8.  Select the **Enforce Referential Integrity** option.

9.  Select **Create**.

10. Drag the desired field for the second join from the junction table field list to the corresponding field in the second related field list.

11. Select the **Enforce Referential Integrity** option.

12. Select **Create**.

13. Close the Relationships window.

14. Select **Yes** to save the changes.

# LESSON 4 -
# CREATING RELATIONSHIPS

In this lesson, you will learn how to:

- Use related tables

- Create a relationship between tables

- Set referential integrity

- View subdatasheets

- Delete a join line

# USING RELATED TABLES

## Discussion

Tables can be joined, or related, in order to access and coordinate information in all the fields of the related tables. Joining tables is a useful way to avoid entering duplicate information in various, related tables. In addition, it allows you to create reports, forms, and queries from the related data tables and save them in the database file. Relating tables allows you to create smaller, more efficient tables that can be referenced when you need access to the data.

When you relate tables, the table from which you select a field to join is the primary table, and the second table containing the field you want to associate is the related table. The tables must have at least one common field that contains the same type of data. This common field is called the join field. The join fields in both tables must have the same or equivalent data types and, if they are **Number** fields, they must have the same field size. In addition, the join field in the primary table must be the primary key in order to avoid duplicate entries.

For example, the following table consists of customer names and address fields, along with a unique identification number for each customer, which serves as the primary key in the table. You can create this number or allow Access to create it for you.

| ID # | Names | Address | City | State | Zip |
|------|-------|---------|------|-------|-----|
| 1 | Smith | 11692 J St. NW | Washington | DC | 20013 |
| 2 | Conrad | 16 Allegheny Center | Pittsburgh | PA | 16489 |
| 3 | Kane | 1012 Broadway | Lexington | KY | 40567 |
| 4 | Apple | 516 Beacon Ave. | Seattle | WA | 98051 |
| 5 | Billow | 9249 Cavalcade St. | Houston | TX | 77002 |

You could then create a separate table consisting only of orders placed by customers. This table would also contain the field for the unique customer identification number, but not the customers' names and addresses.

| ID # | Order |
|------|-------|
| 1 | Office Work Center |
| 2 | All-In-One Corner Desk and Hutch |
| 3 | Open-Front Steel Bookcase |
| 4 | 2-Drawer Letter File |
| 5 | Executive Leather Chair, Black |

By relating the two tables through the common customer identification number field, the customers' name and address does not have to be entered for every order. All that has to be entered is the customer identification number, along with the orders.

Access includes two basic types of relationships: one-to-many and one-to-one. A one-to-many relationship occurs when one record from the primary table matches many records from the related table (e.g., one customer record matches many order records). A one-to-one relationship occurs when one record from the primary table matches one record from the related table. Access determines the relationship type automatically when you create the relationship.

# CREATING A RELATIONSHIP BETWEEN TABLES

## Discussion

The Relationships window displays a graphic representation of database relationships and allows you to create relationships between tables. You drag field lists in the Relationships window to reposition them as needed. In addition, any field name that represents a primary key is bolded in the corresponding field list.

You can add tables to the Relationships window for additional joins. For example, if the Relationships window displays only two related tables and you need to access information from a third table, you can easily add the required table to the Relationships window and then create the join.
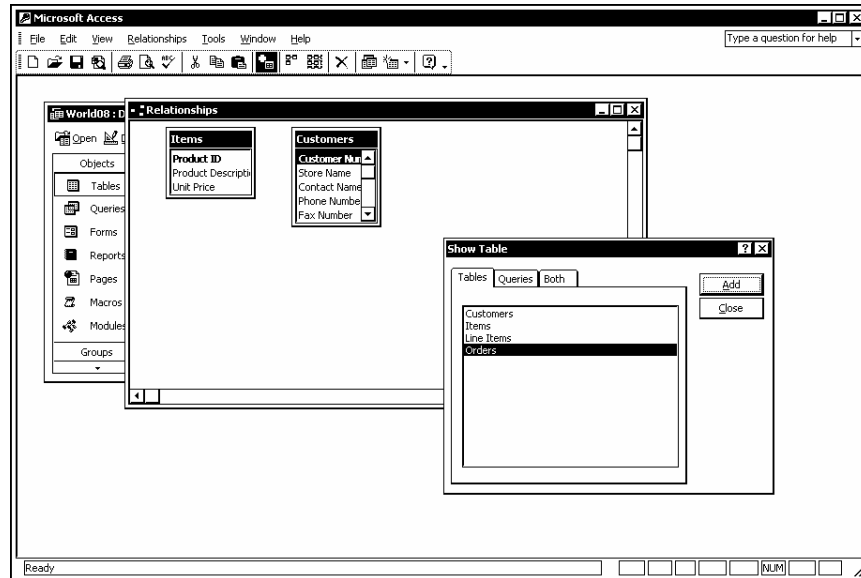
*Adding a field list to the Relationships window*

> 📖 The Show Table dialog box opens automatically if no tables have been added to the Relationships window.

> 📖 You can also open the Relationships window by selecting the **Tools** menu and the **Relationships** command or by right-clicking in the Database window and selecting the **Relationships** command.

> 📖 You can select multiple tables in the Show Table dialog box by holding the **[Ctrl]** key as you click each table. Selecting **Add** adds all the selected tables to the Relationships window.

# ✔ **Procedures**

1. Click the **Relationships** button [icon] on the **Database** toolbar.

2. Click the **Show Table** button [icon] on the **Relationship** toolbar, if necessary.

3. Select the first table you want to relate.

4. Select **Add**.

5. Select the second table you want to relate.

6.   Select **Add**.

7.   Select **Close**.

8.   Drag the desired field from the first field list to the matching field in the second field list.

9.   Select **Create**.

10.  Close the Relationships window.

11.  Select **Yes**.

# SETTING REFERENTIAL INTEGRITY

## Discussion

When you create a relationship between two tables, you can set referential integrity. Referential integrity is a built-in set of rules Access uses to make sure that the relationship is valid. Referential integrity can also prevent accidental deletion or editing of data. In order to use referential integrity, the following conditions must be true: the related field in one table must be its primary key, the related fields in both tables must have the same data type, and both tables must belong to the same database.

When you set referential integrity, you must observe the following three rules; First, you cannot enter data in the join field in the "many" table that does not have a match in the join field in the "one" table. Second, you cannot delete records from the "one" table if there are matching records in the "many" table. Third, you cannot edit primary key values if related records exist.

If you want to perform any of the changes listed above, however, and still maintain referential integrity, you can select the **Cascade Update Related Fields** and **Cascade Delete Related Records** options in the Edit Relationships dialog box. If either or both of these options are selected, Access automatically makes the necessary changes to related tables to maintain referential integrity. It is recommended that these two options be selected only after careful consideration, since the changes cannot be undone.

When referential integrity is enforced, Access displays symbols above the join line to indicate the type of relationship, one-to-one or one-to-many. The number **1** above a join line indicates "one", and the mathematical symbol for infinity (which resembles a horizontal 8) indicates "many".

*Setting referential integrity*

---

📖 Double-clicking the middle segment of any join line opens the Edit Relationships window with the selected join displayed. Double-clicking the beginning or ending segment of any join line opens the Edit Relationships window, but with no join selected. You can then use the **Table/Query** list to select the desired join.

---

📖 You can also open the Edit Relationships dialog box by selecting the **Relationships** menu and the **Edit Relationship** command or by right-clicking the join line and then selecting the **Edit Relationship** command.

---

# ✔ Procedures

1. Open the Relationships window.

2. Double-click the middle segment of the desired join line.

3. Select the **Enforce Referential Integrity** option.

4. Select the **Cascade Update Related Fields** option, if desired.

5. Select the **Cascade Delete Related Records** option, if desired.

6. Select **OK**.

# VIEWING SUBDATASHEETS

## 𝄞 Discussion

Subdatasheets are datasheets nested in the primary table and display the data in joined tables. When you join tables in a one-to-many relationship, Access creates subdatasheets in the table containing the primary key.

When tables are joined, Access inserts a column containing plus signs to the left of the first field in the primary table. Clicking the plus sign expands a subdatasheet with the data in the related table displayed. If the table contains additional joins, you can expand subdatasheets to display each related table. Access can display up to eight levels of subdatasheets.

In addition to viewing data, you can edit data right in the subdatasheet; the edited data is saved back to the table in which it is stored.



*Displaying subdatasheets*

| 📖 | Access can also create subdatasheets for one-to-one relationships. |
|---|---|

| 📖 | If Access cannot determine which subdatasheet to display, the Insert Subdatasheet dialog box opens so that you can select the table you want to view. In addition, you can select a different subdatasheet from the Insert Subdatasheet dialog box at any time by selecting the **Insert** menu and the **Subdatasheet** command. |
|---|---|

✅ **Procedures**

1. Open the primary table in **Datasheet** view.

2. To display a subdatasheet, click the plus sign next to the record you want to expand.

3. Display additional subdatasheets, if available.

4. Click the minus sign next to any subdatasheet you want to collapse.

# DELETING A JOIN LINE

📖 **Discussion**

Deleting a join line removes the relationship between two tables. You may want to delete a join line if you no longer need to relate the tables or you want to create a different relationship.

You must select a join line before you can delete it.

> 📖   You must click the middle segment of a join line in order to select it; clicking the beginning or ending segment does not select the join line.

> 📖   You can also delete a join line by right-clicking its middle segment and selecting the **Delete** command.

> 📖   You can remove an unrelated field list from the Relationship window by selecting it and pressing the **[Delete]** key.

✅ **Procedures**

1. Open the Relationships window.

2. Click the middle segment of the join line you want to delete.

3. Press **[Delete]**.

4. Select **Yes**.

# LESSON 5 - 
# WORKING WITH INDEXES

In this lesson, you will learn how to:

- View indexes

- Create a single field index

- Create a multiple field index

- Delete an index

- Create a multiple field primary key

# VIEWING INDEXES

## 🐾 **Discussion**

You can use indexes to help Access perform quicker sorts and searches. You should index the fields you use regularly to sort or search for data.

Indexes have important properties that are listed in the following table:

| Property | Description |
|---|---|
| Primary | Designates whether or not the index is the primary key for the table. In other words, this property designates whether or not the data in the indexed field will be used to uniquely identify each record. If this property is set to Yes, the **Unique** property must be set to Yes. |
| Unique | Designates whether or not the values in the indexed field must be unique for each record. You can set this property to Yes without setting the **Primary** property to Yes. |
| Ignore Nulls | Determines whether or not records with null values in the indexed field are included in the index. The default setting is No, which means that null values are included. |
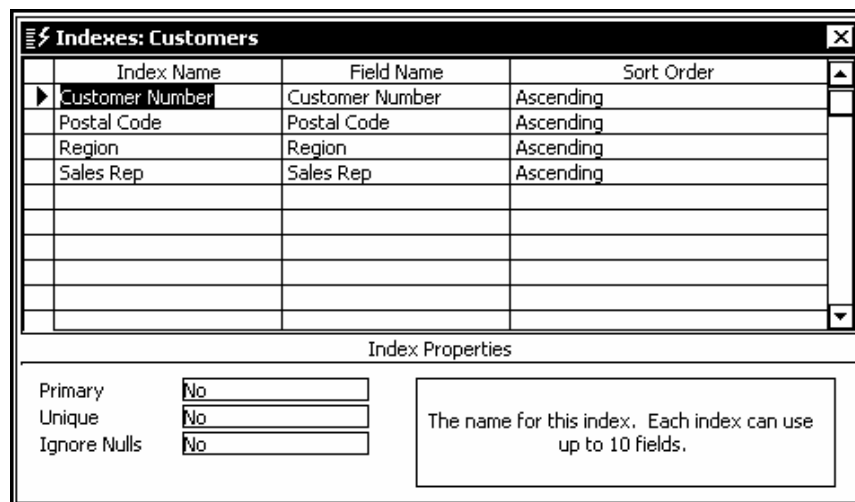


*The Indexes window*

> 📖   You can also display the Indexes dialog box by selecting the
> **View** menu and then selecting the **Indexes** command when a
> table is open in **Design** view.

> 📖   You cannot create an index for **Memo**, **OLE,** or **Hyperlink**
> fields.

> 📖   If there are a limited number of different values in a field, then
> indexing the field does not noticeably speed up searches and
> sorts. In fact, it may slow down data entry and editing.

# ✅ **Procedures**

1.   Open the desired database.

2.   Open the table in **Design** view.

3.   Click the **Indexes** button ⚡ on the **Table Design** toolbar.

---

# CREATING A SINGLE FIELD INDEX

# ✏ **Discussion**

You should index at least one field for each table to maximize performance. You
should select a field you are likely to use in searches and sorts.

When you change the **Indexed** property of a field to Yes, you can choose whether or
not to allow duplicates. If you choose the **No Duplicates** option, Access will not allow
duplicate values to be entered into the field.

# ✅ **Procedures**

1.   Open the desired database.

2.   Open the desired table in **Design** view.

3.   Select the field you want to index.

4.   Select the **Indexed** property.

5.  Select the **Indexed** list.

6.  Select the desired indexing option.

---

# CREATING A MULTIPLE FIELD INDEX

# ⌛ **Discussion**

If you often search on a combination of fields, you can create an index on multiple fields to speed up the searches and sorts. For example, if you want to sort customers in order by region and alphabetically within each region, you can create an index on the **Region** and **Customer** fields.

You must create a multiple field index in the Indexes window. All the fields you want to include in the index should be listed under the same index name. You can include up to ten fields in an index.

# ✓ **Procedures**

1.  Open the desired database.

2.  Open the table in **Design** view.

3.  Click the **Indexes** button [icon] on the **Table Design** toolbar.

4.  Select the first blank field in the **Index Name** column.

5.  Type the name of the index.

6.  Press **[Tab]**.

7.  Select the **Field Name** list.

8.  Select the field you want to index.

9.  Press **[Tab]**.

10. Select the **Sort Order** list.

11. Select the desired sort order.

12. Select the next blank field in the **Field Name** column.

13. Select the **Field Name** list.

14. Select the field you want to index.

15. Press **[Tab]**.

---

16. Select the **Sort Order** list.

17. Select the desired sort order.

18. Close the Indexes window.

---

# DELETING AN INDEX

## Discussion

Indexes take up disk space and can slow down the process of adding, editing, and deleting records. In fact, if there are a limited number of different values in a field, the sort or search speed is not significantly increased by indexing the field. Therefore, you can delete any unwanted indexes to increase efficiency.

## ✔ Procedures

1. Open the desired database.

2. Open the table in **Design** view.

3. Click the **Indexes** button on the **Table Design** toolbar.

4. Point to the row selector to the left of the row containing the index you want to delete.

5. Click the row selector to the left of the row containing the index you want to delete.

6. Press **[Delete]**.

---

# CREATING A MULTIPLE FIELD PRIMARY KEY

## Discussion

There are times when it is not possible to uniquely identify fields with the values in a single field. Therefore, Access allows you to create a primary key using multiple fields.

When you set a primary key using multiple fields, the combination of the information in the fields must be unique. For example, you have a table that contains line items for

customer orders. The order number is entered for each customer. Because you will most likely have multiple customers with multiple orders, the order number associated with each customer may not be unique. Also, a particular item number may appear in multiple orders. Therefore, the item numbers may not be unique. Thus, you cannot create a primary index on either of these fields by themselves. The solution is to create a primary key index on both fields, which allows each item to appear only once on each order.
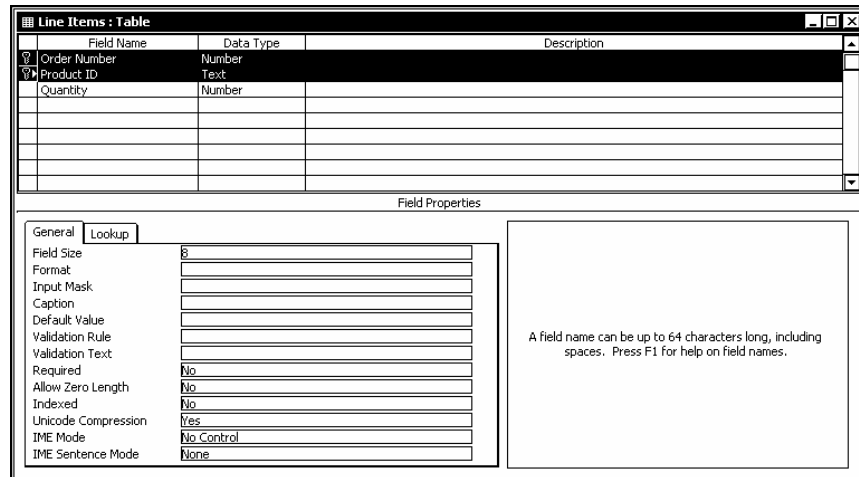


*Creating a multiple field primary key*

# ✓ **Procedures**

1.  Open the desired database.

2.  Open the table in **Design** view.

3.  Point to the row selector to the left of the row containing the first field for the primary key.

4.  Click the row selector to the left of the row containing the first field for the primary key.

5.  Hold the **[Ctrl]** key and point to the row selector for the second primary key field.

6.  Click the row selector for the second primary key field and release the **[Ctrl]** key.

7.  Click the **Primary Key** button [key icon] on the **Table Design** toolbar.

# LESSON 6 -
# CREATING BASIC FORMS

In this lesson, you will learn how to:

- Use forms

- Use the Form Wizard

- View records in a form

- Print records in a form

- Base a form on a query

- Use AutoForm

- Add a record using a form

# USING FORMS

## Discussion

Forms, like datasheets, can be used for viewing and editing data. However, they can also be used to present data in a more attractive format. Forms are usually designed to display all the fields for a single record within the form window, eliminating the need to scroll. You can also display data from related tables in one form.

Access provides six basic types of forms: columnar, tabular, datasheet, justified, PivotTable and PivotChart. In a columnar form, the field names are listed on the left side of the form and the field values appear in a column on the right. If space permits, there can be more than one column.

In a tabular form, the field names are listed across the top of the form and the values appear in the corresponding columns beneath them. A datasheet form appears similar to **Datasheet** view. Both the tabular and datasheet forms display data in a table layout.

In a justified form, the field names and values appear in alternate rows, evenly spaced across the page. Field values appear under the corresponding field names.

A PivotTable form allows you to quickly create a form by dragging fields as desired in **PivotTable** view. Similar to a PivotTable form, a PivotChart form allows you to create a chart or graph by dragging fields as desired in **PivotChart** view.

# USING THE FORM WIZARD

## Discussion

You can use the Form Wizard to quickly and easily create a form. The Form Wizard guides you through the process. First, you must choose the table or query on which you want to base the form, and then you can select the fields you want to include. Next, you select the desired type of form layout: columnar, tabular, datasheet, justified, PivotTable, or PivotChart. You can then select a style from a variety of predefined styles provided by Access. Finally, you must name the form.

*The Customer Data Entry form*

> If you base a form on multiple tables, the tables must all be related. In addition, the Form Wizard will prompt you to select how you want to group the fields on the form.

> You can also activate the Form Wizard by double-clicking the **Create form by using wizard** option in the **Forms** object list in the Database window, by selecting the **Insert** menu and the **Form** command, or by clicking the **New Object** button on the **Database** toolbar and selecting the **Form** command.

## ✔ **Procedures**

1.  Display the **Forms** object list.

2.  Select the ▦ **New** button on the Database window toolbar.

3.  Select **Form Wizard**.

4.  Select **OK**.

5.  Select the **Tables/Queries** list.

6.  Select the table or query on which you want to base the form.

7.  Add the desired fields to the **Selected Fields** list box, or add all the fields.

8.  Select **Next >**.

9.  Select the desired form layout.

10. Select **Next >**.

11.  Select the desired form style.

12.  Select **Next >**.

13.  Type the desired form name.

14.  Select **Finish**.

---

# VIEWING RECORDS IN A FORM

## Discussion

Navigating records in a form is similar to navigating records in **Datasheet** view. You can use the navigation buttons at the bottom of the window to display records in a form. The following navigation buttons are available in **Form** view:

| Button | Description |
|:---:|:---|
| ◀ | Displays the first record |
| ◀ | Displays the previous record |
| ▶ | Displays the next record |
| ▶▮ | Displays the last record |

> 📖  You can also press the **[Ctrl+Home]** key combination to display the first record, the **[Ctrl+End]** key combination to display the last record, and the **[Page Up]** and **[Page Down]** keys display the previous and next records, respectively.

> 📖  You can also go directly to a record by selecting the number in the **Record** box (located within the navigation buttons at the bottom of the window), typing the number of the record you want to display, and pressing the **[Enter]** key.

## ✔ Procedures

1.  Display the **Forms** object list.

2.  Open a form in **Form** view.

---

3. Click the **Last Record** button [⏮] at the bottom of the form window.

4. Click the **First Record** button [⏮] at the bottom of the form window.

5. Click the **Next Record** button [▶] at the bottom of the form window.

6. Click the **Previous Record** button [◀] at the bottom of the form window.

# PRINTING RECORDS IN A FORM

## Discussion

You can print an open form.

If you use the **Print** button to print all the data, Access fits as many whole forms as possible on each page; Access will not break a form in the middle. If a form is large and there are numerous records in it, you may be using a large amount of paper and printer time.

If you use the Print dialog box, you can print all records, only specified pages, or all selected records, thereby saving time and paper.

> You can also open the Print dialog box by right-clicking an object in the Database window and selecting the **Print** command.

## Procedures

1. Display the **Forms** object list.

2. Open a form in **Form** view.

3. Select the **File** menu.

4. Select the **Print** command.

5. Select the desired options.

6.  Select **OK**.

---

# BASING A FORM ON A QUERY

## ☃ **Discussion**

Forms can extract information from a query as well as from a table.

If the query recordset cannot be updated, you will not be able to edit the form or add records to it. Nevertheless, a form can be used to present query data in a more attractive manner.

> 📖   You can also activate the Form Wizard by double-clicking the **Create form by using wizard** option in the **Forms** object list in the Database window, by selecting the **Insert** menu and then selecting the **Form** command, or by clicking the **New Object** button on the **Database** toolbar and selecting the **Form** command.

## ✔ **Procedures**

1.  Display the **Forms** object list.

2.  Select the ▦ **New** button on the Database window toolbar.

3.  Select **Form Wizard**.

4.  Select **OK**.

5.  Select the **Tables/Queries** list.

6.  Select the query on which you want to base the form.

7.  Add the desired fields to the **Selected Fields** list box, or add all the fields.

8.  Select **Next >**.

9.  Select the desired form layout.

10. Select **Next >**.

11. Select the desired form style.

12. Select **Next >**.

---

13. Type the desired form name.

14. Select **Finish**.

---

# USING AUTOFORM

## ⏳ **Discussion**

The fastest way to create a form is to use AutoForm. AutoForm automatically creates a simple columnar, tabular, datasheet, PivotTable, or PivotChart form from the selected table or query, without needing any input. However, you must select a table or query before AutoForm can create the form. All fields in the table or query will appear on the form, and the title of the form is the name of the table or query.

AutoForm does not save the form for you automatically. When you close the form for the first time, Access prompts you to save it.

> 📖    AutoForm creates a form using the defaults for the selected form type. After AutoForm has created a form, however, its formatting can be modified in **Design** view.

> 📖    You can also use AutoForm to create a form based on the selected table or query by selecting the **Insert** menu and the **AutoForm** command or by clicking the **New Object** button on the **Database** toolbar and selecting the **AutoForm** command. When you use one of these methods, the form always appears in a standard columnar format.

> 📖    AutoForm can also be used to produce a formatted columnar or tabular report.

## ✔ **Procedures**

1. Select the **Forms** object list.

2. Select the 🔳 **New** button on the Database window toolbar.

3. Select the desired AutoForm option.

4. Select the **Choose the table or query where the object's data comes from** list.

---

5.   Select the desired table or query.

6.   Select **OK**.

---

# ADDING A RECORD USING A FORM

## 🎯 Discussion

Forms are frequently used to add records to one or more tables. It can be easier to work in a well-designed form than in the underlying table because forms are usually designed to display all the fields for a single record within the form window, eliminating the need to scroll.

You can use the **[Enter]** key to move between fields as you enter data. If you want to skip one or more fields, you can press the **[Tab]** key until the insertion point appears in the desired field, or you can click in the field in which you want to enter data. When you press the **[Enter]** key after entering data in the last field in a record, Access automatically saves the record and displays a blank form for entering another record.

> 📖   You can use the **[Shift**+**Tab]** key combination to move to the previous field.

> 📖   You can also use the **New Record** button on the **Form View** toolbar to add a record to a form.

## ✅ Procedures

1.   Display the **Forms** object list.

2.   Open the form in **Form** view.

3.   Click the **New Record** button ▶✱ at the bottom of the window.

4.   Type the desired data into the first field of the new record.

5.   Press **[Enter]**.

6.   Enter data in additional data into the remaining fields as desired.

# LESSON 7 -
# USING DESIGN VIEW

In this lesson, you will learn how to:

- Hide the ruler

- Disable the Snap to Grid feature

- Display the field list

- Add a field

- Move part of a paired control

- Align controls

- Space controls

- Use the toolbox

- Add a label

- Add an image

- Add a rectangle

- Add a line

- Edit an unbound control

- Use multiple Undo/Redo in Design view

# HIDING THE RULER

## 🔹 **Discussion**

You can hide or display the ruler in **Design** view. The ruler provides two scales in the Design window, one across the top and one down the left side. These scales are useful when you want to create controls that are a specific size or place controls in a specific location.

When you move objects, the appropriate area on the ruler is highlighted. This highlighted area indicates the size and position of the control.

> 📖   The **Ruler** command on the **View** menu acts as a toggle. If there is a check mark next to it, the ruler is displayed.

> 📖   You can also hide or display the ruler by right-clicking in the Design window and then selecting the **Ruler** command.

## ✅ **Procedures**

1.   Open the desired form or report in **Design** view.

2.   Select the **View** menu.

3.   Select the **Ruler** command.

# DISABLING THE SNAP TO GRID FEATURE

## 🔹 **Discussion**

Access provides several features to help you size and position controls on a form.

The grid in **Design** view is a series of small points and lines in the Design window. These points and lines (gridlines) help you position controls. When the **Snap to Grid** feature is activated, all controls added to the view are automatically positioned on grid points. Both the **Grid** and **Snap to Grid** features are enabled by default and can be disabled as desired.

> 📖     You can also hide or display the grid by right-clicking in the Design window and then selecting the **Grid** command.

> 📖     Both the **Grid** and the **Snap to Grid** commands are toggles. If there is a checkmark next to either of these commands, the command is activated.

# ✔ Procedures

1. Open the desired form or report in **Design** view.

2. Select the **View** menu.

3. Select the **Grid** command.

4. Select the **Format** menu.

5. Select the **Snap to Grid** command.

---

# DISPLAYING THE FIELD LIST

# 🕮 Discussion

If a form or report is based on a table or query, you can display its field list. This option allows you to easily add fields to the view.

The field list appears as a box that "floats" above **Design** view. "Floating" means that you can drag the field list by its title bar to reposition it anywhere on the screen. This option allows you to move the field list to a more convenient location while you work.

> 📖     The **Field List** button acts as a toggle. You click it to display the field list and click it again to close the field list. You can also close the field list by clicking the **Close** button on the title bar.

> 📖     You can also hide or display the field list by selecting the **View** menu and then selecting the **Field List** command.

> 📖     You can also display the **Field List** by pressing the **[F8]** key.

# ✅ **Procedures**

1. Open the desired form or report in **Design** view.

2. Click the **Field List** button [ ] on the **Form Design** toolbar.

---

# ADDING A FIELD

# 🔍 **Discussion**

When you add a field to a form or report, you add both a bound and an unbound control. The bound control is a text box that displays the data from the table. The unbound control is a label that contains the field name.

When you add a field, the mouse pointer changes into a small box. This box indicates where the top left corner of the bound control will appear on the form. The unbound control, by default, will be located to the left of the bound control.
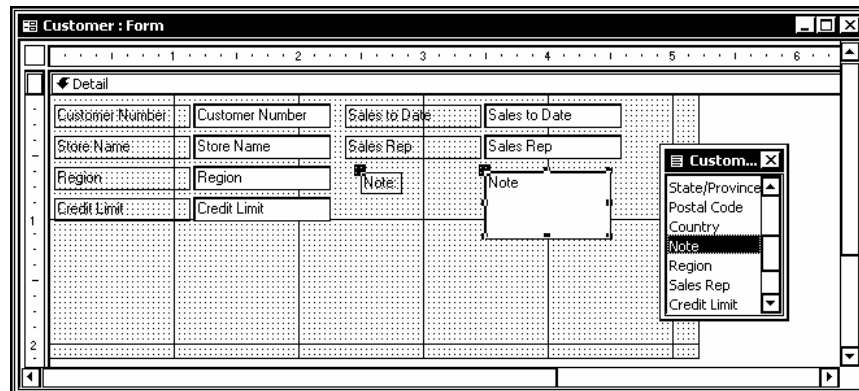


*Adding a field*

> 📖  If you move the bound control too close to the left margin, the unbound control may not be totally visible.

> 📖  You can also add a field from the **Field List** to a form or report in **Design** view by selecting the field and pressing the **[Enter]** key. You will then need to move the controls to the desired location.

## ✓ **Procedures**

1. Open the desired form or report in **Design** view.

2. Display the field list.

3. In the field list, select the name of the field you want to add to the form or report.

4. Drag the field name to the desired location on the form or report.

---

# MOVING PART OF A PAIRED CONTROL

## ✓ **Discussion**

A bound and an unbound control can be paired. When you select a bound control, the unbound control is selected. An example is a field text box (the bound control) and its label (the unbound control). You can reposition these controls as a single unit, or you can reposition them individually.

When you select paired controls, a larger move handle appears in the upper left corner of both the bound and unbound controls. You use these handles to move the controls individually.
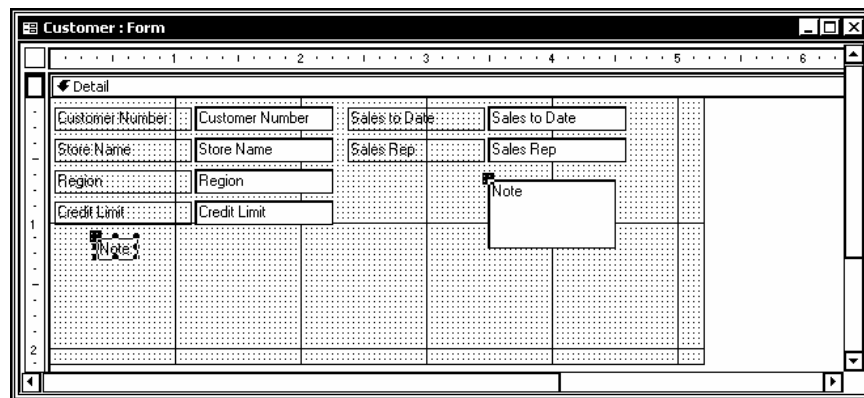


*Moving part of a paired control*

## ✓ **Procedures**

1. Open the desired form or report in **Design** view.

2. Select the control you want to move.

3.  Point to the large move handle in the upper left corner of the control you want to move.

4.  Drag the selected control to the new location.

# ALIGNING CONTROLS

## 🔎 Discussion

You can automatically align controls with one another. This option allows you to line up the edges of controls quicker and more accurately than lining them up individually.

The available alignment options are listed in the following table:

| Option | Description |
|--------|-------------|
| **Left** | The left edges of the controls are aligned with the left edge of the leftmost control in the selection. |
| **Right** | The right edges of the controls are aligned with the right edge of the rightmost control in the selection. |
| **Top** | The top edges of the controls are aligned with the top edge of the top control in the selection. |
| **Bottom** | The bottom edges of the controls are aligned with the bottom edge of the bottom control in the selection. |
| **To Grid** | The controls are aligned with the grid. |

📖 The **Align** command on the **Format** menu does not overlap controls. Instead of overlapping controls, Access positions them with the edges together.

📖 You can also align controls by right-clicking in the Design window, pointing to the **Align** command, and then selecting the desired command.

## ✅ Procedures

1.  Open the desired form or report in **Design** view.

2.  Select the controls you want to align.

3.  Select the **Format** menu.

4.  Point to the **Align** command.

5.  Select the desired alignment command.

# SPACING CONTROLS

## Discussion

You can increase or decrease the spacing between selected controls, or space them evenly between the top and bottom controls. You can also implement spacing changes horizontally or vertically.

> When you are spacing controls, you can select the **Format** menu and then select the **Increase** and **Decrease** commands to increase or decrease the space between objects by one pixel.

## Procedures

1.  Open the desired form or report in **Design** view.

2.  Select the controls you want to space.

3.  Select the **Format** menu.

4.  Point to the **Horizontal Spacing** or **Vertical Spacing** command.

5.  Select the desired spacing command.

# USING THE TOOLBOX

## Discussion

The toolbox contains tools for adding different kinds of controls to a form or report. It appears in **Design** view by default and "floats" so that you can move it to a more convenient location while you work.

You can make the toolbox a toolbar by double-clicking its title bar. Once it appears as a toolbar, you can make it a floating palette by double-clicking an empty space on the toolbar. You can also drag the borders of the toolbox to resize and reshape it.

> If the toolbox does not automatically appear in **Design** view, you can display it by selecting the **View** menu and then selecting the **Toolbox** command, by clicking the **Toolbox** button on the **Report Design** toolbar, or by right-clicking in the Design window and then selecting the **Toolbox** command.

> A tool in the toolbox is automatically disabled after it is used. Double-clicking a tool leaves it enabled for multiple uses. You can disable the tool by clicking it again.

> Many tools in the toolbox start control wizards. You can deactivate the **Control Wizards** button to insert one of these controls without starting the wizard. The control is then inserted with its default settings.

# ADDING A LABEL

## Discussion

You can add text to a form or report. Text usually takes the form of a label and is not bound to a field. Labels can be used for data entry instructions on a form or for identifying groups of controls on a report.

When you use the **Label** tool, the mouse pointer changes into the letter **A** with a plus sign (+) above and to the left of it. The center of the plus sign (+) indicates the position of the top left corner of the label control.

Access automatically word-wraps the text in a label box as more text is entered. If you drag to create a label box, the width of the box remains fixed, while the height expands to accommodate additional text. If you click to create a label box, the width of the box expands automatically as you enter text.
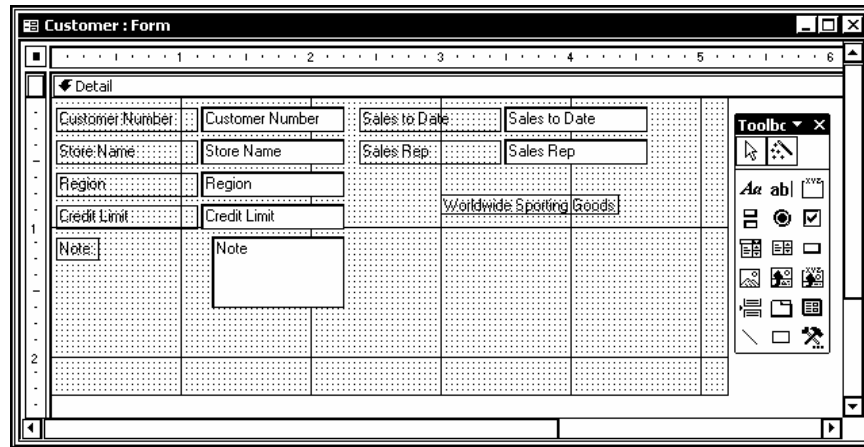
*Adding a label in Design view*

# ✔ Procedures

1.  Open the desired form or report in **Design** view.

2   Display the toolbox.

3.  Click the **Label** tool ![Aa] in the toolbox.

4.  Click in the form or report where you want the top left corner of the label to appear.

5.  Type the text for the label.

6.  Press **[Enter]**.

# ADDING AN IMAGE

# Discussion

You can add a control to a form or report that contains an image. The image is unbound and usually added only for aesthetics. Images can be any type of graphic file. If a graphic file is too large to fit in the frame of the control, the entire graphic will not appear. However, you can resize the frame to display more of the image.

When you activate the **Image** tool in the toolbox, the mouse pointer changes into a copy of the tool with a plus sign (+) above and to the left of it. As you drag to draw the frame of the control, the center of the plus sign (+) indicates the position of the top left corner of the frame.
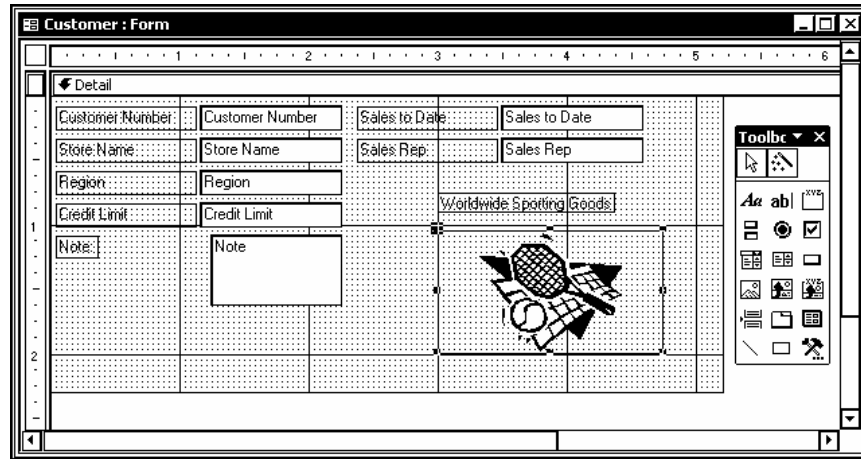
*Adding an image in Design view*

# ✔ **Procedures**

1. Open the desired form or report in **Design** view.

2. Display the toolbox.

3. Click the **Image** tool 🖼 in the toolbox.

4. Drag to draw a frame for the control in the form or report.

5. Select the **Look in** list.

6. Select the drive where the image is stored.

7. Select the folder where the image is stored.

8. Select the desired image.

9. Select **OK**.

# ADDING A RECTANGLE

# 🏷 **Discussion**

You can draw a rectangle on a form or report. Rectangles can enhance areas of a form or enclose controls.

When you use the **Rectangle** tool in the toolbox, the mouse pointer changes into a rectangle with a plus sign (+) above and to the left of it. As you drag to draw the

rectangle, the center of the plus sign (+) indicates the position of the top left corner of the rectangle.
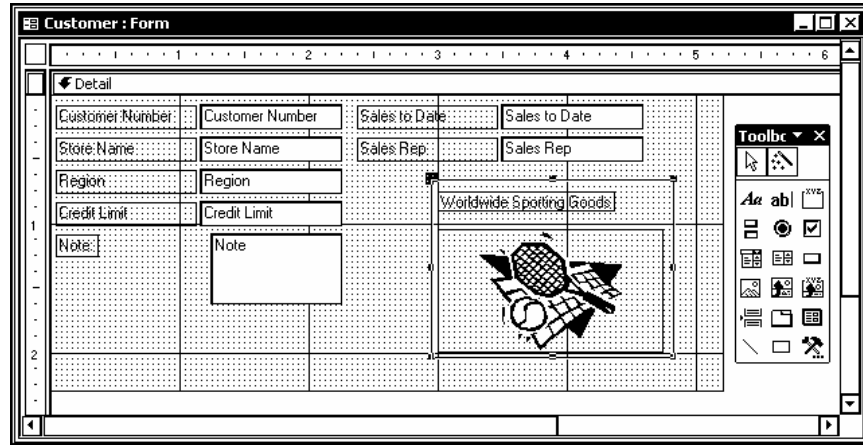


*Adding a rectangle in Design view*

# ✔ **Procedures**

1. Open the desired form or report in **Design** view.

2. Display the toolbox.

3. Click the **Rectangle** tool [ ] in the toolbox.

4. Drag to draw a rectangle in the form or report.

# ADDING A LINE

# 🔍 **Discussion**

You can draw a line on a form or report. Lines can enhance forms and reports by separating particular areas. For example, you can add a line to a report that separates groups of information.

When you use the **Line** tool in the toolbox, the mouse pointer changes into a slanted line with a plus sign (+) above and to the left of it. As you drag to draw the line, a line extends from the center of the plus sign (+).
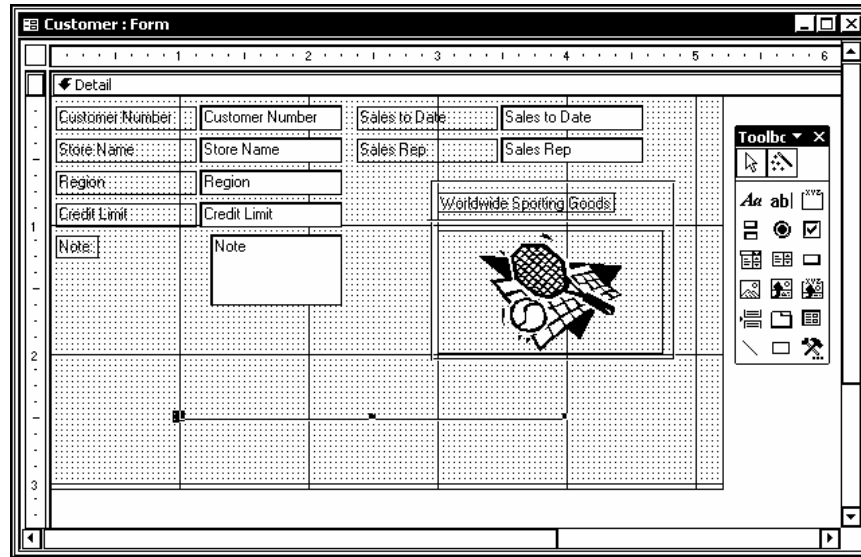
*A line added to Form view*

> 📖 You can ensure that you draw a straight line by holding the
> **[Shift]** key while you drag in the form or report.

# ✅ Procedures

1.  Open the desired form or report in **Design** view.

2.  Display the toolbox.

3.  Click the **Line** tool [line icon] in the toolbox.

4.  Drag to draw a line in the form or report.

# EDITING AN UNBOUND CONTROL

# 🗩 Discussion

You can edit text in an unbound control (i.e., a label). However, you must be in edit
mode. In edit mode, the insertion point and a solid background appear in the unbound
control. You cannot edit text while the sizing handles are displayed. Also, deleting all
the label text does not delete the control.

## ✅ **Procedures**

1. Open the desired form or report in **Design** view.

2. Select the unbound control you want to edit.

3. Click to position the insertion point in the text.

4. Type the desired changes.

5. Press **[Enter]**.

# USING MULTIPLE UNDO/REDO IN DESIGN VIEW

## **Discussion**

The **Undo** feature allows you to reverse the results of the previous command or action.

Once you have used the **Undo** feature, the **Redo** feature becomes available. The **Redo** feature allows you to restore the results of the command or action you reversed with the **Undo** feature. Both features can be accessed on the **Form Design** or **Report Design** toolbar or from the **Edit** menu while working in **Design** view.

When you work with Access object types, such as tables, queries, forms, or reports, in **Design** view, you can also use the list arrow on the **Undo** or **Redo** button to undo or redo multiple actions. This feature is useful if you want to reverse a previous action, but have performed a number of actions subsequent to it. When you select an action to undo or redo, however, all the items performed after the selected action in the list are also reversed or redone.

However, when you open a table or query in **Datasheet** view, you are limited to undoing one action at a time. Each time you choose the **Undo** button in **Datasheet** view, the last action performed is reversed. When all actions have been undone, the **Undo** button becomes grayed out. The redo feature is not available in **Datasheet** view.

A feature related to **Redo** is the **Repeat** feature, which is only available from the **Edit** menu while working in **Design** view. You can use the **Repeat** feature to duplicate the previous action.

The task to be undone or redone appears as part of the **Undo** and **Repeat** commands. For example, if you have just deleted text, the **Undo Delete** command would appear on the **Edit** menu.

> 📖   You can also undo and redo actions by selecting the **Edit** menu and then the **Undo** or **Redo** command. The action to be undone or redone appears as part of the command.

> 📖   Multiple undo and redo is also available when working with data access pages, macros, and modules.

# ✔ **Procedures**

1.  To undo the previous command or action, click the **Undo** button
    on the **Standard** toolbar.

2.  To redo the undone command or action, click the **Redo** button
    on the **Standard** toolbar.

3.  To undo or redo multiple consecutive actions, click the **Undo** or **Redo** button arrow, as applicable.

4.  Select the action you want to undo or redo.

# LESSON 8 -
# MANIPULATING CONTROLS

In this lesson, you will learn how to:

- Use controls

- Select non-adjacent controls

- Select adjacent controls

- Delete controls

- Size a control by dragging

- Move controls

- Size controls automatically

- View the properties of an object

- Change a control property

# USING CONTROLS

## ⏳ **Discussion**

When you create forms or reports in **Design** view, you work with controls. Controls are objects in a form or report that contain information. Forms and reports usually include bound text box controls and unbound label controls.

Text box controls display data from fields in a table or query on which a form or report is based. Text boxes are also used as entry fields for data in a form. Text boxes are known as bound controls because the source of the data is stored in a specific field in a table.

When you add a control to a form, you decide where the control gets the information it displays. For example, a bound text box control can be added that displays a name from the **Name** field in an address table. The bound text box control gets the values from the **Name** field because you have connected or bound it to that field.

Label controls are unbound controls. They display information that is not stored in a table. Unbound controls can be text, images, lines, or rectangles drawn on the design. Unbound controls are often paired with bound controls as labels. Unbound controls are also used to enhance a form or report, or to provide more information, such as instructions for entering data.

Text box and label controls are automatically added to a form created using the Form wizard. However, you can use the toolbox in **Design** view to add other controls to a form or report. These controls include list boxes, combo boxes, drop-down list boxes, command buttons, check boxes, option buttons, option groups, toggle buttons, and tabs.

> 📖   Calculated controls derive their information using an expression to manipulate the table data on which a form is based. For example, you can display an order total on a form that is calculated by multiplying the **Unit Price** and the **Quantity** fields in an **Orders** table. Calculated controls are unbound since the result of the calculation is not stored in a table.

# SELECTING NON-ADJACENT CONTROLS

## 🔍 Discussion

Controls are the building blocks of a form or report. In order to make any changes to an element of a form or report, you must select the control that defines the element. When a control is selected in **Design** view, sizing handles appear. Sizing handles are boxes on the corners and sides of the control. The large box that appears in the upper left corner of a control is a move handle. Move handles are used to move an individual control without moving any other controls, even if they are selected.

When you select controls, you should be aware that bound controls are often paired with unbound controls. For example, a bound control (i.e., a text box) in a table often has an unbound control (i.e., a label) next to it containing the field name. When you select the bound control, the unbound control is also selected and is affected by the next operation. However, when you select the unbound control, the bound control is not selected and is unaffected by the next operation.
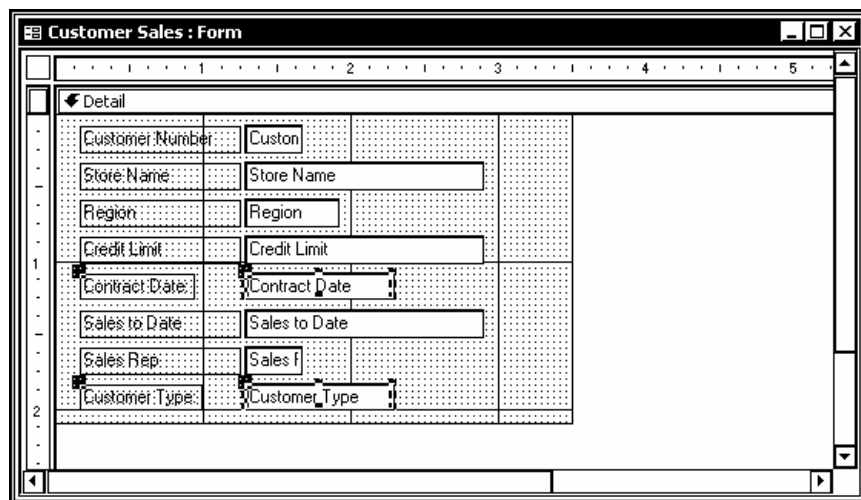
*Selected non-adjacent controls*

> 📖    When you open a form or report in **Design** view for the first time, the toolbox appears.

## ✔ Procedures

1.  Open the desired form or report in **Design** view.

2.  Click the first control you want to select.

3.   Hold **[Shift]**, click any additional controls, and release **[Shift]**.

# SELECTING ADJACENT CONTROLS

# Discussion

By selecting controls in **Design** view, you are telling Access what elements should be affected by the next command or operation you perform. You can select multiple controls to be affected by the next command or operation, rather than selecting each control individually. If the controls are adjacent to one another, you can select the controls by dragging a rectangle around them.

When multiple controls are selected, sizing and move handles appear around each control.
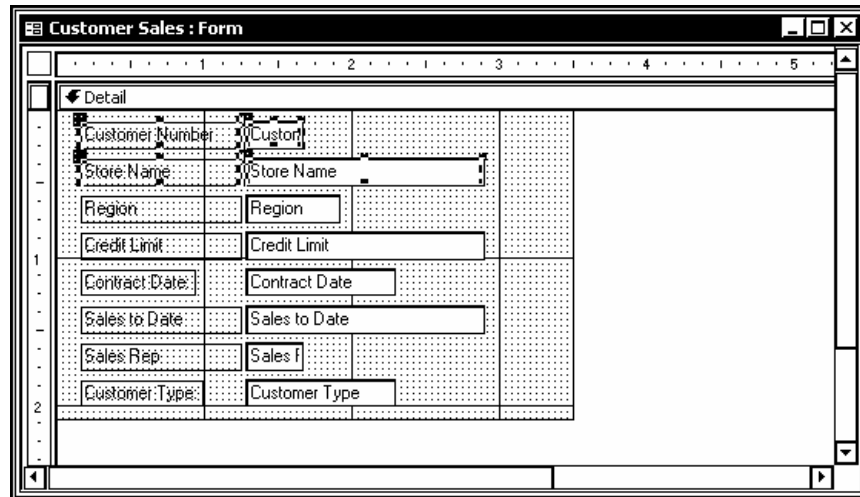


*Selected adjacent controls*

|  | If the ruler is displayed, you can drag in it to select multiple adjacent controls. |
|---|---|

|  | You can select all controls by selecting the **Edit** menu and then selecting the **Select All** command. |
|---|---|

> ⚠ Make sure that the mouse pointer does not change into a black hand when you begin to drag a selection box. If it does, you will end up moving the control instead of selecting multiple controls. If you move a control by mistake, use the **Undo** feature to reverse the action.

# ✔ Procedures

1. Open the desired form or report in **Design** view.

2. Point to a blank area just above and to the left of the first control you want to select and drag down and to the right to create a box around the desired controls.

# DELETING CONTROLS

# 🔎 Discussion

You can delete controls from **Design** view. When you delete a bound control, you do not delete the field in the table or the data it contains; rather, you keep the data from being displayed in the form or report.

> 📖 You can select the **Edit** menu and then select the **Undo Delete** command or click the **Undo** button to restore a control you have just deleted. However, you cannot restore a deleted control after you have saved the form or report design.

> 📖 You can also delete a control by selecting the **Edit** menu and then selecting the **Delete** command.

# ✔ Procedures

1. Open the desired form or report in **Design** view.

2. Select the control(s) you want to delete.

3. Press **[Delete]**.

# SIZING A CONTROL BY DRAGGING

## 🎭 Discussion

You can change the size of any control in **Design** view. Controls that display text generally display a single line of text horizontally and are long enough to show the entire data entry. If a control is not large enough to display the entire data entry to which it is bound, you have to scroll the corresponding field in form view to see the entire entry. If a field contains a large amount of text, such as a memo field, you can display several lines of text in the field by vertically increasing the size of the bound control. Changing the size of the control does not change the size of the text it contains.

> 📖    You can size selected controls with the keyboard by holding the **[Shift]** key while pressing the **[Up]**, **[Down]**, **[Left]**, or **[Right]** arrow keys. The selected controls are sized one pixel at a time.

## ✔ Procedures

1. Open the desired form or report in **Design** view.

2. Select the control(s) you want to size.

3. Point to the desired sizing handle.

4. Drag the sizing handle in the desired direction to expand or contract the control.

# MOVING CONTROLS

## 🎭 Discussion

You can move a paired bound and unbound control (i.e., a field text box and its label) as a single unit to any location in a form or report in **Design** view. When you move one control in a pair, its corresponding control automatically moves along with it. Moving controls can improve the appearance and efficiency of forms and reports. The controls must be selected before you can move them.

If you want to move both the bound and unbound controls as a single unit, be careful that you do not drag a control by either of the large move handles in the upper left corner of the selected controls. If you do, the mouse pointer changes into a pointing hand instead of an open hand and the paired bound and unbound controls are moved individually, rather than as a single unit.

> 📖 You can move selected controls with the keyboard by pressing the **[Up]**, **[Down]**, **[Left]**, or **[Right]** arrow keys. The selected objects move to the next grid point. Holding the **[Ctrl]** key while dragging temporarily suspends the **Snap to Grid** feature and allows you to freely position a control.

> 📖 To move a control while keeping it in the same horizontal or vertical position, hold down the **[Shift]** key and click the control, and then drag the control by its move handle either horizontally or vertically. The first direction you drag determines which position will be maintained.

## ✅ Procedures

1. Open the desired form or report in **Design** view.

2. Select the control(s) you want to move.

3. Point to the edge of one of the selected controls.

4. Drag the controls to the desired location.

# SIZING CONTROLS AUTOMATICALLY

## 🔍 Discussion

**Design** view has formatting commands you can select to size controls automatically. You can use these commands to improve the appearance of a form or report by giving the display a consistent and orderly look.

The available sizing options are listed in the following table:

| Option | Description |
|--------|-------------|
| **To Fit** | Sizes the controls to fit the contents. |
| **To Grid** | Sizes the controls to the grid. |

| Option | Description |
|--------|-------------|
| **To Tallest** | All selected controls become as tall as the tallest control in the selection. |
| **To Shortest** | All selected controls become as short as the shortest control in the selection. |
| **To Widest** | All selected controls become as wide as the widest control in the selection. |
| **To Narrowest** | All selected controls become as narrow as the narrowest control in the selection. |
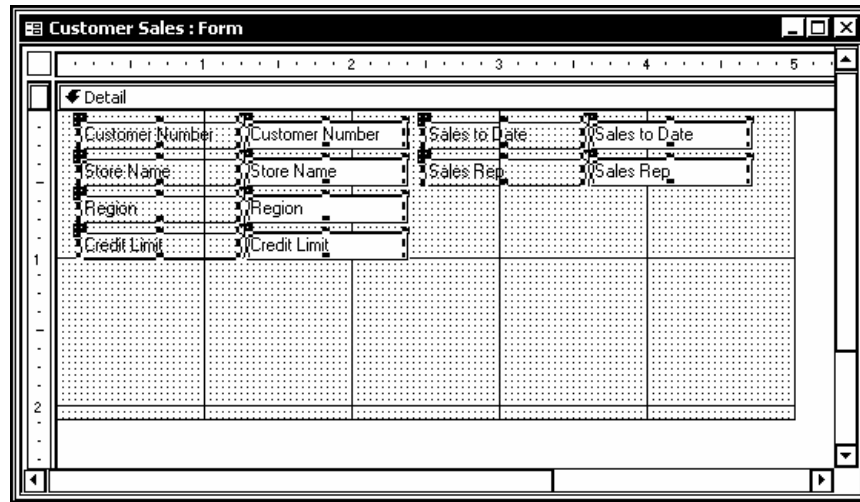


*Multiple controls resized to the same width*

# ✅ Procedures

1.  Open the desired form or report in **Design** view.

2.  Select the control(s) you want size.

3.  Select the **Format** menu.

4.  Point to the **Size** command.

5.  Select the desired size command.

# VIEWING THE PROPERTIES OF AN OBJECT

## Discussion

Every object in Access has properties that define its characteristics. Database objects, such as tables, queries, and forms, have very general properties, such as their name and description. Other objects, such as fields in a table or controls on a form, have many properties that control their appearance, such as font size and color, the number of decimal places, and the control source. You can change the properties of the objects on a form or report in **Design** view using the property sheet. The properties displayed on the property sheet depend on what type of object is selected. For example, the properties for a label box differ from the properties for the **Detail** section of a form. You can also change the properties for page and form headers and footers.

The properties of objects are grouped into five categories:

| Category | Description |
|----------|-------------|
| Format | Specifies the appearance of objects, such as the font characteristics, position and size of a text box or whether or not scroll bars appear on a form. |
| Data | Determines the characteristics of the data displayed, such as the data's control source, default value, or whether or not it can be edited. You can change the data source for an individual control or for the entire form. |
| Event | Specifies a procedure that Access executes when an event occurs. Some examples of events include clicking a control (OnClick), deleting data (OnDelete), and opening the form (OnOpen). The procedure can be an expression, a macro, or a Visual Basic for Access routine. |
| Other | Shows additional features of the control, such as the name of the control or whether or not a control is in the tab order. |
| All | Displays all the properties of the object in one list. |

> 📖 You can also display the property sheet by selecting the **View** menu and then selecting the **Properties** command or by right-clicking a form or report in **Design** view and then selecting the **Properties** command.

> 📖 You can also display the properties sheet by pressing **[F4]** on the keyboard.

> 📖  The name of the selected object appears in the title bar of the property sheet and in the **Object** box on the **Formatting (Form/Report)** toolbar.

# ✅ Procedures

1. Open the desired form or report in **Design** view.

2. Select the desired object.

3. Click the **Properties** button 🗐 on the **Form Design** toolbar.

4. Select the desired tab on the property sheet.

# CHANGING A CONTROL PROPERTY

# 💬 Discussion

The properties of a control define many of its aspects, including the source of the information displayed in the control, its name, if it is displayed or hidden, and its appearance (font size, color, size, position, etc.). Properties of controls and other objects can be easily changed to suit your needs. For example, you may have a form with records you want to keep constant. You can select **No** in the form's **Allow Edits** property box to prevent any editing of the records. The property sheet also allows you to precisely position and size a control.
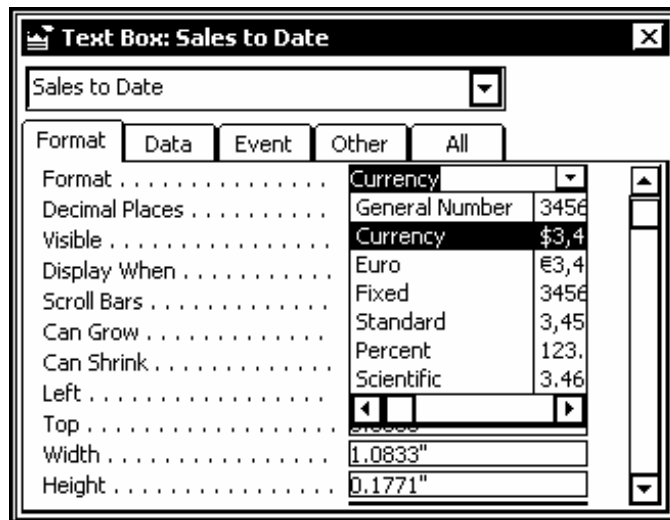


*The Format page of the property sheet*

> 📖     You can change the properties of several controls at once. For
>        example, you can select several text boxes and change the font
>        type and size for all of them at the same time, rather than
>        individually.

> 📖     You can also open the property sheet by double-clicking a
>        label or text box on the form.

# ✔ Procedures

1.  Open the desired form or report in **Design** view.

2.  Select the desired control.

3.  Click the **Properties** button [icon] on the **Form Design** toolbar.

4.  Select the desired tab on the property sheet.

5.  Select the desired property you want to set.

6.  Select the list for the property, if appropriate.

7.  Type the desired property setting or choose a property setting from
    the list.

8.  To modify another control, click the desired control on the form.

9.  Change the control properties as desired.

10. Click the **Close** button to close the property sheet.

# LESSON 9 -
# USING ADVANCED FORM DESIGN

In this lesson, you will learn how to:

- Use forms in Design view

- Create a combo box

- Create a list box

- Create an option group

- Add a logic control

- Set the tab order automatically

- Set the tab order manually

- Add a form header and footer

- Create a blank form

# USING FORMS IN DESIGN VIEW

## ✒ Discussion

You can create or customize a form in **Design** view. A form has three basic sections: **Detail**, **Form Header/Footer**, and **Page Header/Footer**.

The **Detail** section contains the information from the table or query. You create controls in the **Detail** section that allow you to display or enter information. Access provides a variety of control types you can add to the form to simplify the data entry process. For example, you can replace a text box with a list box or an option group so that you can select a value rather than type it during data entry. In many cases, it is quicker and easier to select a value from a list rather than to remember the value you want to use and then type it. Having a list of choices also helps to ensure the consistency of the data being entered.

The **Form Header** and **Form Footer** sections display at the top and bottom of a form in **Form** view. They are stationary when you scroll the **Detail** section, making them useful for displaying titles or instructions you want visible on the form at all times. If you print the form, these sections appear at the top of the first page and at the bottom of the last page. You can also place controls, including images, labels, and fields in the form header or footer.

The **Page Header** and **Page Footer** sections display at the top and bottom of the form in **Design** view. They do not appear in **Form** view. Rather, they display at the top and bottom of every page when the form is printed. Page headers and footers can contain images, lines, and text, or any other controls you want printed on every page.

When you enable the display of either the page or form header/footer section, both the header and the footer appear. You can drag the header and footer sections to resize them.
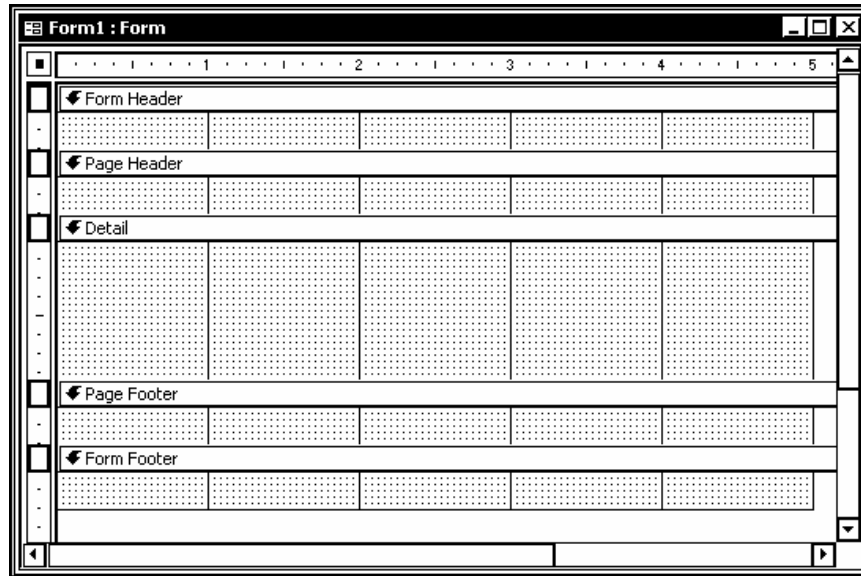
*A form with form and page headers and footers in Design view*

# CREATING A COMBO BOX

## Discussion

You can create a combo box on a form. A combo box provides you with a list of values from which you can choose. Choosing from a list is much faster and more accurate than remembering a value to be typed. However, you can also type a value directly into a combo box if the appropriate value is not available from the list.

A combo box can be bound to a field, meaning that when you select or enter a value, that value is entered into that field in the corresponding table. A combo box can also be unbound, meaning that when you select or enter a value, it is held in memory to be used in another control or calculation.

Access provides a Combo Box Wizard that guides you through the process of creating a combo box. You can select the list of values from an existing table or query, or you can create the values for the list yourself. If you choose to select the list from an existing table or query, the wizard prompts you to enter the table or query and the field name. If you choose to create the list of values yourself, the wizard displays a column for the entries. Either way, once the values are entered into the wizard, you then specify whether the values should be entered into a field in the table or held in memory for later use. You complete the combo box by entering a label.

When you use the **Combo Box** tool, the mouse pointer changes into a copy of the tool with a plus sign (+) above and to the left of it.

*A combo box added to a form*

# ✔ Procedures

1. Open the desired form in **Design** view.

2. Display the toolbox.

3. Click the **Combo Box** tool [icon] in the toolbox.

4. Click in the form in the location where you want the combo box to appear.

5. Select the desired option for the source of the combo box values.

6. Select **Next**.

7. Select the desired view option.

8. Select the table or query containing the values for the combo box in the **Which table or query should provide the values for your combo box?** list box.

9. Select **Next**.

10. Select the field containing the values from the **Available Fields** list box.

11. Select **Next**.

12. Select **Next**.

13.  Select the desired storage option for the field.

14.  Select the **Store that value in this field** list, if applicable.

15.  Select the desired field name, if applicable.

16.  Select **Next**.

17.  Type a label for the combo box.

18.  Select **Finish**.

# CREATING A LIST BOX

## Discussion

You can create a list box on a form. A list box provides you with a list of values from which you can choose. Choosing from a list is much faster and more accurate than remembering a value to be typed. However, unlike a combo box, you can only choose an item from the list; values not present on the list cannot be entered into the table.

A list box can be bound to a field, meaning that when you select or enter a value, the value is entered into a field in the corresponding table. A list box can also be unbound, meaning that when you select or enter a value, it is held in memory to be used in another control or calculation.

The List Box Wizard guides you through the process of creating a list box. You can select the list of values from an existing table or query, or you can create the values for the list yourself. If you choose to select the list from an existing table or query, the wizard prompts you to enter the table or query and the field name. If you choose to create the list of values yourself, the wizard displays a column for the entries. Either way, once the values are entered into the wizard, you then specify whether the values should be entered into a field in the table or held in memory for later use.

When you use the **List Box** tool, the mouse pointer changes into a copy of the tool with a plus sign (+) above and to the left of it. The center of the plus sign (+) indicates the position of the top left corner of the list box.

*A list box added to a form*

> 📖 You can set the default value for a list box by opening the property sheet and typing the desired value in quotation marks in the **Default Value** property box on the **Data** page.

# ✔ Procedures

1. Open the desired form in **Design** view.

2. Display the toolbox.

3. Click the **List Box** tool 〔▤▥〕 in the toolbox.

4. Click in the form in the location where you want the combo box to appear.

5. Select the desired option for the source of the list box values.

6. Select **Next**.

7. Type the number of columns for the list box.

8. Press **[Tab]**.

9. Type the first value for the list box.

10. Press **[Tab]**.

11.  Continue to type values as desired.

12.  Select **Next**.

13.  Select the desired storage option for the field.

14.  Select the **Store that value in this field** list, if applicable.

15.  Select the desired field name, if applicable.

16.  Select **Next**.

17.  Type a label for the list box.

18.  Select **Finish**.

# CREATING AN OPTION GROUP

## Discussion

You can create an option group on a form. An option group provides you with a limited set of values from which you can choose. Choosing from a set of values is often much faster and more accurate than remembering a value to be typed. With an option group, you can only select one option from the set of alternatives. Therefore, option groups are best utilized when there are five or less values from which to choose. Adding more than five values to an option group can crowd a form and is less effective for quick data entry.

An option group has a frame that encloses the set of values. These values appear beside option buttons or check boxes, or on top of toggle buttons.

The Option Group Wizard guides you through the process of creating an option group. An option group can be bound to a field in a table or query. However, only the frame is bound to the field. Within the frame, Access assigns each option a numeric value, starting with the number **1**. When the option is selected, this numeric value is entered into the corresponding field. Access assigns a number because the value of an option group cannot be text. For example, if a product comes in three colors (white, black, and green), you can use an option group in an order entry form to select the color being ordered. By default, Access assigns the number **1** to the **White** option, the number **2** to the **Black** option, and the number **3** to the **Green** option. You only see the **White**, **Black**, and **Green** options on the form, but Access actually stores the assigned numbers in the corresponding field in the table.

When you use the **Option Group** tool, the mouse pointer changes into a copy of the tool with a plus sign (+) above and to the left of it. The center of the plus sign (+) indicates the position of the top left corner of the option group.

*An option group added to a form*

# ✔ Procedures

1. Open the desired form in **Design** view.

2. Display the toolbox.

3. Click the **Option Group** tool [XYZ] in the toolbox.

4. Click in the location on the form where you want the option group to begin.

5. Type the desired label for the first option.

6. Press **[Tab]**.

7. Type other labels as desired.

8. Select **Next**.

9. Select the desired option for the default.

10. Select **Next**.

11. Type new values for the labels, if desired.

12. Select **Next**.

13. Select the desired storage option for the field.

14. Select the **Store the value in this field** list, if applicable.

15.  Select the desired field name, if applicable.

16.  Select **Next**.

17.  Select the desired option for the control type.

18.  Select the desired style option.

19.  Select **Next**.

20.  Type the caption for the option group.

21.  Select **Finish**.

# ADDING A LOGIC CONTROL

## Discussion

Some tables contain fields that have a **Yes/No** field type. These fields can contain a Yes (True) value, a No (False) value, or no value at all.

When working with a form that contains a **Yes/No** field, you can create a logic control that is bound to the **Yes/No** field. Logic controls give a visual display of the value in a **Yes/No** field, such as a check box where a check mark appears when the field value is Yes and does not appear when the value is No. Another type of logic control is the toggle button, which appears "sunken" for a value of Yes and "raised" for a value of No. The logic control for a field with a null value (neither Yes nor No is chosen) appears the same as the field with a No value.

Logic controls improve the visual effectiveness of a form and facilitate data entry. With a logic control, the value of a **Yes/No** field is selected with a single click of the mouse button rather than multiple keystrokes.

The way in which the different controls indicate a Yes or No value are described in the following table:

| **Control** | **Appearance** |
| --- | --- |
| Toggle button | Appears "sunken" with a Yes value and "raised" with a No value. |
| Option button | Contains a dot with a Yes value and appears empty with a No value. |
| Check box | Appears checked with a Yes value and unchecked with a No value. |

# ✔ **Procedures**

1. Open the desired form in **Design** view.

2. Display the toolbox.

3. Click the desired logic control tool in the toolbox.

4. Click in the form where you want the logic control to appear.

5. Click the **Properties** button  on the **Form Design** toolbar.

6. Select the **Data** tab.

7. Select the **Control Source** list.

8. Select the **Yes/No** field you want bound to the logic control.

9. Click the **Close** button to close the property sheet.

10. Select the label box of the logic control.

11. Select the default text.

12. Type the desired logic control name.

13. Press **[Enter]**.

# SETTING THE TAB ORDER AUTOMATICALLY

## 🛐 **Discussion**

The tab order determines the order in which form fields and controls are selected when you press the **[Tab]** key during data entry. The default tab order is the order in which the fields or controls were added to the form. If you have added, rearranged, or deleted fields or controls, the tab order may not be suitable for data entry. You can choose to have Access automatically rearrange the tab order to reflect the order of the fields on the form. The fields are then accessed from left to right across each row.

> 📖    You can also open the Tab Order dialog box by right-clicking in the Design window and then selecting the **Tab Order** command.

## ✅ Procedures

1.   Open the desired form in **Design** view.

2.   Select the **View** menu.

3.   Select the **Tab Order** command.

4.   Select **Auto Order**.

5.   Select **OK**.

# SETTING THE TAB ORDER MANUALLY

## 🐦 Discussion

The tab order determines the order in which form fields and controls are selected when you press the **[Tab]** key during data entry. The default tab order is the order in which the fields or controls were added to the form. If you have added, rearranged, or deleted fields or controls, the tab order may not be suitable for data entry. You can adjust the tab order manually to reflect whatever order is best for your data entry needs.

## ✅ Procedures

1.   Open the desired form in **Design** view.

2.   Select the **View** menu.

3.   Select the **Tab Order** command.

4.   Select the record selector to the left of the field you want to move.

5.   Drag the field to the new position.

6.   Select **OK**.

# ADDING A FORM HEADER AND FOOTER

## Discussion

The **Form Header** and **Form Footer** sections display at the top and bottom of the form in **Form** view. They are stationary when you scroll the **Detail** section, making them useful for displaying titles or instructions you want visible on the form at all times. If you print the form, these sections appear at the top of the first page and the bottom of the last page.

You can place controls, including images, labels, and fields, in the form header or footer.

*A label added to the Form Header section*

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📖 You can also display the **Form Header** and **Form Footer** sections by right-clicking in the Design window and then selecting the **Form Header/Footer** command.

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📖 You can also add **Page Header** and **Page Footer** sections to a form. Page headers and footers only appear when the form is printed. These sections can be added to the form by selecting the **View** menu and then selecting the **Page Header/Footer** command.

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📖 You can change the height of a section by dragging the bottom border of the section up or down.

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# ✔ **Procedures**

1. Open the desired form in **Design** view.

2. Display the toolbox.

3. Select the **View** menu.

4. Select the **Form Header/Footer** command.

# CREATING A BLANK FORM

# **Discussion**

You can create a form from scratch in **Design** view. For example, if a form does not currently exist for a particular table or query, you can create one using the fields in the selected table or query. You can then determine the design of the form by adding fields, control, and options.
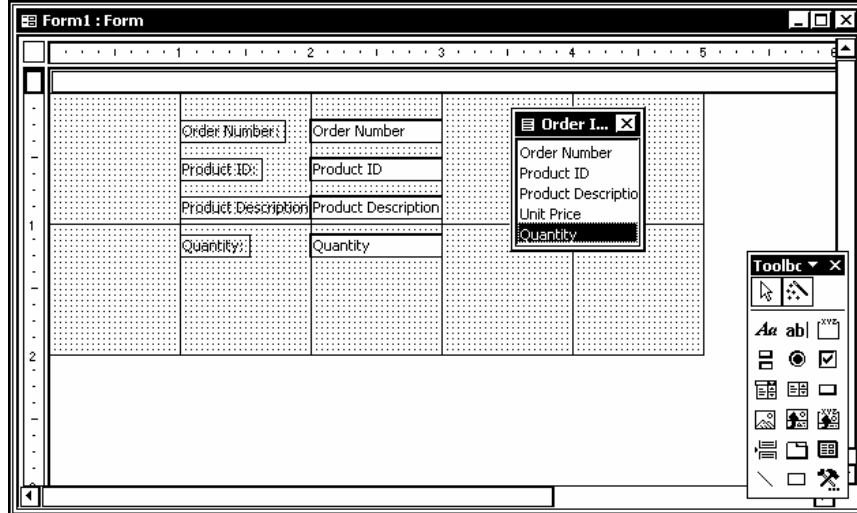


*A form created from scratch*

# ✔ **Procedures**

1. Display the **Forms** object list.

2. Select the ⊞ **New** button on the Database window toolbar.

3. Select **Design View**.

4. Select the **Choose the table or query where the object's data comes from** list.

5. Select the table or query on which you want to base the form.

6. Select **OK**.

7. Add items to the form as desired.

# LESSON 10 -
# USING OTHER FORM TECHNIQUES

In this lesson, you will learn how to:

- Add a command button

- Save a form as a report

- Create a PivotTable or PivotChart view

# ADDING A COMMAND BUTTON

## 🕮 Discussion

You can design one or more command buttons to appear on a form. These command buttons can then be used to access commonly used functions. For example, if you frequently use the Calculator, you can create a command button that can simply be clicked to instantly access the Calculator.

Command buttons are particularly useful because they do not require the database user to know the Microsoft Access menu structure. For example, instead of making the user select the **Print** command from the **File** menu to print a displayed form, you could add the **Print** function to a command button on the form.

Access provides different actions for you to use, which are available in the following categories: **Record Navigation**, **Record Operations**, **Form Operations**, **Report Operations**, **Application**, and **Miscellaneous**.
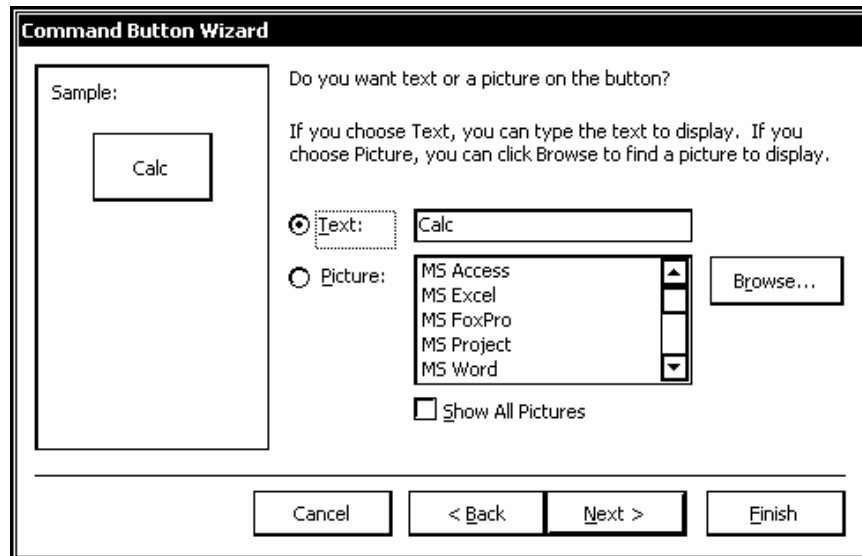


*Adding a command button*

> 🕮    If you click the **Control Wizards** button before you create a command button, Access provides you with a wizard that helps you create the command button.

## ✔ Procedures

1. Open the desired database.

2. Open the desired form in **Design** view.

3. Display the toolbox.

4. Click the **Control Wizards** tool [icon] in the toolbox.

5. Click the **Command Button** tool [icon] in the toolbox.

6. Click in the form where you want to insert the command button.

7. Select the desired category from the **Categories** list box.

8. Select the desired action from the **Actions** list box.

9. Select **Next**.

10. Type the file name of the application you want to run and the path if necessary.

11. Select **Next**.

12. Select whether you want text or a picture to display on the button.

13. Select the text in the **Text** box or select the desired picture.

14. Type the text you want to appear on the button, as necessary.

15. Select **Next**.

16. Type the desired name for the button.

17. Select **Finish**.

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# SAVING A FORM AS A REPORT

## ♆ Discussion

If you have an existing form you print often, you can save the form as a report. It is possible to print a form directly, but reports are more suitable for presenting information on paper, especially if you need to include group totals. Once a form is saved as a report, its structure can be modified in **Report Design** view to suit your needs.

> 📖  You can also open the Save As dialog box by selecting the
> desired form in the Database window, selecting the **File** menu,
> and then selecting the **Save As** command.

# ✅ Procedures

1. Open the desired database.

2. Display the **Forms** object list.

3. Right-click the form you want to save as a report.

4. Select the **Save As** command.

5. Type a name for the report.

6. Select the **As** list.

7. Select the desired **Report** or **Form** item.

8. Select **OK**.

# CREATING A PIVOTTABLE OR PIVOTCHART VIEW

## Discussion

You can view any database form in **PivotTable** or **PivotChart** view using the **View** list. In **PivotTable** view, you can summarize and analyze large amounts of data. **PivotChart** view allows you to display data in a graphical environment. You design a PivotTable or PivotChart view by dragging fields from the **Field List** to preset drop areas in the PivotTable or PivotChart view workspace. As an alternative to dragging fields, you can also select the desired field in the **Field List**, select the desired drop area from the bottom of the **Field List**, and then use the **Add to** button to add the field to that field.

In the **Field List**, fields are listed below a corresponding fieldset. When you expand the fieldset, the individual fields are displayed. Field names become bolded when they are added to the view workspace.

Once the table or chart is designed, fields can be moved, added, or deleted as desired. In addition, you can apply formatting to the items in PivotTable or PivotChart to enhance its appearance. You can use options in the property sheet or buttons on the **Formatting (PivotTable/PivotChart)** toolbar to apply formatting.

When you create a **PivotTable** view, Access automatically creates a PivotChart view, and vice versa. The PivotTable layout is slightly different than the PivotChart layout, however, and may require slight modification. Specifically, when you drag a field into the **Drop Totals or Detail Fields Here** area in a PivotTable, that field is added as a detail field which displays the detail but not a summary of the detail. Because of the nature of this field, the information will not display on the chart in the data field area. In this instance, you will need to add that same field to the data area in PivotChart view. The addition is also reflected in the PivotTable. Any formatting applied to items in each view, however, is independent of the other view.

**PivotTable** and **PivotChart** views are automatically saved and updated as part of the layout of the form when you close the form.

> You can also display data in a table or query in **PivotTable** and **PivotChart** view.

> If necessary, you can display the Field List by selecting the Field List button on the **Formatting (PivotTable/PivotChart)** toolbar, or by right-clicking a blank area of the view workspace and selecting **Field List**.

> Changes made in **PivotTable** or **PivotChart** view cannot be undone.

# ✔ Procedures

1.  Open the desired database.

2.  Open the desired form.

3.  Select the **View** list on the **Form Design** toolbar.

4.  Select **PivotTable View** or **PivotChart View**.

5.  Click the **Field List** button on the **PivotTabl**e toolbar.

6.  To add a row or category, expand the fieldset on the **Field List** containing the field you want to drag to the **Drop Row Fields Here** or **Drop Category Fields Here** area on the view workspace.

7.  Drag the desired field button from the **Field List** to the **Drop Row Fields Here** or **Drop Category Fields Here** area.

8.  To add a column or series, expand the fieldset on the **Field List** containing the field you want to drag to the **Drop Column Fields Here** or **Drop Series Fields Here** area on the view workspace.

9.   Drag the desired field button from the **Field List** to the **Drop Column Fields Here** or **Drop Series Fields Here** area.

10.  To add a totals or a data detail field, expand the fieldset on the **Field List** containing the field you want to drag to the **Drop Totals or Detail Fields Here** or **Drop Data Fields Here** area on the view workspace.

11.  Drag the desired field button from the **Field List** to the **Drop Totals or Detail Fields Here** or **Drop Data Fields Here** area.

12.  To add a filter field, expand the fieldset on the **Field List** containing the field you want to drag to the **Drop Filter Fields Here** area on the view workspace.

13.  Drag the desired field button from the **Field List** to the **Drop Filter Fields Here** area.

# LESSON 11 -
# USING SUBFORMS/SUBREPORTS

In this lesson, you will learn how to:

- Work with subforms/subreports

- Create a subform/subreport

- Edit the layout of a subform

- Display a subform in Datasheet view

- Display a subform total

# WORKING WITH SUBFORMS/SUBREPORTS

## Discussion

You can display a form/report within a form/report. The main form/ report includes information from one table and the subform/subreport includes information from a second, related table.

You can show a form or report within a form/report to more effectively show the linked data from tables with one-to-many relationships. The main form/report and the subform/subreport are linked by a common field between the tables. The main form/report represents the one side of the one-to-many relationship and the subform/subreport represents the many side. When viewing a record in the main form/report (one side relationship), the subform/subreport displays the related records from another table (many side relationship). For example, you have a **Customer** table and an **Orders** table. Each customer has several orders. In the **Customer** form (bound to the **Customer** table), you can include an **Orders** subform (bound to the **Orders** table). The tables would probably be linked by a **Customer ID** field; a field present in both tables. As you view a customer's record displayed in the main form, the order records of that customer appear in the subform. When you move to the next customer record in the main form, the order records in the subform are updated to display that customer's orders. Just as you can manipulate table data in a form, you can also manipulate the related table data using the subform. Using the same example, you can edit the customer records or the order records.

Subform data can be displayed in either **Form** view (one record at a time) or **Datasheet** view (many records displayed at once), while subreport data can only be displayed in Print Preview. You can also create and display subform data in a PivotTable or PivotChart.

You can add any number of subforms/subreports to a form/report as well as add a subform/subreport within another subform/subreport. You should keep in mind that the purpose of a form/report is to make viewing and entering data easier. You can avoid cluttering the form/report (which can cause confusion) by positioning the subform(s) or subreport(s) carefully, assigning a different background color to each, and removing any unnecessary items, such as scroll bars. Viewing the properties of the subform/subreport is helpful when considering these options.

The SubForm/SubReport Wizards provide the easiest method for creating a subform subreport. If you choose not to use the SubForm/SubReport Wizards, you will need to design a form/report and then insert it into another form/report. You may not want to use the wizard if you are designing a subform/subreport that is very different in appearance from the form report the wizard produces.

# CREATING A SUBFORM/SUBREPORT

## Discussion

When you add a subform/subreport to an existing form, it is best to start by creating the main form/report before you create the subform/subreport. The form/ report can then be edited so that it contains only the information you need, as well as the desired layout. This form can be added to the design of the main form where it will take on the properties of a subform or subreport.

You can create a subform that will appear in **Form** view, **Datasheet** view, or both views. When the form is created using the SubForm Wizard, a subform is created that can be viewed in both **Form** and **Datasheet** views. You can customize the subform in **Design** view by adding headers, footers, color, fonts, totals, etc.

The SubForm/SubReport Wizard prompts you for the following information:

1. If you want to use an existing form/report as the subform/subreport or build a new one from tables and queries.

2. If you want to define the link between the main form/report and subform/subreport yourself or choose from a list of available link options.

3. A name for the subform or subreport.
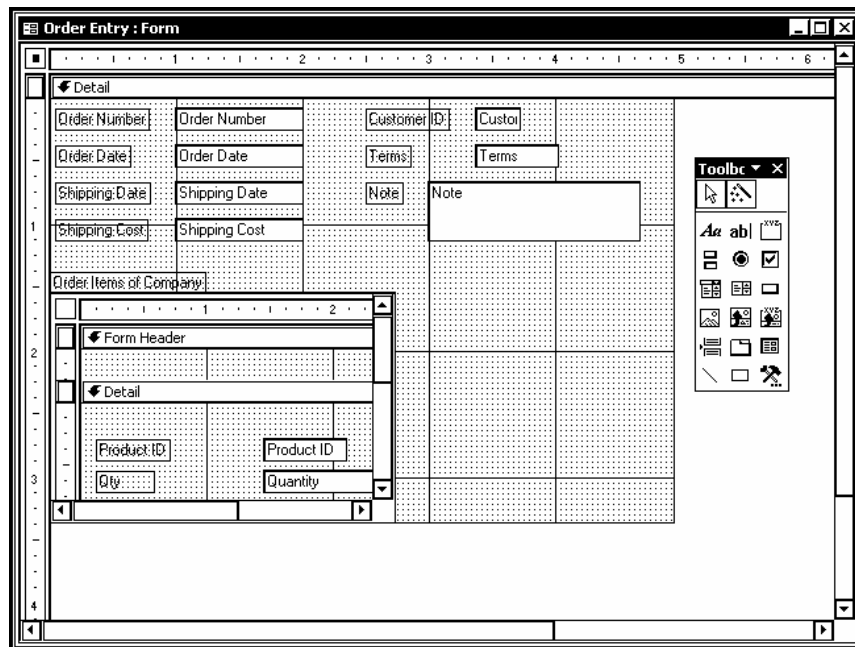


*A subform within a form*

> Although it is not necessary to click the **Control Wizards** button before creating a subform or subreport, it is recommended. Clicking this button enables the control wizards that assist you in creating a subform or subreport.

# ✔ Procedures

1. Open the desired database.

2. Open the desired form or report in **Design** view.

3. Display the toolbox.

4. Click the **Control Wizards** tool in the toolbox, if necessary.

5. Click the **Subform/Subreport** tool in the toolbox.

6. Click in the form or report where you want to place the top left corner of the subform or subreport.

7. Select the desired option for the source of the subform or subreport.

8. Select the desired form or report you want to insert as a subform or subreport.

9. Select **Next**.

10. Select the desired link option.

11. Select the desired link for the subform or subreport from the list box.

12. Select **Next**.

13. Type a name for the subform or subreport.

14. Select **Finish**.

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# EDITING THE LAYOUT OF A SUBFORM

# Discussion

In order to improve the efficiency or appearance of a subform/subreport, you can change its layout the same way you would change the layout of a form/report. In **Design** view for the main form/report, the subform/subreport is a control that you can move, resize, align, add, and delete as you would any other control. Since the

subform/subreport control contains a form/report, you can open it in **Design** view and make any editing changes to its controls. Any changes to the layout of the subform/subreport are performed in **Design** view.

> 📖    You can open a subform into a separate **Design** window by right-clicking the desired subform and then selecting the **Subform in New Window** command from the shortcut menu.

# ✔️ Procedures

1. Open the desired database.

2. Open the main form in **Design** view.

3. Double-click the subform control you want to edit.

4. Double-click the subform control text to select it.

5. Make the desired editing changes.

# DISPLAYING A SUBFORM IN DATASHEET VIEW

# 🔎 Discussion

You can display a subform in **Datasheet** view. This option allows you to view many subform records at once, rather than viewing them one at a time in **Form** view. Since the benefit of using subforms is to display the "many" side of a one-to-many relationship, **Datasheet** view is generally preferred.

*A subform in Datasheet view*

📖   You can add a record to both the main form and the subform by selecting the **Insert** menu and then selecting the **New Record** command.

📖   You can also display a subform in **Datasheet** view by right-clicking in the desired field, pointing to the **Subform** command, and then selecting the **Datasheet** command.

# ✔ **Procedures**

1.  Open the desired database.

2.  Open the main form in **Form** view.

3.  Select a field in the subform.

4.  Select the **View** menu.

5.  Point to the **Subform** command.

6.  Select the **Datasheet** command.

# DISPLAYING A SUBFORM TOTAL

## Discussion

Forms and reports often include totals of the information they contain. These totals are easily created by adding a calculated control to the form or report that contains an expression to find the desired total. Expressions are used to obtain information you cannot obtain directly from the tables in your database. For example, if you have a table that contains the quantity and cost of various items, you could use an expression to multiply the quantity and the cost to obtain the current inventory value. Every time you use a form/report, Access calculates any expressions contained in the form/report, helping you keep your information as accurate as possible.

Some examples of expressions are listed in the following table:

| Control Name | Expression | Result |
|---|---|---|
| Total | =[Cost]+[Shipping]+[Markup] | Adds the value of the **Cost** field, the value of the **Shipping** field, and the value of the **Markup** field of an item to produce the **Total** field |
| Discount | =[Price]*.15 | Multiplies the **Price** field of an item by a constant discount of 0.15 |
| Date | =Date() | Provides the current date in your computer system |

You may want to include a total of information, contained in a subform/subreport, in the main form/report total. For example, an **Orders** form may contain a control for shipping charges. The information in the **Product** subform may include a total, such as the total cost of all the products ordered. You can display this subform total on the main form so that you can add the shipping charges to this total to create a grand total. This option is performed by adding a control to the main form/report, which refers to the desired subform/subreport total control, to display the information.

The expression in the main form/report control that refers to the subform/subreport control defines the name of the subform/subreport and the name of the subform/subreport control being used in the following format:

= [*Name of the Subform/Subreport*]**!**[*Name of the Subform/Subreport Control*]

*A subform total displayed in the main form*

> 📖  You can also display a subreport total in the main report using the same methods that you use to display a subform total.

> 📖  You can also display the property sheet by selecting the **View** menu and then selecting the **Properties** command or by right-clicking a form or report in **Design** view and then selecting the **Properties** command.

> 📖  You can also display the property sheet by pressing **[F4]** on the keyboard.

# ✔ **Procedures**

1. Open the desired database.

2. Open the form or report in **Design** view.

3. Display the toolbox.

4. Click the **Text Box** tool **ab|** in the toolbox.

5. Click in the form or report where you want to insert the control.

6. Select the label box.

7.  Select the text in the label box.

8.  Type a label in the label box.

9.  Select the text box.

10. Click the **Properties** button  on the **Form Design** or **Report Design** toolbar.

11. Select the **Data** tab.

12. Type the expression that refers to the desired subform control.

13. Click the **Close** button to close the property sheet.

# INDEX