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Microsoft Access XP

Manual - Intermediate Level

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Working with the Northwind Sample Database

When you have completed this learning module you will have seen how to:

- Install Northwind
- Check for Northwind

Installing the Northwind Database

About Northwind

- **Northwind** is a sample database that ships with Access 2002. It contains product and sales data for the fictitious company **Northwind Traders**.
- It is recommended that Northwind be installed to follow the lessons in this manual.

Checking for Northwind

- Click the **Search** button on the **database** toolbar:

- In the Search text box, type Northwind.
- Click **Search**.
- If **Northwind.mdb** appears in the **Search Results**, click on the file to open it and proceed to the next chapter.
- If **Northwind** is not found in the **Search Results** it will need to be installed.

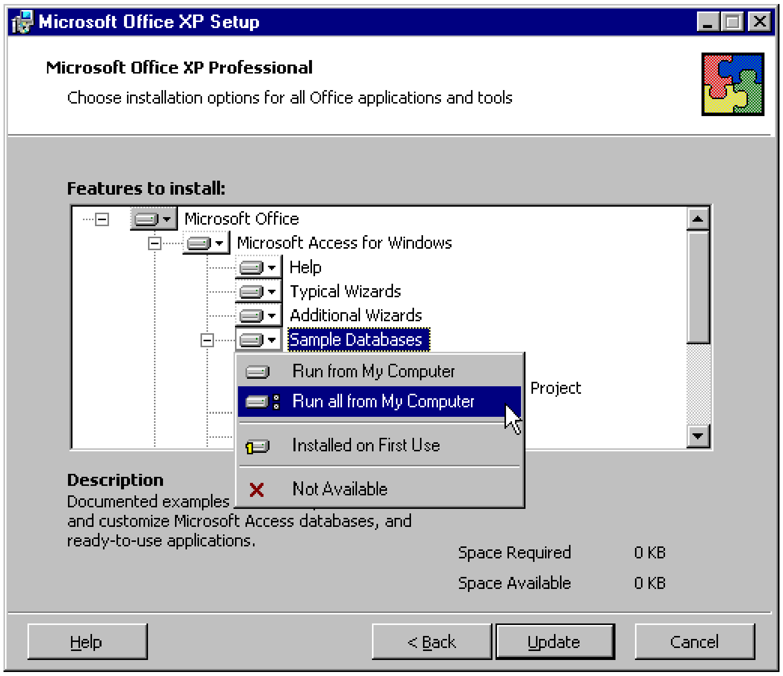
Installing Northwind

- Insert the Microsoft Office XP CD-ROM in the CD-ROM drive.
- Double-click **Setup**.

Note: If your computer has autorun enabled, you will be presented directly with the Microsoft Office XP setup screen.

- Select **Add or Remove Features**.
- Click **Next**.
- Under **Features to Install**, select the **Microsoft Access for Windows** subtree.

- Under **Sample Databases**, select **Run all from My Computer**:



- Click **Update**.
- Once the installer completes, click **OK** to finish.

Note: Once the **Northwind** database is installed, search for it again and open it.

Review Questions

How would you:

- Install Northwind?
- Check for Northwind?

Designing Tables in Access 2002

When you have completed this learning module you will have seen how to:

- Set a Primary Key
- Remove Non-related Data
- Remove Redundant Data
- Remove Repeating Data
- Set Required Values in Columns
- Use the Relationship Tool
- Identify a Related Table
- Create Join Types
- Enforce Referential Integrity
- Work with Cascading Updates and Deletes
- Create a Single-Field Index
- Create a Multiple-Field Index
- Set the Index Sort Order
- Set Index Properties
- Delete Indexes
- Choose Appropriate Data Types
- Set Column Data Types
- Format Data Types
- Convert Between Data Types

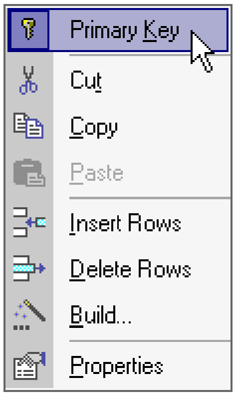
Normalizing Data

Setting a Primary Key

- A **primary key** is a field that uniquely identifies a row in a table and can be based on any alphanumeric value.

To set a primary key:

- Open a table in **Design** view.
- Right-click on the field you want to set as the primary key.
- From the pop-up menu, select **Primary Key**:



Note: You must save the table to save the primary key.

Removing Non-related Data

- Part of the **normalization** process is to remove **non-related** values. For example, in the **Employees** table, it is incorrect to include customer data. That would result in a mixing of different areas of subject matter. Customer data should be stored in a separate table.

Removing Redundant Data

- Another part of the **normalization** process is to remove **redundant** values. A **redundant** value is one that appears multiple times in the same table. For example, in the **Suppliers** table it is incorrect to repeat all supplier data for each product a supplier sells. It is more efficient and manageable to create supplier data once and then relate supplier data to product data in the **Products** table. By doing this, supplier data only needs to be updated once in the **Suppliers** table rather than multiple times in the **Products** table.

Removing Repeating Data

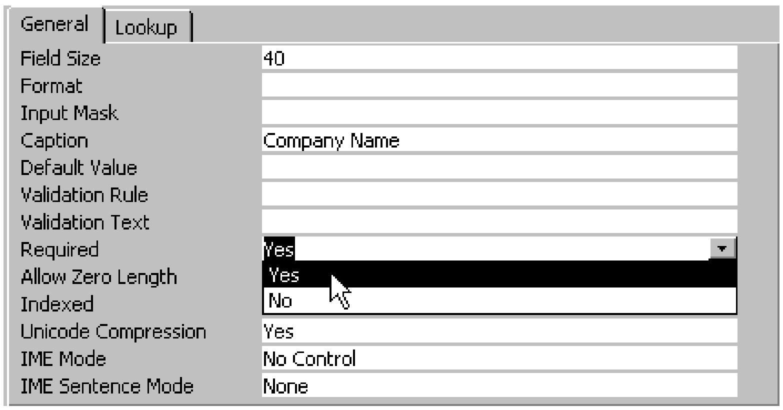
- An additional part of the **normalization** process is to remove **repeating** values. **Repeating** values are similar values that appear across multiple columns of a table. For example, it is incorrect to create a new column for each product sold in the **Orders** table. Instead, it is more efficient and manageable to relate order data by **Order ID** to another table called **Order Details**. Each row in **Order Details** represents a line item on an order.

Setting Required Values in Columns

- Yet another part of the **normalization** process is to ensure that all fields have values. A well-designed table will not allow **null** values. A **null** value means that a value is unknown. This is different from a blank or zero-length value.

To set required fields:

- Open a table in **Design** view.
- Select the **Data Type** pane for the desired field.
- Find the **General** tab in the lower-left portion of the design window.
- In the **General** tab select the **Required** field.
- Choose **Yes** to make the field required:



Note: You must save the table to save the field change.

Establishing Relationships

Using the Relationship Tool

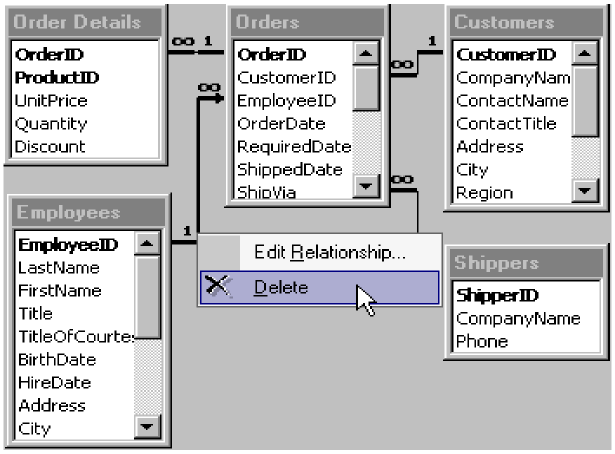
- The **Relationship** tool manages joins between related fields in different tables.

To delete a relationship:

- Click the **Relationships** button on the **Database** toolbar:

- Right-click on the **relationship** between two tables.

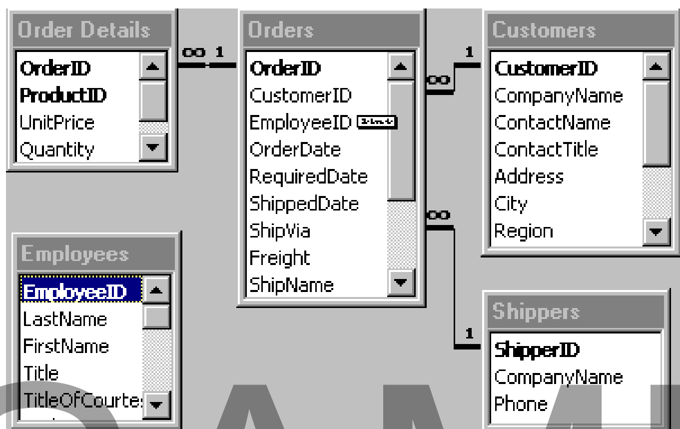
- From the pop-up menu, select **Delete**:



- Click **Yes** when prompted to delete the relationship.

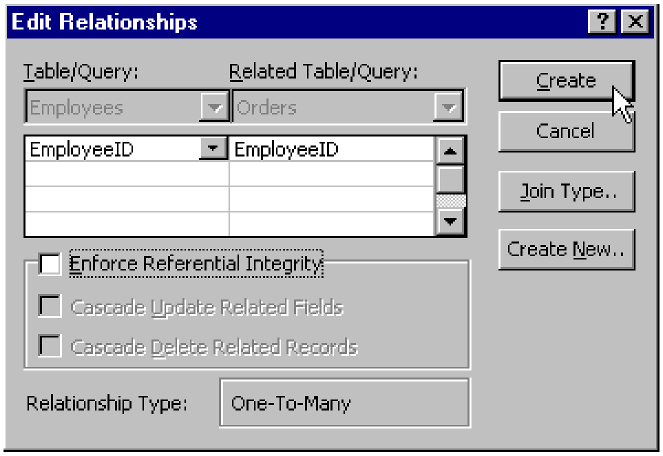
To create a relationship:

- Click the **Relationships** button on the **Database** toolbar.
- Drag a field from one table to another table:



- This opens the **Edit Relationships** dialog box.

- Click **Create**:



Identifying a Related Table

- Tables that are related will have fields that are common between them. For example, **Shippers** and **Orders** are related by the **ShipperID** and **ShipVia** fields respectively. It is easier to identify **relationships** if the field names are the same. Related fields should have the same **data type**. For example**,** **EmployeeID** is defined as a **long integer** in both the **Orders** and **Employees** tables.

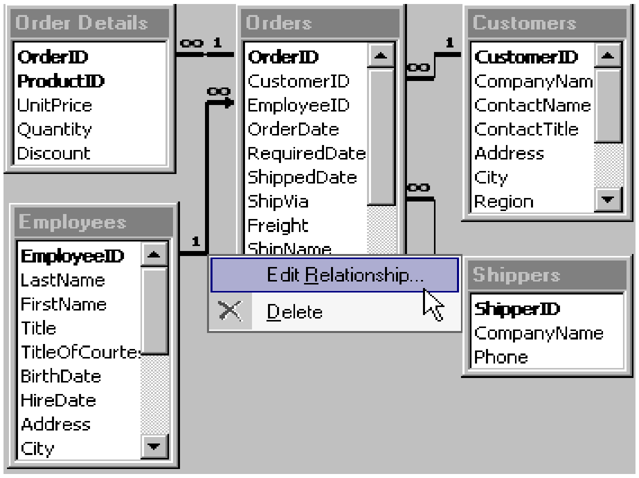
  Note: Data types are discussed in more detail later in this training manual.

Creating Join Types

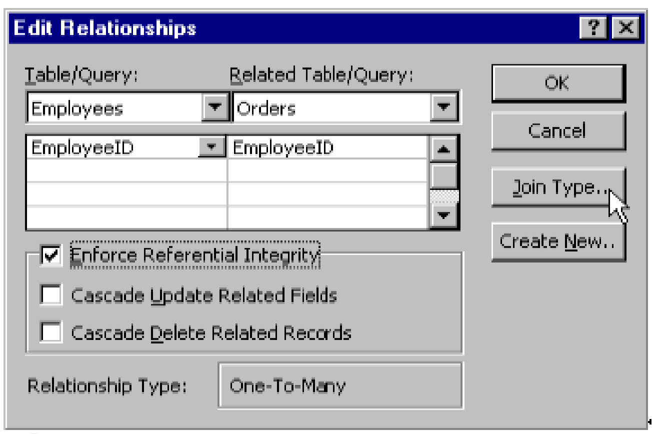
- There are three join types in Access: one-to-one, one-to-many, and many-to-many.
- A **one-to-one** relationship has only one matching row in each related table. **One-to-one** relationships are not common. An example would be a table with many columns divided into multiple tables that relate to one master key value.
- A **one-to-many** relationship has a row in one table that matches many rows in a related table. This is the most common type of relationship. An example is the relationship between the **Customers** and **Orders** table. This relationship is described as one customer having many orders and each order belonging to only one customer.
- A **many-to-many** relationship has many rows in one table that match many rows in a related table. This is a special relationship that involves a third table called a **junction** table. An example is the relationship between **Orders** and **Products**. These two tables are joined by a junction table called **Order Details**. This relationship is described as many orders having many products and many products belonging to many orders.

To create a join type:

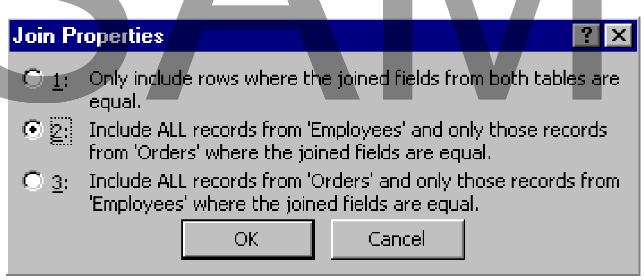
- Right-click on the **relationship** between two tables.
- From the pop-up menu, select **Edit Relationship**:



- This opens the **Edit Relationships** dialog box.
- Click **Join Type**:



- This opens the **Join Properties** dialog box.
- Select the desired relationship type:



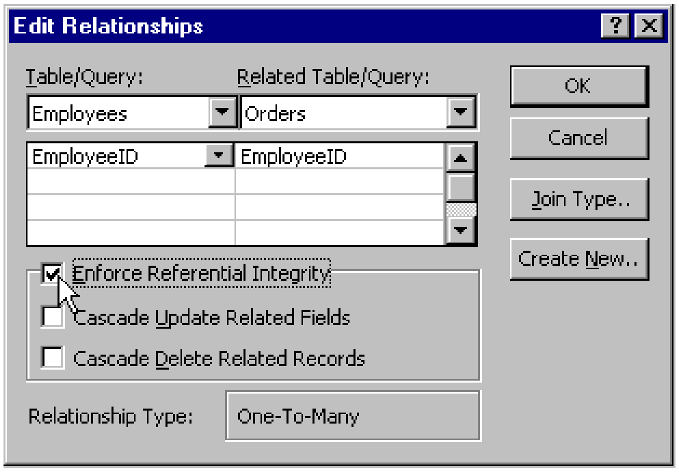
- Click **OK**.

Enforcing Referential Integrity

- **Referential integrity** ensures that related records between tables are valid.

To set referential integrity:

- Right-click on the join between two tables.
- From the pop-up menu, select **Edit Relationship**. This opens the **Edit Relationships** dialog box.
- Check the Enforce Referential Integrity box:



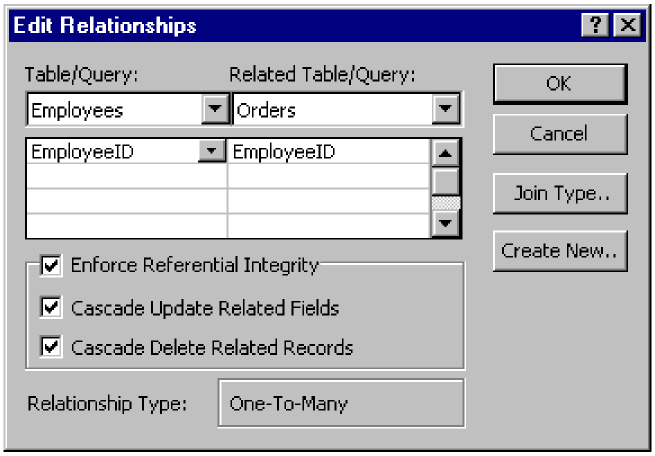
- Click **OK**.

Working with Cascading Updates and Deletes

- **Cascading** allows for updates or deletes of related records without violating **referential integrity**. Use **cascading** when there is a need to propagate **foreign key** data changes. For example, if there is an update of **EmployeeID** in the **Employees** table, then all related records in **Orders** should also be updated with the new **EmployeeID** so that an employee's sales history is not lost. **Cascading** will make this change automatic.

To set cascading options:

- Right-click on the join between two tables.
- From the pop-up menu, select **Edit Relationship**. This opens the **Edit Relationships** dialog box.
- Check the **Cascade Update Related Fields** and/or **Cascade Delete Related Fields** box:



- Click **OK**.

Note: The **Enforce Referential Integrity** box must be checked to set **cascading** options.

Working with Indexes

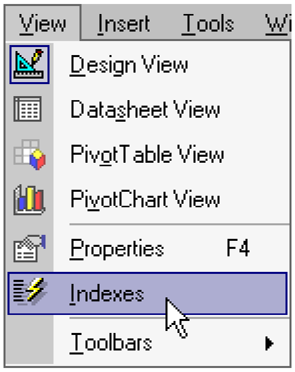
Creating a Single-Field Index

- An **index** is used to improve the performance of data searches. A **single-field index** is defined only on one field. Use a **single-field index** on a field that will participate in a **relationship**. For example, **CategoryID** in the **Products** table is defined as a **single-field index** and is related to the **CategoryID** field in the **Categories** table.

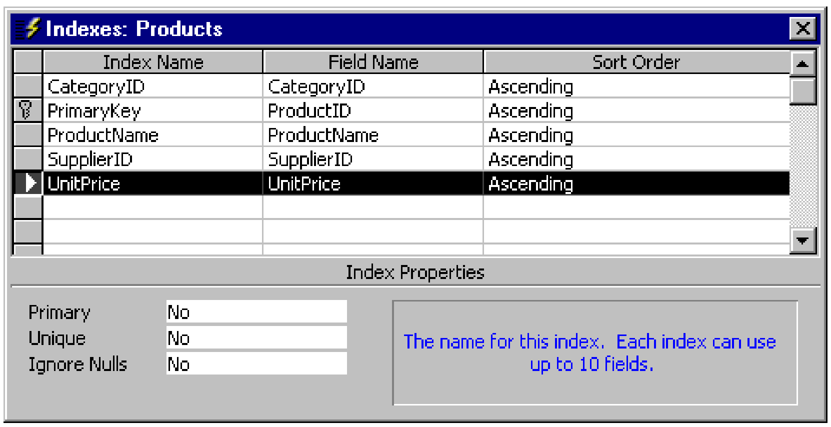
To create a single-field index:

- Open a table in **Design** view.
- Click the **Indexes** button on the **Table Design** toolbar:

OR from the main menu, select **View > Indexes**:



- This opens the **Indexes** design grid.
- Type a name in the **Index Name** column.
- Select a desired field from the drop-down menu in the **Field Name** column:



- Click the **Close** button on the **Indexes** title bar.

Note: The default **Sort Order** is defined as **Ascending**. Setting the **sort order** is discussed later in this chapter.

Creating a Multiple-Field Index

- A **multiple-field index** is defined on two or more fields. Use a **multiple-field index** on fields that will be used in complex queries.

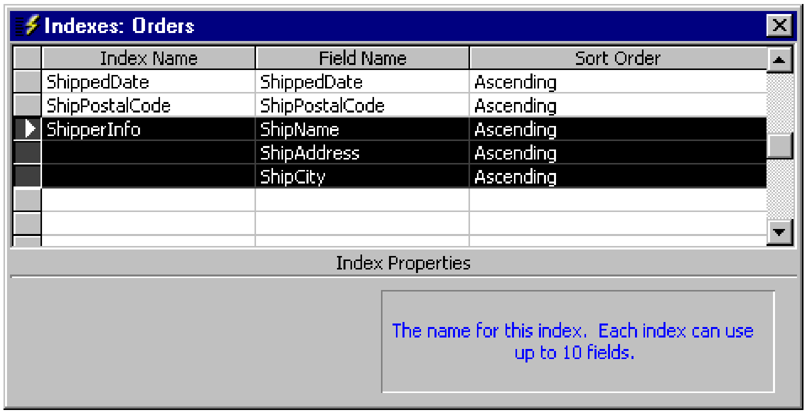
To create a multiple-field index:

- Open a table in **Design** view.
- Click the **Indexes** button on the **Table Design** toolbar

OR from the main menu, select **View > Indexes**.

- This opens the **Indexes** design grid.

- Type a name in the **Index Name** column.
- Select multiple fields from the drop-down menu in the **Field Name** column:



- Click the **Close** button on the **Indexes** title bar.

Note: Each **multiple-field index** can use up to 10 fields.

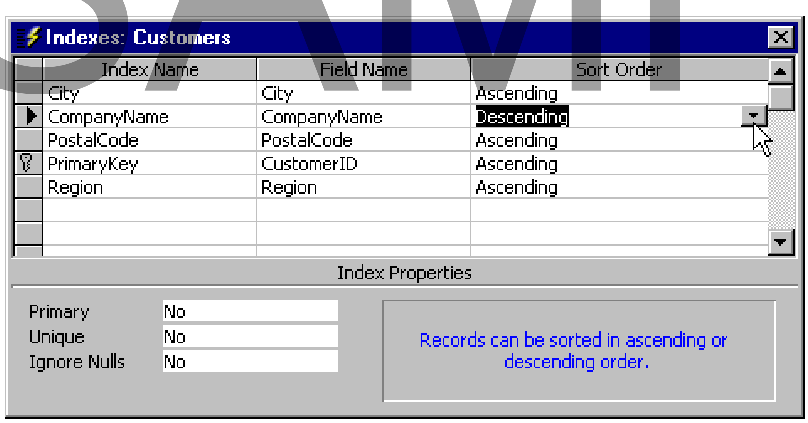
Setting the Index Sort Order

- The **index sort order** improves the performance of queries that use sorting functionality. For example, writing a query that sorts **CompanyName** in descending order from the **Customers** table would benefit from a **descending sort order** index.

To set the index sort order:

- Open a table in **Design** view.
- Click the **Indexes** button on the **Table Design** toolbar
  OR from the main menu, select **View > Indexes**.

- This opens the **Indexes** design grid.
- Click the drop-down menu in the **Sort Order** column.
- Select **Descending** to change the sort order.



- Click the **Close** button on the **Indexes** title bar.

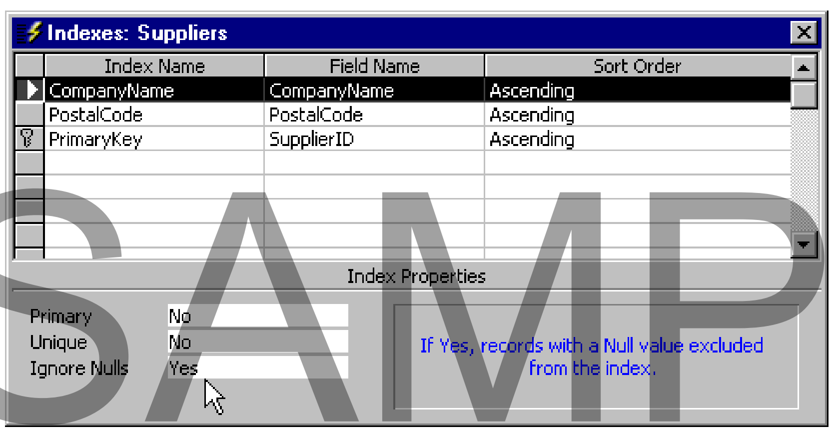
Setting Index Properties

- The behavior of an index can be controlled by setting the **properties** on the index. The available properties are **Primary**, **Unique**, and **Ignore Nulls**. The **Primary** property allows for an additional method of setting the **primary key** for a table. The **Unique** property determines if duplicate values are allowed in the index. The **Ignore Nulls** determines if unknown values are included in the index.

To set index properties:

- Open a table in **Design** view.
- Click the **Indexes** button on the **Table Design** toolbar
  OR from the main menu, select **View > Indexes**.

- This opens the **Indexes** design grid.
- Select an index.
- Select a **Primary** property from the drop-down menu in the **Index Properties** section.
- Select a **Unique** property from the drop-down menu in the **Index Properties** section.
- Select an **Ignore Nulls** property from the drop-down menu in the **Index Properties** section:



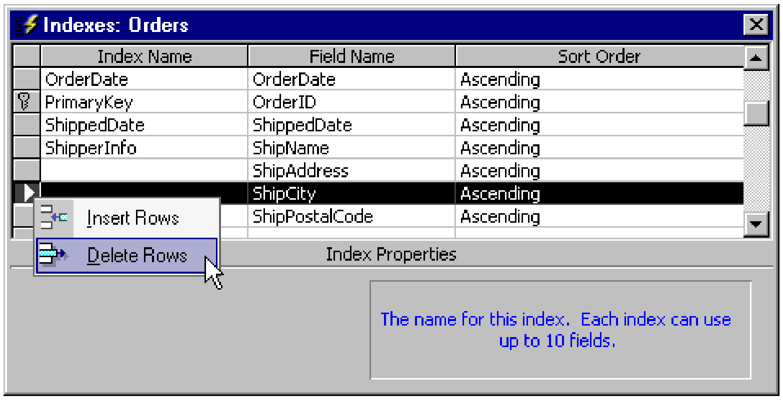
- Click the **Close** button on the **Indexes** title bar.

  Note: Changing the **index properties** on an existing index can cause unexpected changes in the index behavior. The **Primary** property cannot be set on another field if the original **primary key** is part of a relationship.

Deleting Indexes

- Open a table in **Design** view.
- Click the **Indexes** button on the **Table Design** toolbar
  OR from the main menu, select **View > Indexes**.

- This opens the **Indexes** design grid.
- Right-click on an **Index Name**.
- From the pop-up menu, select **Delete Rows**:



- Click the **Close** button on the **Indexes** title bar.

Working with Data Types

Choosing Appropriate Data Types

- Determining which **data type** to use for a field is a very important step in designing a table. The available data types are **Text, Memo**, **Number**, **Date/Time**, **Currency**, **AutoNumber**, **Yes/No**, **OLE Object**, and **Hyperlink**. The following are some important considerations when deciding which data types to use:

  Storage requirements: For example, the **Number** data type can use 1, 2, 4, 8, or 16 bytes.

  The domain of the data: This refers to what can be stored in the column. For example, **Text** cannot be stored in a **Number** field.

  Establishing relationships: Generally, it is more efficient to establish relationships between **Number** or **Text** columns.

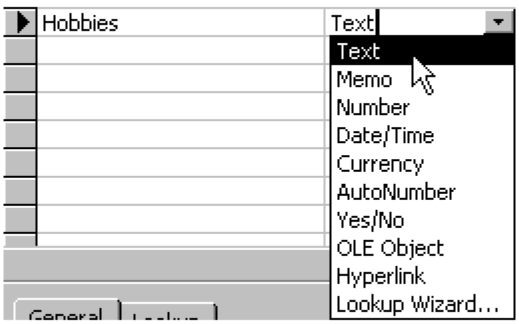
  Sorting requirements: Sorting **Text** values may return unexpected results and **OLE Objects** cannot be sorted.

Indexing requirements: Indexing **Memo** fields can create very large indexes and **OLE Objects** cannot be indexed.

Calculation requirements: Certain calculations cannot be performed on fields defined as **Text** or **OLE Objects**.

Setting Column Data Types

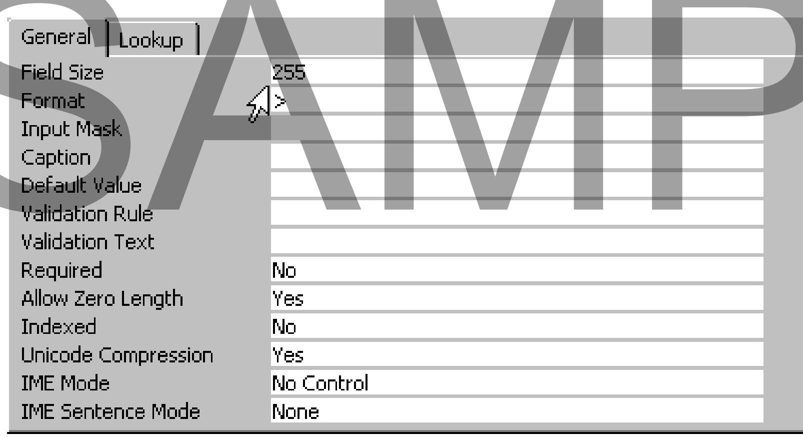
- Open a table in **Design** view.
- Create a new field.
- Select the desired data type from the **Data Type** drop-down menu:



- **Close** the table.

Formatting Data Types

- Open a table in **Design** view.
- Select an existing field.
- Set the desired field size in the **Field Size** text box.
- Add an appropriate formatting symbol in the **Format** text box:



- **Close** the table.

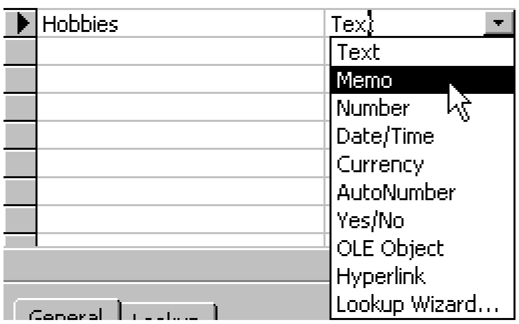
Converting Between Data Types

- Sometimes it may be necessary to change the data type for a column. For example, it may be necessary to change from a **Text** field, which has a maximum length of 255 characters, to a **Memo** field which has a maximum length of 65,536 characters.

  Note: Changing between data types can result in a **loss of data**. This can happen when converting from a larger data type to a smaller data type or converting between incompatible data types such as changing from **Text** to **Number**.

To change a field to a different data type:

- Open a table in **Design** view.
- Select an existing field.
- Select the desired data type from the **Data Type** drop-down menu:



- **Close** the table.

Review Questions

How would you:

- Set a Primary Key?
- Remove Non-Related Data?
- Remove Redundant Data?
- Remove Repeating Data?
- Set Required Values in Columns?
- Use the Relationship Tool?
- Identify a Related Table?
- Create Join Types?
- Enforce Referential Integrity?
- Work with Cascading Updates and Deletes?

- Create a Single-Field Index?
- Create a Multiple-Field Index?
- Set the Index Sort Order?
- Set Index Properties?
- Delete Indexes?
- Choose Appropriate Data Types?
- Set Column Data Types?
- Format Data Types?
- Convert Between Data Types?

Designing Queries in Access 2002

When you have completed this learning module you will have seen how to:

- Create update queries
- Create delete queries
- Create append queries
- Create make-table queries
- Create a one-parameter query
- Create a two-parameter query
- Use wildcards as parameters
- Create calculated fields
- Use common functions in calculated fields
- Create a two-table join
- Add fields from different tables to the query grid
- Remove tables from the query builder

Creating Action Queries

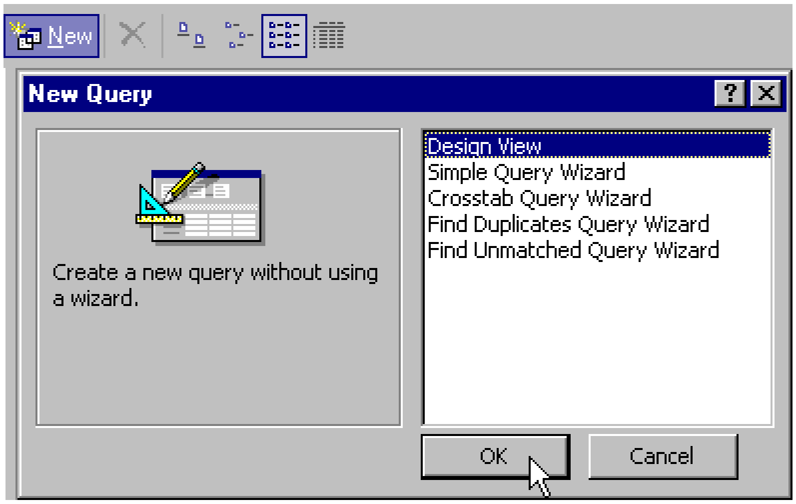
Creating Update Queries

- An **Update Query** makes changes to a group of records. Updates can be made in one or more tables.

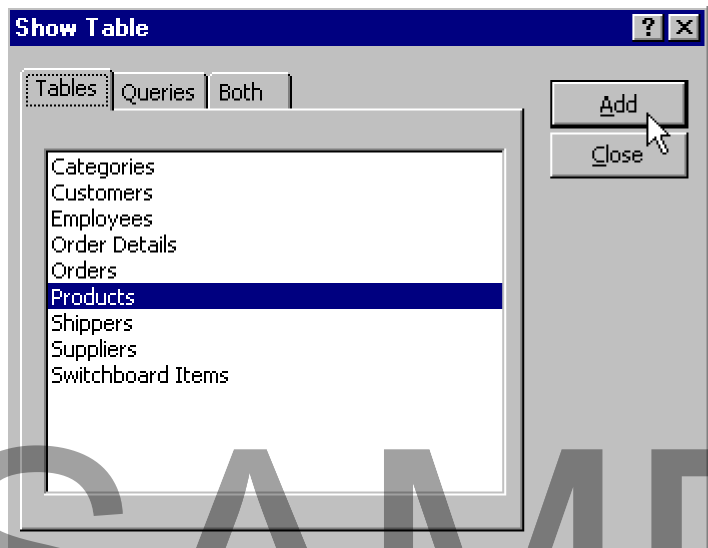
To create an Update Query:

- Click **Queries** in the **Objects** pane.
- Click the **New** button to open the **New Query** dialog box.
- Select **Design View**.

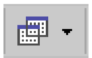
- Click **OK**:



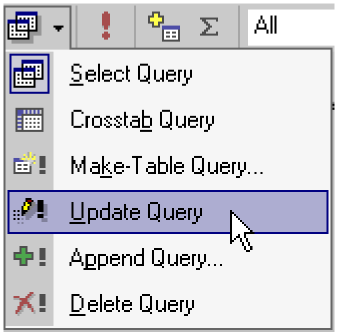
- Select a table from the **Tables** tab in the **Show Table** dialog box.
- Click **Add**:



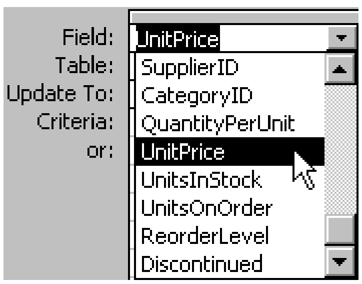
- Click **Close**. A representation of the table appears in the query grid.
- Click on the **Query Type** button on the **Query Design** toolbar:



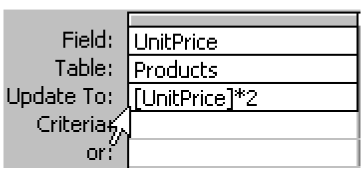
- Select Update Query to change from a Select Query to an Update Query:



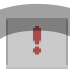
- Select a field from the **Field** drop-down menu:



- Select the **Update To** section of the query grid and type a value:



- Click the **Run** button on the **Query Design** toolbar to execute the update:



- Click **Yes** to apply the changes.

Note: There is no **undo** feature for the update action. The change is permanent.

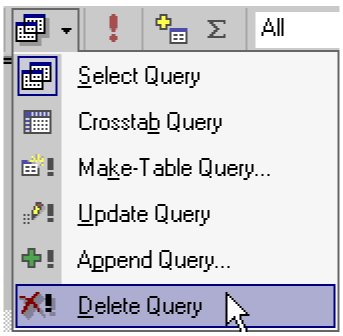
- **Close** the query design window.

Creating Delete Queries

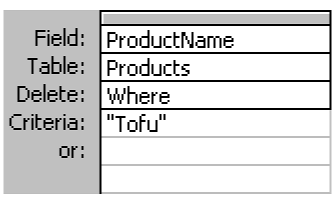
- A **Delete Query** deletes groups of records. Deletes can be made in one or more tables.

To create a Delete Query:

- Click **Queries** in the **Objects** pane.
- Click the **New** button. This opens the **New Query** dialog box.
- Select **Design View**.
- Click **OK**.
- Select a table from the **Tables** tab in the **Show Table** dialog box.
- Click **Add**.
- Click **Close**. A representation of the table appears in the query grid.
- Click the **Query Type** button on the **Query Design** toolbar.
- Select **Delete Query** to change from a Select Query to a Delete Query:

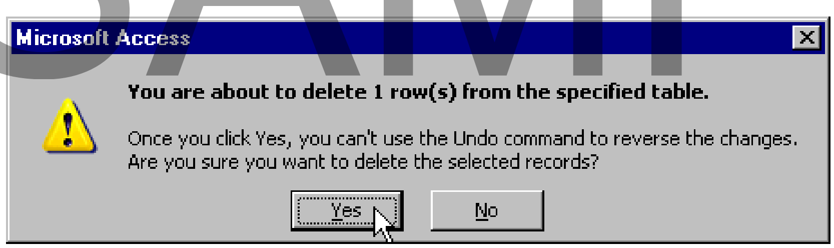


- Select a field from the **Field** drop-down menu.
- Select the **Criteria** section of the query grid and type a value:

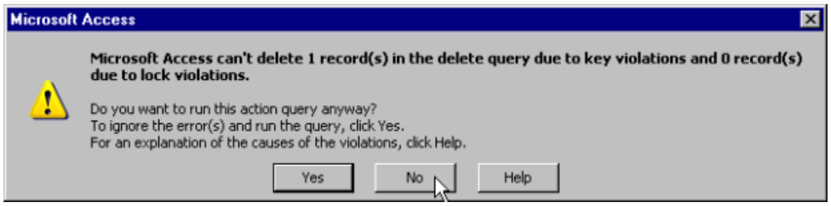


Note: This delete query uses a **where** filter to limit which rows are deleted.

- Click the **Run** button on the **Query Design** toolbar to execute the delete.
- Click **Yes** to apply the changes:



Note: An error will occur if a relationship has been previously defined for this field.
Click **No** to cancel or **Yes** to ignore the error and continue:



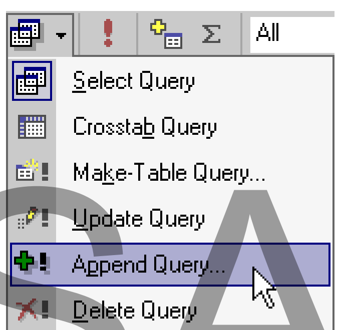
- **Close** the query design window.

Creating Append Queries

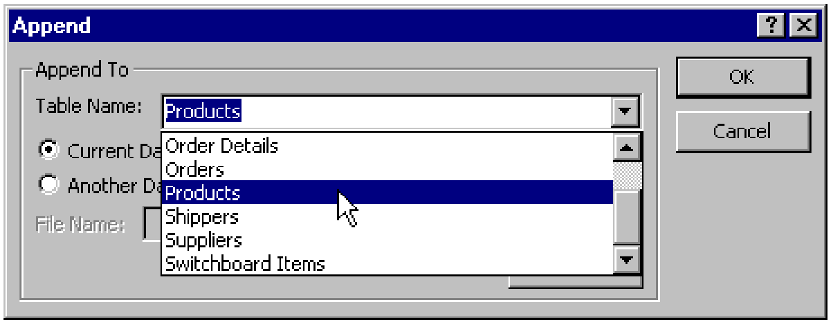
- An **Append Query** adds groups of records to the end of a table. Records can be added from one or more tables.

To create an Append Query:

- Click **Queries** in the **Objects** pane.
- Click the **New** button. This opens the **New Query** dialog box.
- Select **Design View**.
- Click **OK**.
- Select a table from the **Tables** tab in the **Show Table** dialog box.
- Click **Add**.
- Click **Close**. A representation of the table appears in the query grid.
- Click the **Query Type** button on the **Query Design** toolbar.
- Select **Append Query** to change from a Select Query to an Append Query:



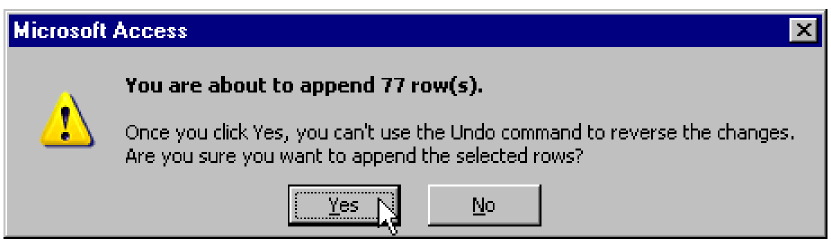
- This opens the **Append** dialog box.
- Select a table from the **Table Name** drop-down menu:



- Click **OK**.
- Select the desired fields to append:

Field:	ProductName	SupplierID	CategoryID	
Table:	Products	Products	Products	...
Sort:				
Append To:	ProductName	SupplierID	CategoryID	...
Criteria:				
or:				

- Click the **Run** button on the **Query Design** toolbar to execute the update.
- Click **Yes** to append the rows:



- **Close** the query design window.

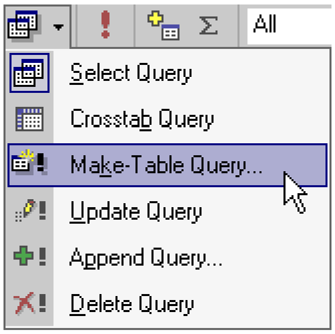
Creating Make-Table Queries

- A **Make-Table Query** creates a new table from data in another table. Records can be added from one or more tables.

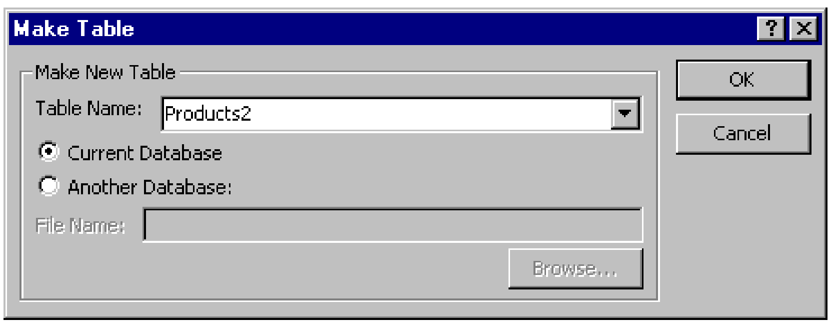
To create a Make-Table Query:

- Click **Queries** in the **Objects** pane.
- Click the **New** button. This opens the **New Query** dialog box.
- Select **Design View**.
- Click **OK**.
- Select a table from the **Tables** tab in the **Show Table** dialog box.
- Click **Add**.
- Click **Close**. A representation of the table appears in the query grid.
- Click the **Query Type** button on the **Query Design** toolbar.

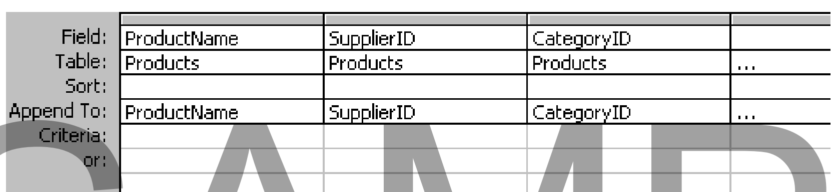
- Select Make-Table Query to change from a Select Query to a Make-Table Query:



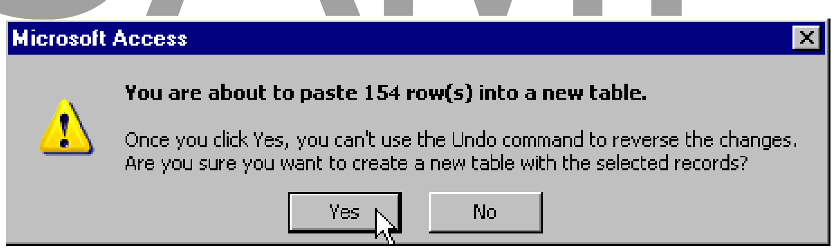
- This opens the **Make Table** dialog box.
- Select a table from the **Table Name** drop-down menu ***OR*** type a new table name:



- Click **OK**.
- Select the desired fields:



- Click the **Run** button on the **Query Design** toolbar to execute the update.
- Click **Yes** to paste the rows into the table:



Note: There will now be a new table in the **Tables** section.

- **Close** the query design window.

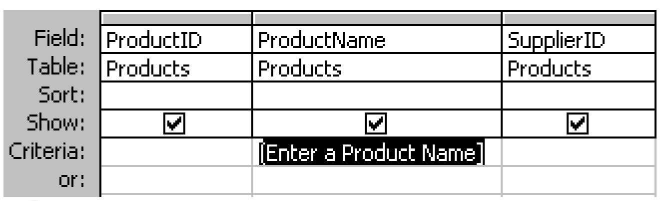
Creating Parameter Queries

Creating a One-Parameter Query

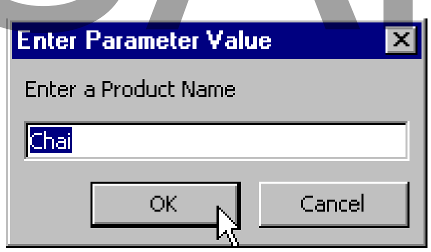
- A **parameter query** is a special query that prompts a user for input. This is useful for creating generic queries where users can specify custom select criteria.

To create a one-parameter query:

- Click **Queries** in the **Objects** pane.
- Click the **New** button. This opens the **New Query** dialog box.
- Select **Design View**.
- Click **OK**.
- Select a table from the **Tables** tab in the **Show Table** dialog box.
- Click **Add**.
- Click **Close**. A representation of the table appears in the query grid.
- Select a field from the **Field** drop-down menu.
- Add a prompt in the **Criteria** text box:



- Click the **Run** button on the **Query Design** toolbar to execute the query. This opens the **Enter Parameter Value** dialog box.
- Input a value.
- Click **OK**:



- The results of the query are displayed.

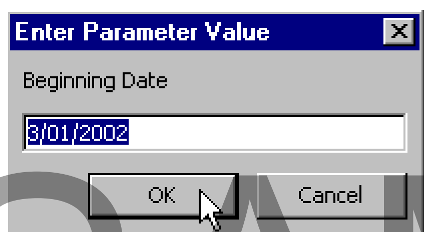
- **Close** the query results window.

Creating a Two-Parameter Query

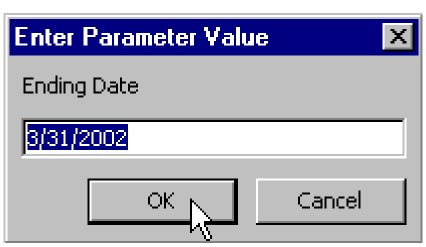
- Click **Queries** in the **Objects** pane.
- Click the **New** button. This opens the **New Query** dialog box.
- Select **Design View**.
- Click **OK**.
- Select a table from the **Tables** tab in the **Show Table** dialog box.
- Click **Add**.
- Click **Close**. A representation of the table appears in the query grid.
- Select a field from the **Field** drop-down menu.
- Add two prompts in the **Criteria** text box:

Field:	ShippedDate	Country
Table:	Orders	Employees
Sort:		
Show:	☑	☑
Criteria:	Between [Beginning Date] And [Ending Date]	
or:		

- Click the **Run** button on the **Query Design** toolbar to execute the query. This opens the first **Enter Parameter Value** dialog box.
- Input a value.
- Click **OK**:



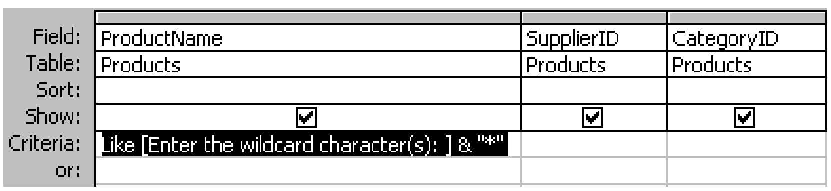
- This opens the second **Enter Parameter Value** dialog box.
- Input a value.
- Click **OK**:



- The results of the query are displayed.
- **Close** the query results window.

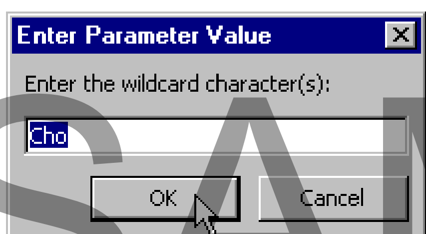
Using Wildcards as Parameters

- Click **Queries** in the **Objects** pane.
- Click the **New** button. This opens the **New Query** dialog box.
- Select **Design View**.
- Click **OK**.
- Select a table from the **Tables** tab in the **Show Table** dialog box.
- Click **Add**.
- Click **Close**. A representation of the table appears in the query grid.
- Select a field from the **Field** drop-down menu.
- Add a wildcard prompt in the **Criteria** text box:



Note: The **Like** operator is used for pattern searches.

- Click the **Run** button on the **Query Design** toolbar to execute the query. This opens **Enter Parameter Value** dialog box.
- Input a value.
- Click **OK**:



- The results of the query are displayed.
- **Close** the query results window.

Creating Calculated Columns in Queries

Creating Calculated Fields

- Click **Queries** in the **Objects** pane.
- Click the **New** button. This opens the **New Query** dialog box.
- Select **Design View**.
- Click **OK**.
- Select a table from the **Tables** tab in the **Show Table** dialog box.
- Click **Add**.
- Click **Close**. A representation of the table appears in the query grid.
- Select a field from the **Field** drop-down menu.
- Enter an expression for the calculated field:

Field:	ProductName	UnitPrice	[UnitPrice]*1.5
Table:	Products	Products	
Sort:			
Show:	☑	☑	☑
Criteria:			
or:			

- Click the **Run** button on the **Query Design** toolbar to execute the query.
- The results of the query are displayed.
- **Close** the query results window.

Using Common Functions in Calculated Fields

- There are a large number of functions that can be used in **calculated fields**. **Functions** in Access can be divided into groups. Common groups are **Date/Time**, **Financial**, **Math**, and **Text** functions. Some common functions within each group include:

Date/Time:	Date, DatePart, Day, Hour, Minute.
Financial:	FV, PV, IRR, Pmt.
Math:	Exp, Rnd, Sqr.
Text:	LTrim, RTrim, Replace, Len.

- **Functions** will only work correctly when supplied with the correct number of arguments. A tool included within Access, called the **Expression Builder**, simplifies using functions in **calculated fields**. The **Expression Builder** is discussed later in this training manual.

Joining Tables

Creating a Two-Table Join

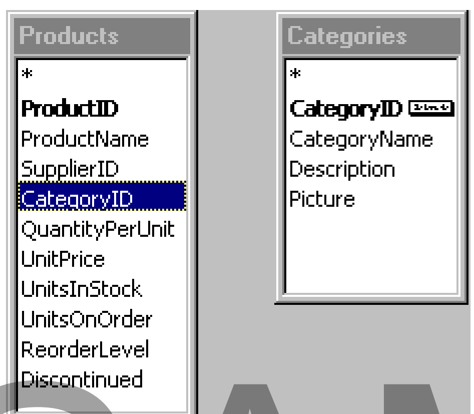
- A two-table join links related fields between two different tables.

To create a two-table join:

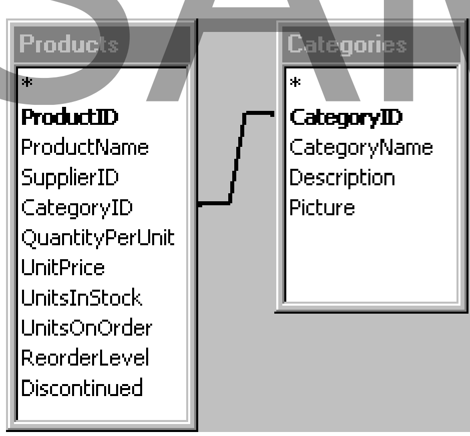
- Click **Queries** in the **Objects** pane.
- Click the **New** button. This opens the **New Query** dialog box.
- Select **Design View**.
- Click **OK**.
- Select a table from the **Tables** tab in the **Show Table** dialog box.
- Click **Add**.
- Click **Close**. A representation of the table appears in the query grid.

To add another table to the query grid:

- Click the **Show Table** button on the **Query Design** toolbar. This opens the **Show Table** dialog box.
- Select the desired table.
- Click **Add**.
- Create a join between the tables by dragging and dropping a field from the first table to the related field in the second table:



- The final result will be a join link between the two tables:

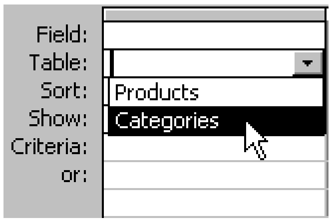


Adding Fields from Different Tables to the Query Grid

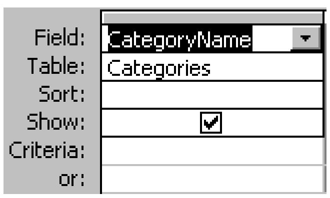
- Select the desired field from the **Field** drop-down menu.

OR

- Select the desired table from the **Table** drop-down menu:



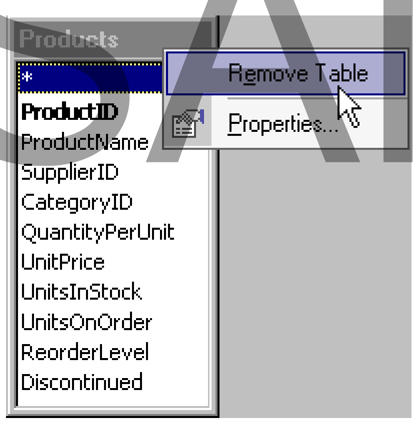
- Select the desired field from the **Field** drop-down menu:



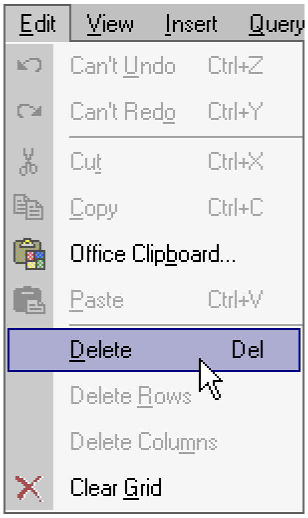
- Click the **Run** button on the **Query Design** toolbar to execute the query.
- The results of the query are displayed.
- **Close** the query results window.

Removing Tables from the Query Builder

- Right-click on the table you want to remove in the query grid.
- From the pop-up menu, select **Remove Table**:



OR from the main menu, select **Edit > Delete**:



Review Questions

How would you:

- Create Update Queries?
- Create Delete Queries?
- Create Append Queries?
- Create Make-Table Queries?
- Create a One-Parameter Query?
- Create a Two-Parameter Query?
- Use Wildcards as Parameters?
- Create Calculated Fields?
- Use Common Functions in Calculated Fields?
- Create a Two-Table Join?
- Add Fields from Different Tables to the Query Grid?
- Remove Tables from the Query Builder?

Designing Forms in Access 2002

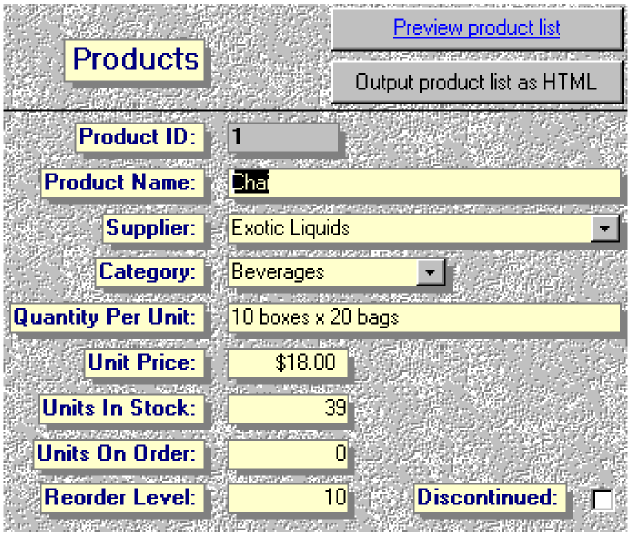
When you have completed this learning module you will have seen how to:

- Choose an Appropriate Control
- Place Controls on a Form
- Move a Control
- Resize a Control
- Set Control Properties
- Create Page Headers and Footers
- Create Form Headers and Footers
- Set Form Properties
- Work with Identifiers
- Create a Subform
- Create a Form with Two Subforms
- Create Nested Subforms
- Delete a Subform
- Create a Modal Pop-up Form
- Create a Modeless Pop-up Form
- Create a Switchboard
- Edit a Switchboard Item
- Delete a Switchboard

Creating Data Entry Forms

About Forms

- Forms can be used for data entry, displaying data in a user-friendly format, and as a navigational tool.



Choosing an Appropriate Control

- Controls are objects that can be placed on forms, reports, or data access pages that display data, perform actions, or can be used for visual display. Controls shipped with Access 2002 include:

  Text Boxes: Used to display data on a form. Text boxes can be **bound** to a data source or **unbound** to accept input or display a calculation.

  Labels: Used to display text on a form. Labels are useful for descriptive of instructional text. Labels are not associated with a data source.

  List Boxes: Used to display a pre-determined list of values. List boxes are useful when limiting selection choices or when enforcing data integrity.

  Command Buttons: Used to execute a pre-defined set of actions in a macro or event procedure written in visual basic.

  Check Boxes: Used to set **Yes / No** values from an underlying query or table.

  Option Groups: Used to select a limited list of choices. Sometimes interchangeable with **List Boxes** when selecting from only a few pre-defined options.

  Toggle Buttons: Used to set **Yes / No** values from an underlying query or table. Useful when combined with an **Option Group** to select values that are **Yes / No**.

  Image: Used when displaying a digital image on a form. An example would be the display of a company logo.

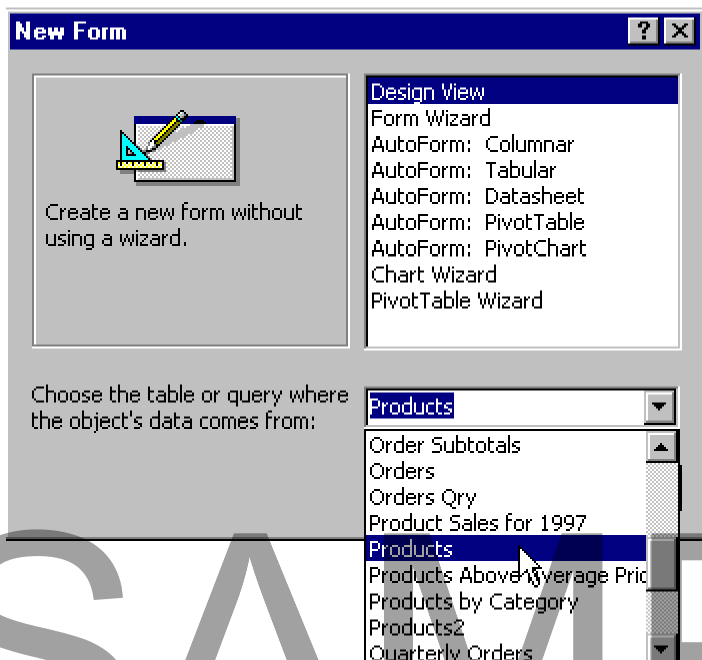
Tabbed Pages: Used when presenting different sections of information as one logical set. Useful when separating levels of information related to a common topic such as employee, company, or personal information.

Rectangles and Lines: Used when displaying limited geometric shapes. Useful when displaying breaks between fields or sections within a form.

Subform: An advanced control that displays child data that is related to data on the parent form. **Subforms** are discussed later in this training manual.

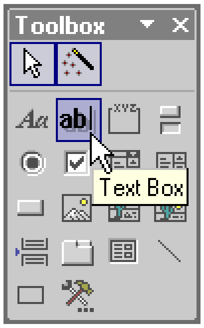
Placing Controls on a Form

- Click **Forms** in the **Objects** pane.
- Click the **New** button. This opens the **New Form** dialog box.
- Select **Design View**.
- Select a data source for the **form** from the drop-down menu:

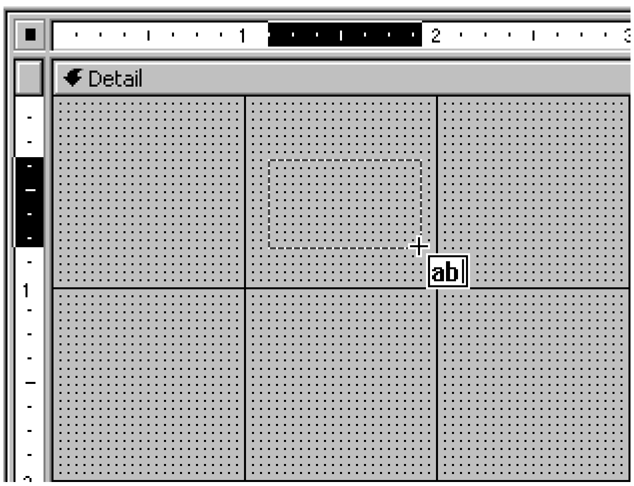


- Click **OK**.
- Access opens into **Form Design** view showing the **Detail** area, **Data Source**, and **Toolbox**.

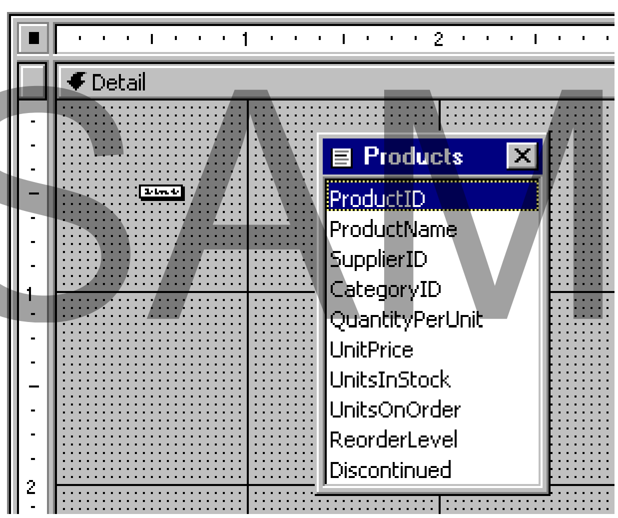
- Click the desired control to place on the **form** on the **Toolbox** toolbar:



- Click and drag the **control** in the **Detail** area of the **form**:

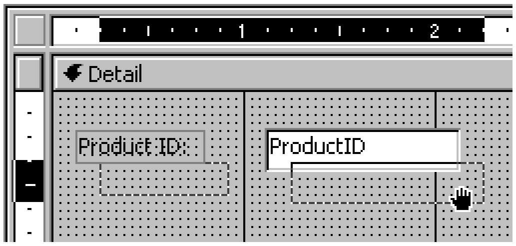


OR drag and drop a field from the **data source** to the **Detail** area of the **form**:



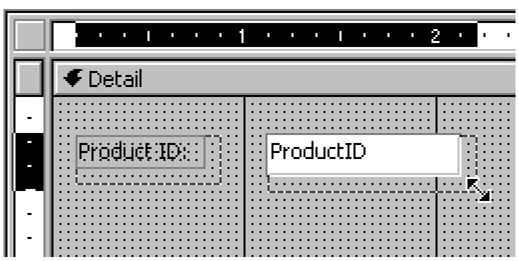
Moving a Control

- Select the control you want to move.
- Place the cursor over the **control** until the cursor changes to a hand.
- Drag the control to its new location:



Resizing a Control

- Select the control you want to resize.
- Place the cursor over the **control** until the cursor changes to a double arrow.
- Drag control to the desired size:



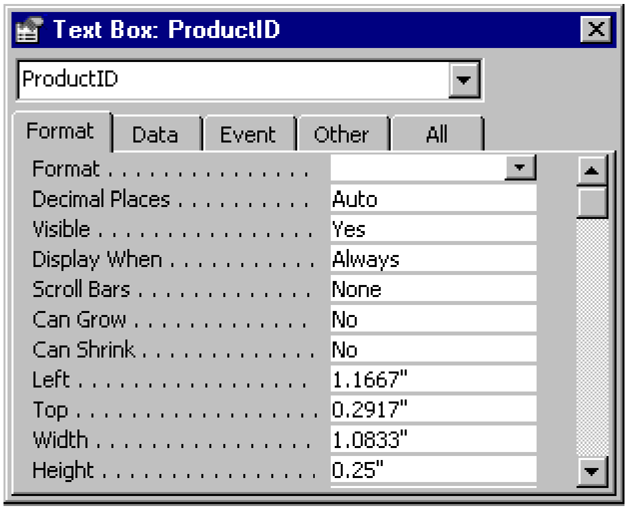
Setting Control Properties

- Control properties can be divided into five categories:

Format: Sets visual properties for a control.
Data: Sets the underlying data source for a control.
Event: Sets action behavior for a control. Typically used to tie a macro or event procedure to a specific control action.
Other: Sets the behavior for the control such as tab stop behavior or the tab order.
All: Used to view all categories in the same pane.

To set a property on a control:

- Right-click on the control.
- From the pop-up menu, select **Properties**. This opens the **control properties** dialog box:



- Select the desired control properties.

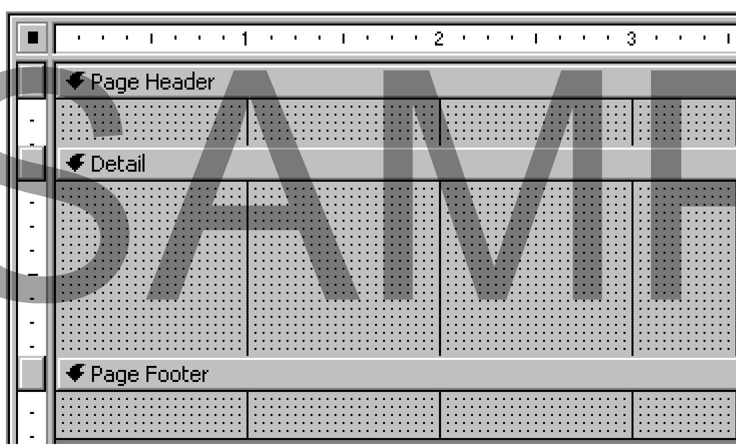
  Note: The available control properties will vary depending on the type of control used.

Creating Page Headers and Footers

- **Page headers** and **page footers** appear at the top and bottom of each page and can display information such as a column heading.

To create page headers and footers:

- Right-click in the **Detail** area of the form.
- From the pop-up menu, select **Page Header/Footer**. This opens the **Page Header** and **Page Footer** panes:



- Place the desired control on the **page header** or **page footer**.

Creating Form Headers and Footers

- **Form headers** and **form footers** appear at the top and bottom of each page and can display items such as the date, page number, or company logo.

To create form headers and footers:

- Right-click in the **Detail** area of the form.
- From the pop-up menu, select **Form Header/Footer**. This opens the **Form Header** and **Form Footer** panes.
- Place the desired control on the **form header** or **form footer**.

  Note: Page headers and footers and **Form headers and footers** can both appear on the same form.

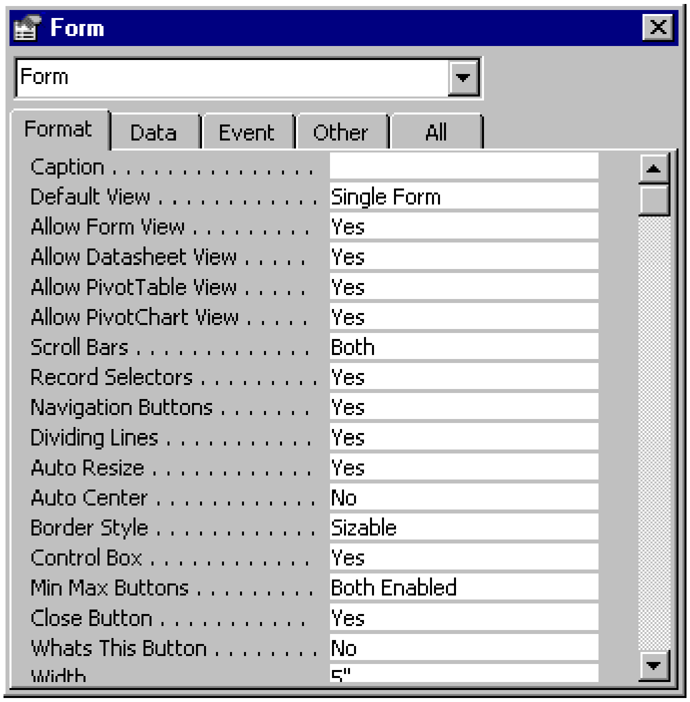
Setting Form Properties

- Form properties can be divided into five categories:

  Format: Sets visual properties for a form.
  Data: Sets the underlying data source for a form.
  Event: Sets action behavior for a form. Typically used to tie a macro or event procedure to a specific form action.
  Other: Sets the behavior for the form such as the **modal** or **pop-up** properties.
  All: Used to view all categories in the same pane.

To set a form property:

- Right-click on the form.
- From the pop-up menu, select **Properties**. This opens the **Form** properties dialog box:



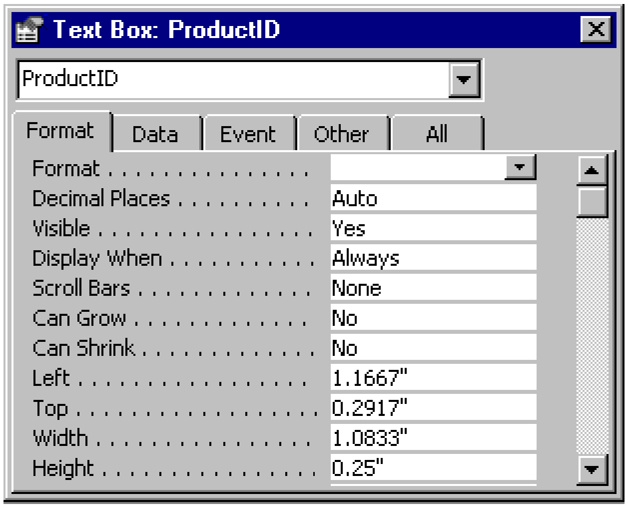
- Select the desired **form** properties.

Working with Identifiers

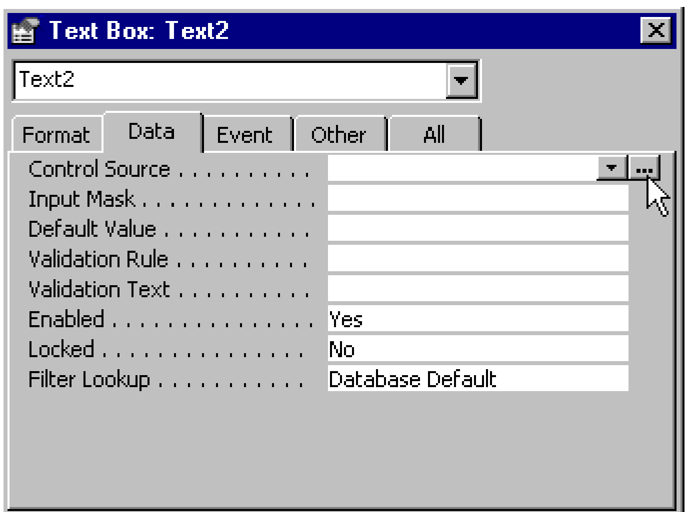
- When referencing an object or property in another form or subform, it is necessary to use an **object identifier**. This is the fully qualified name of the object or property. For example, when referencing the **order date** in the **Orders** form, it is necessary to use the **object identifier** Forms![Orders]![OrderDate].

To add an object identifier in a control:

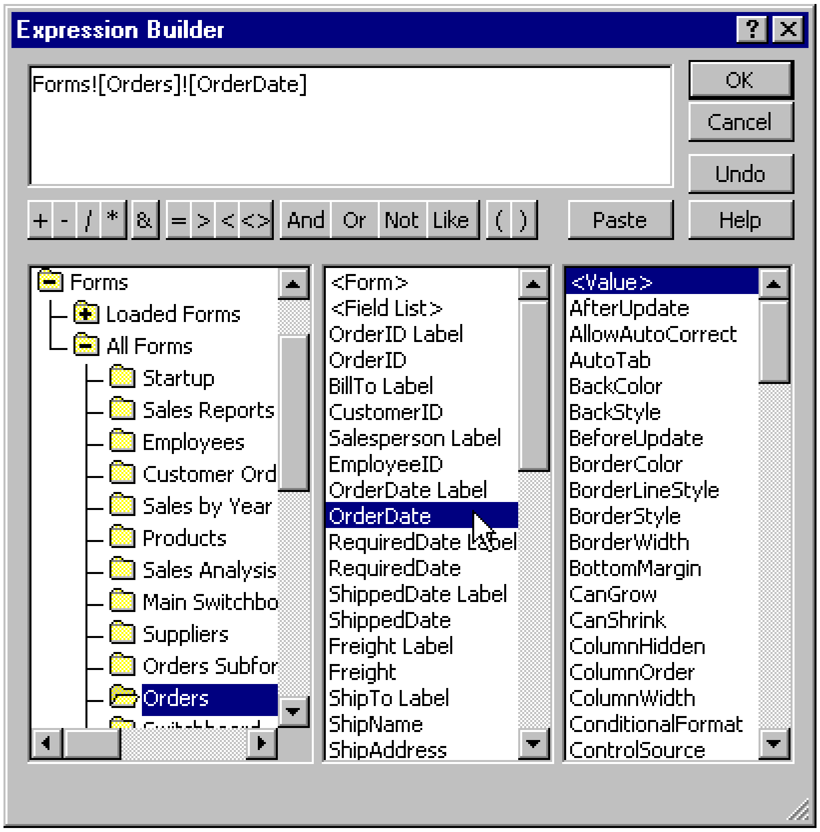
- Right-click on a control.
- From the pop-up menu select **Properties**. This opens the **control properties** dialog box:



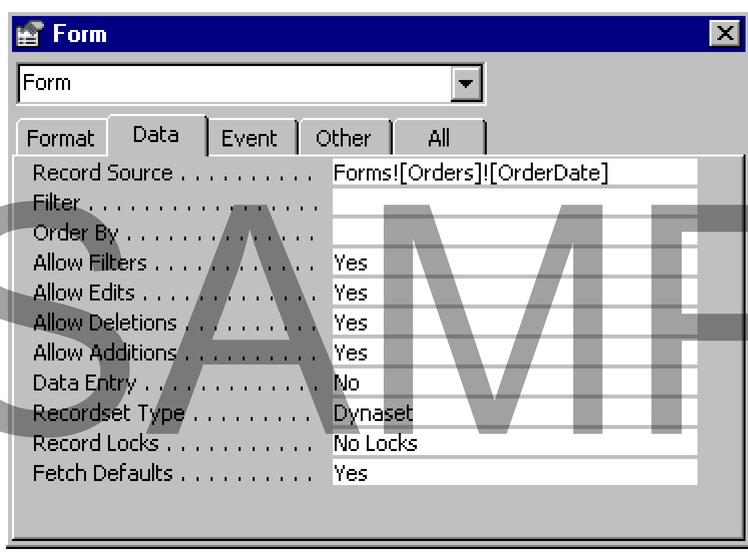
- Click the **Data** tab.
- Click the **Expression Builder** button next to the **Control Source** field:



- This opens the Expression Builder.
- Add the desired object from the **Expression Builder** window:



- The external object is now referenced in the current control using its **Object Identifier**:



Working with Subforms

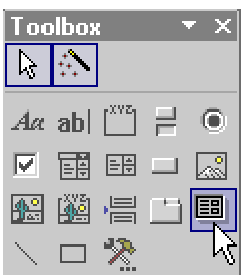
Creating a Subform

- A **subform** is a form inside another form. Subforms are useful for displaying **one-to-many relationships** where the main form displays the **one** side of the relationship and the subform displays the **many** side of the relationship. A form/subform combination is sometimes called a parent/child form.

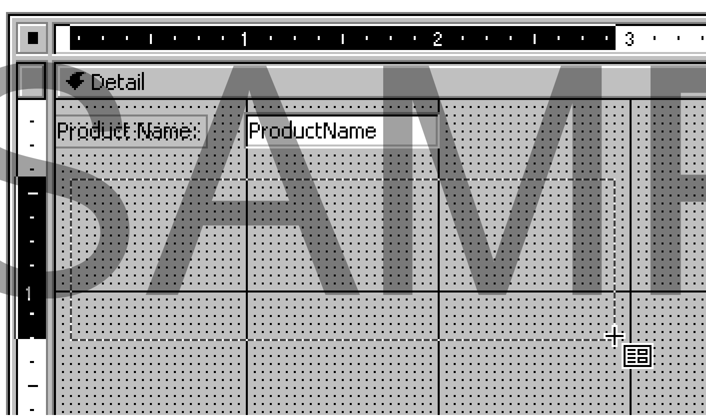
To add a subform to a form:

- Open a form in **Design** view.
- Click the **Control Wizards** button on the **Toolbox** toolbar:

- Click the **Subform / Subreport** button on the **Toolbox** toolbar:

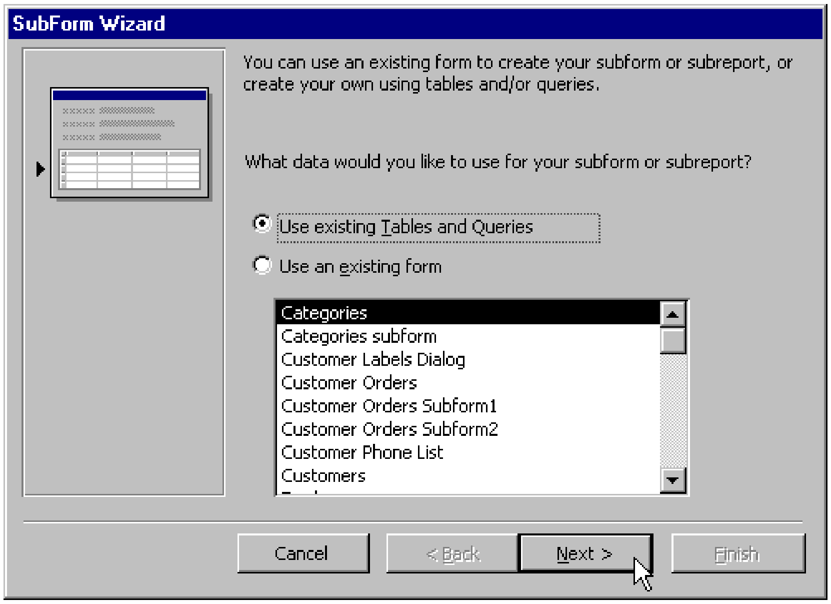


- Click and drag the **control** in the **Detail** area of the form:

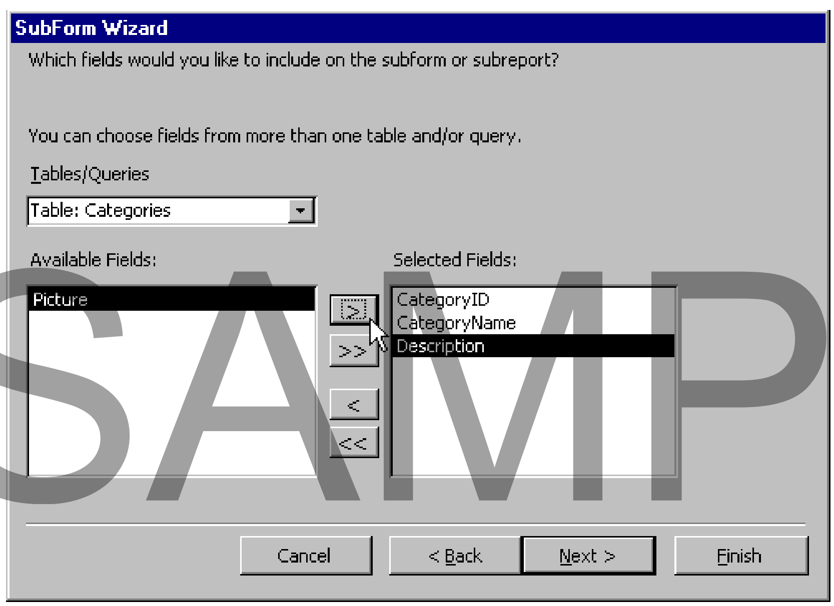


- This opens the **SubForm Wizard**.
- Select the Use existing Tables and Queries option button.

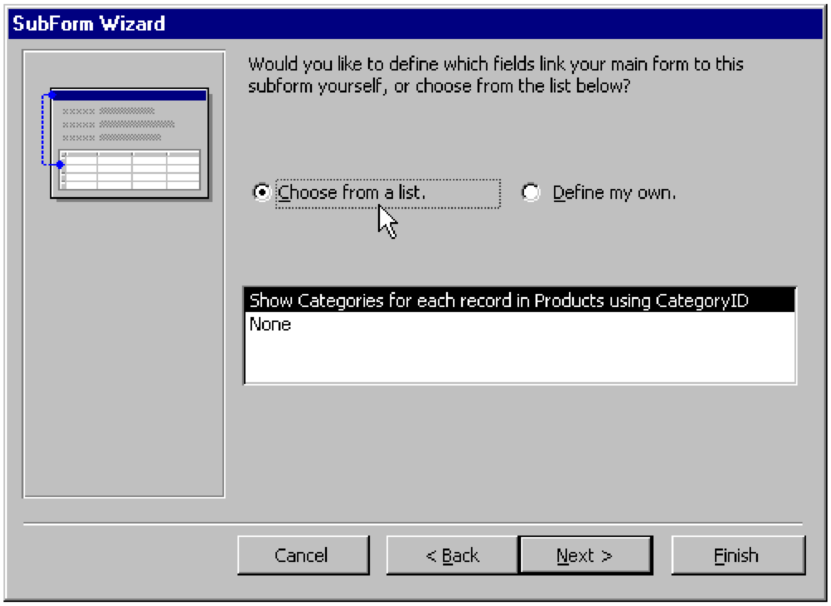
- Click **Next**:



- Select a table from the **Tables / Queries** drop-down menu.
- Select a field from the **Available Fields** area.
- Click the single right arrow to add the field
  OR click the double right arrow to add all fields:



- Click **Next**.
- Select the **Choose from a list** option button
  OR select the **Define my own** option button:



Note: If **Define my own** is selected, the wizard will require the link between the main **form** and **subform** to be manually defined.

- Click **Next**.
- Type a name for the **subform**.
- Click **Finish**.

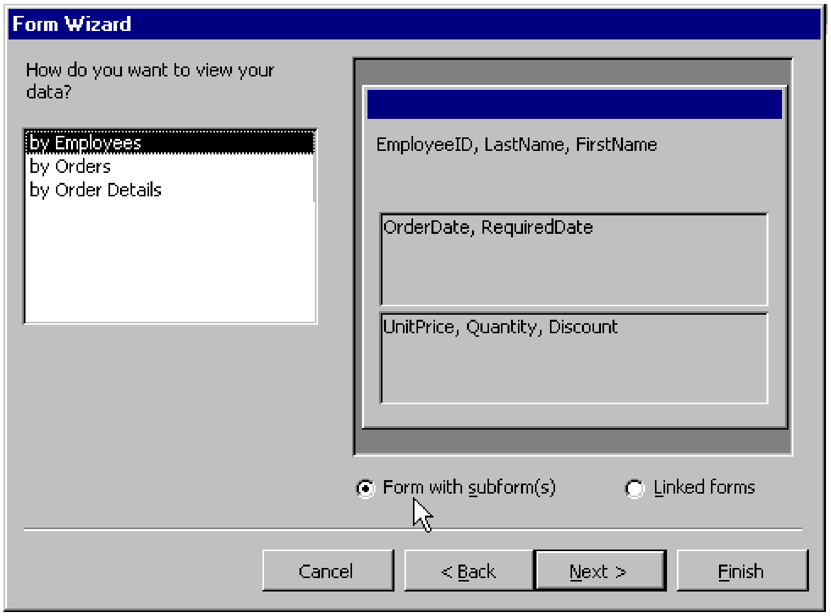
Creating a Form with Two Subforms

- A **form** with two **subforms** is often used when one **subform** is related to another **subform** within the same main **form**. The first **subform** is related to a key value in the main **form**. The second **subform** is related to the first **subform** by a different key value.

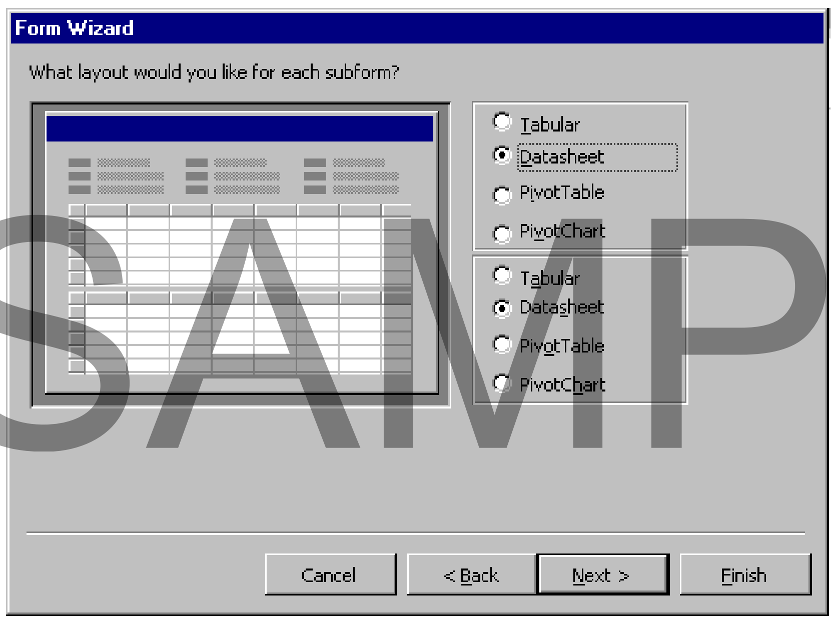
To create a form with two subforms:

- Click **Forms** in the **Objects** pane.
- Click the **New** button on the database window. This opens the **New Form** dialog box.
- Select Form Wizard.
- Click **OK**.
- Select a table from the **Tables / Queries** drop-down menu.
- Add the desired fields.
- Select another table from **Tables / Queries** drop-down menu. This will be the first **subform**.
- Add the desired fields.
- Select another table from **Tables / Queries** drop-down menu. This will be the second **subform**.
- Add the desired fields.

- Click **Next**.
- Select the desired view in the **How do you want to view your data** dialog box.
- Select the **Form with subform(s)** option button:

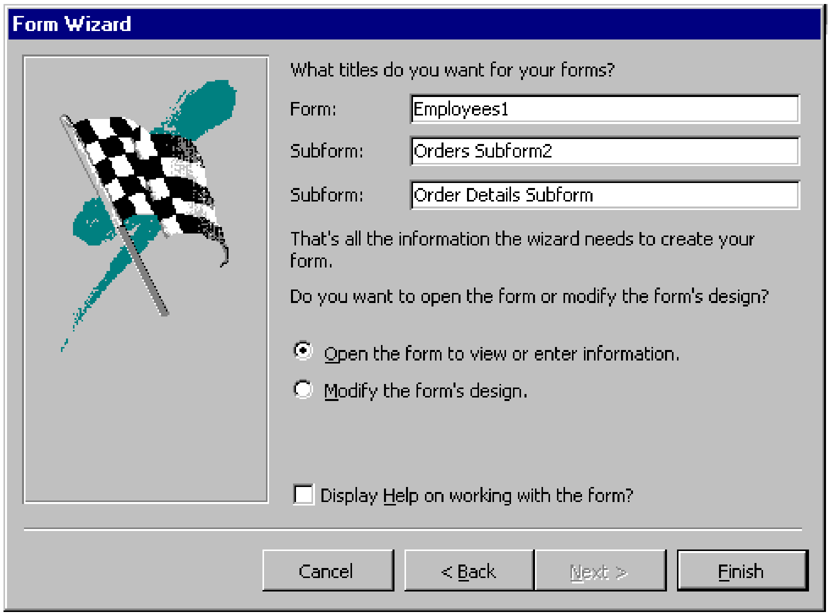


- Click **Next**.
- Select the desired **layout** for each subform:



- Click **Next**.
- Select the desired **form style**.
- Click **Next**.

- Enter the title for the main form and each subform:



- Click **Finish**.

Creating Nested Subforms

- Creating a **nested subform** is similar to creating a form with two **subforms**. The main difference between the two is that the second **subform** is embedded in the first **subform** instead of in the **main form**.

To create a nested subform:

- Create a **subform** within a **main form**.

  Note: Creating subforms within a form was previously discussed in this training manual.

- Click the **Subform / Subreport** control button on the **Toolbox** toolbar.
- Click and drag the **control** in the **Detail** area of the existing subform. This opens the **SubForm Wizard**.
- Select the Use existing Tables and Queries option button.
- Click **Next**.
- Select a table from the **Tables / Queries** drop-down menu.
- Select a field from the **Available Fields** area.
- Click the single right arrow to add a field
  OR click the double right arrow to add all fields.

- Click **Next**.

- Select the **Choose from a list** option button
  OR select the **Define my own** option button.

  Note: If **Define my own** is selected, the wizard will require the link between the main form and subform to be manually defined.

- Click **Next**.
- Type a name for the **subform**.
- Click **Finish**.

Deleting a Subform

- Open the **main form** in **Design** view.
- Right-click on the subform.
- From the pop-up menu, select **Cut**.

  OR

- Right-click on the subform in the **Forms** database window.
- From the pop-up menu, select **Delete**.

  Note: Deleting the subform directly from the **Forms** database window without deleting it from the parent form will cause an error when opening the parent form.

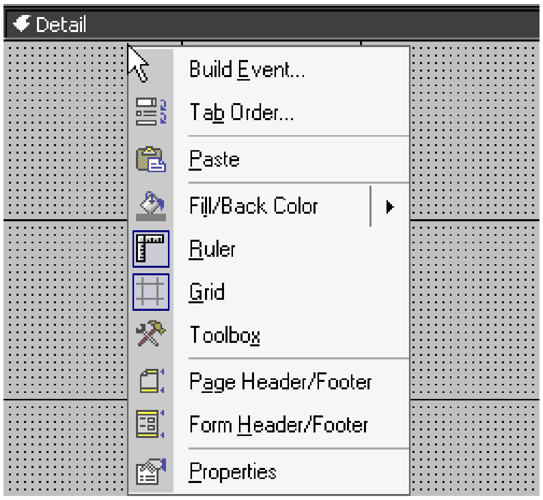
Creating Pop-up Forms

Creating a Modal Pop-up Form

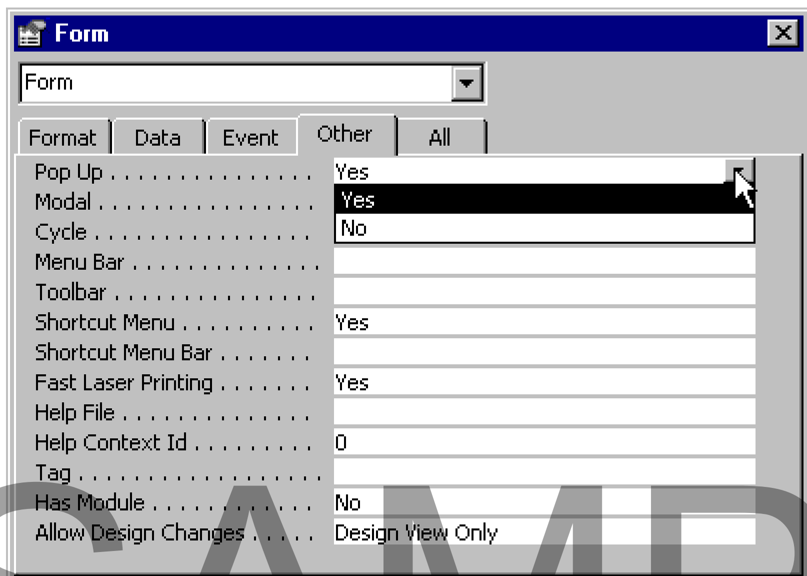
- A **modal** form is one that has exclusive focus when it is open. Other database objects are not accessible while the form is open.

To create a modal pop-up form:

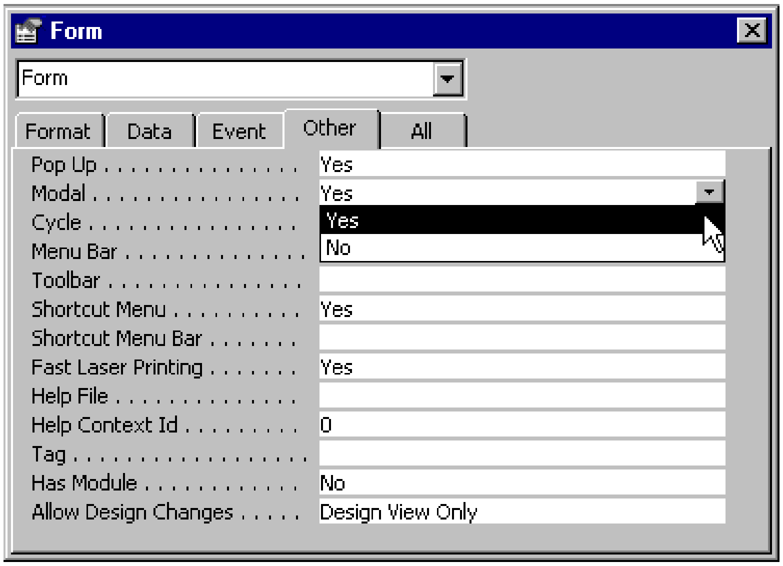
- Open a form in **Design** view.
- Right-click on the main **form** area:



- From the pop-up menu, select **Properties**.
- Click the **Other** tab.
- Select **Yes** from the **Pop Up** drop-down menu:



- Select **Yes** from the **Modal** drop-down menu:



Creating a Modeless Pop-up Form

- A **modeless** form is one that has non-exclusive focus when it is open. Other database objects are accessible while the form is open.

To create a modeless pop-up form:

- Open a form in **Design** view.
- Right-click on the main **form** area.
- From the pop-up menu, select **Properties**.
- Click the **Other** tab.
- Select **Yes** from the **Pop Up** drop-down menu.
- Select **No** from the **Modal** drop-down menu.

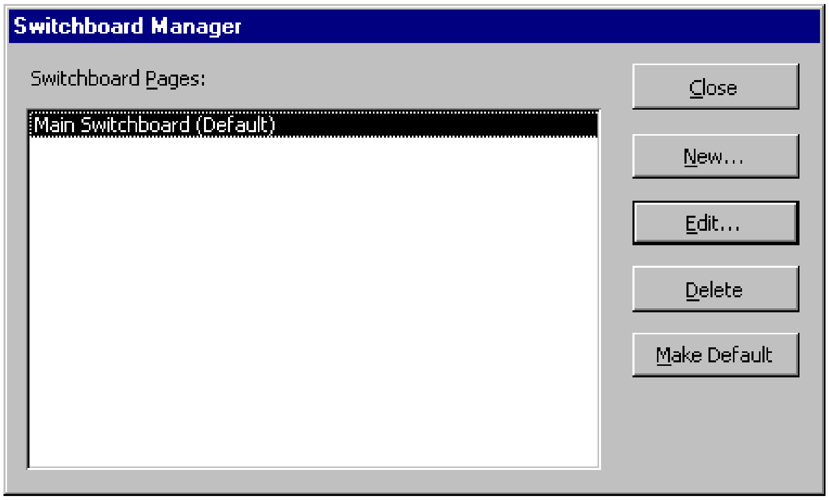
Working with Switchboards

Creating a Switchboard

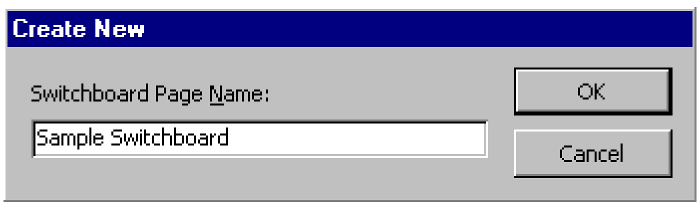
- A **Switchboard** is a special form that acts as a central navigation aide to help users access objects within a database. **Switchboards** are useful when creating a custom user interface that allows a fixed number of options.

To create a Switchboard:

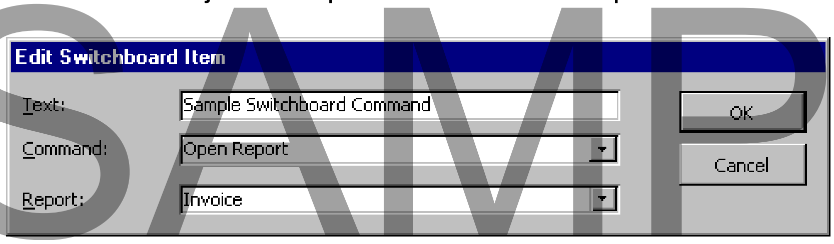
- From the main menu, select **Tools > Database Utilities > Switchboard Manager**. This opens the Switchboard Manager dialog box:



- Click **New**. This opens the **Create New** dialog box.
- Type a new name for the **switchboard**:



- Click **OK**.
- Click **Edit** to edit the switchboard properties.
- Click **New**. This opens the **Edit Switchboard Item** dialog box.
- Type the name of the **switchboard** item in the **Text** box.
- Select a command from the **Command** drop-down menu.
- Select the object to open in the third drop-down menu:

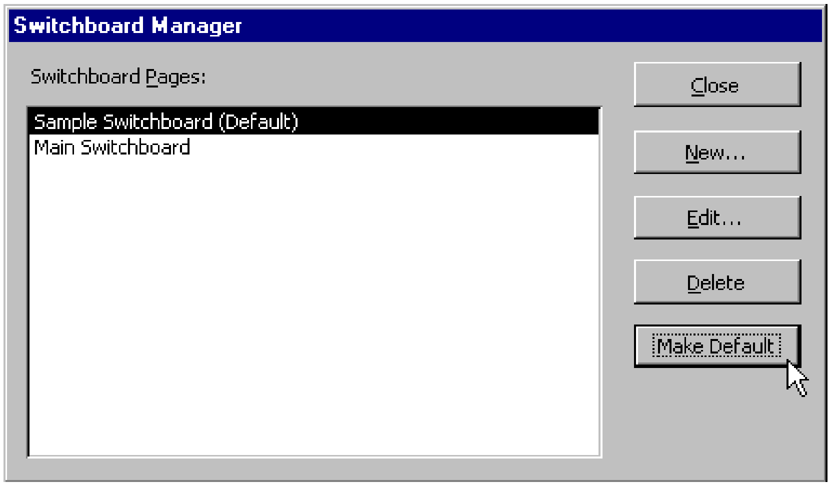


Note: The third drop-down menu will change depending on the type of **command** selected. For example, if the **Open Report** command is selected then the third drop-down menu is named **Report**.

- Click **OK**.
- Click **Close**.

To make the new switchboard the default:

- Click the **Make Default** button:



- Click **Close**.

Editing a Switchboard Item

- From the main menu, select **Tools > Database Utilities > Switchboard Manager**. This opens the Switchboard Manager dialog box.
- Select the **switchboard** to edit.
- Click **Edit**. This opens the **Edit Switchboard Page** dialog box.
- Select the switchboard item to edit.
- Click **Edit**.
- Make the edits you want.
- Click **OK**.
- Click **Close**.
- Click **Close** again to exit the **Switchboard Manager** dialog box.

Deleting a Switchboard

- From the main menu, select **Tools > Database Utilities > Switchboard Manager**. This opens the Switchboard Manager dialog box.
- Select the switchboard to delete.
- Click **Delete**.

  Note: The default switchboard cannot be deleted.

- Click **Yes** to confirm the delete.
- Click **Close** to exit the **Switchboard Manager** dialog box.

Review Questions

How would you:

- Choose an Appropriate Control?
- Place Controls on a Form?
- Move a Control?
- Resize a Control?
- Set Control Properties?
- Create Page Headers and Footers?
- Create Form Headers and Footers?
- Set Form Properties?
- Work with Identifiers?
- Create a Subform?
- Create a Form with Two Subforms?
- Create Nested Subforms?
- Delete a Subform?
- Create a Modal Pop-up Form?
- Create a Modeless Pop-up Form?
- Create a Switchboard?
- Edit a Switchboard Item?
- Delete a Switchboard?

Designing Reports in Access 2002

When you have completed this learning module you will have seen how to:

- Place Controls on a Report
- Move a Control
- Resize a Control
- Set Control Properties
- Create Page Headers and Footers
- Create Report Headers and Footers
- Sort Records on a Report
- Group Records on a Report
- Set Report Properties
- Create a Modal Pop-up Report
- Create a Modeless Pop-up Report
- Create a Subreport
- Create a Report with Two Subreports
- Delete a Subreport
- Create Report Snapshots
- Distribute Report Snapshots
- Use the New Data Access Page Wizard
- Define a Data Source for a Stand-Alone Data Access Page
- Create Stand-Alone Data Access Pages

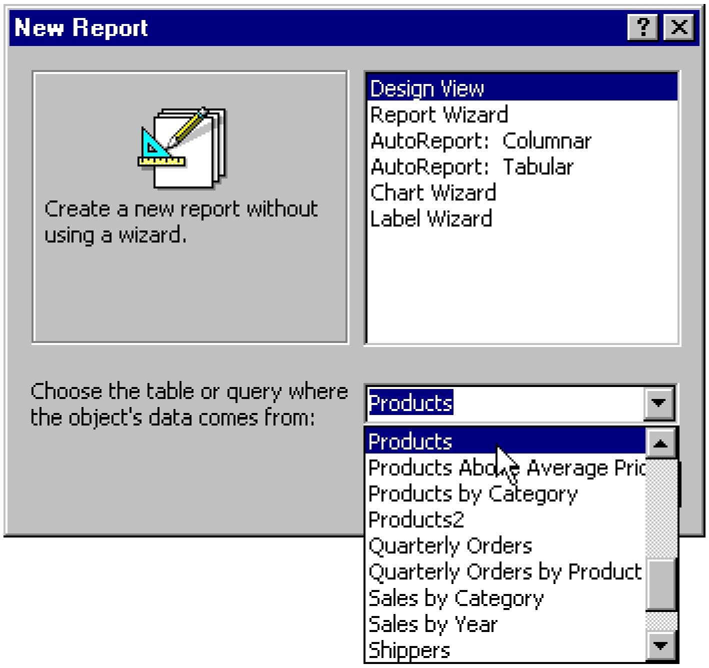
Working with Standard Reports

About Reports

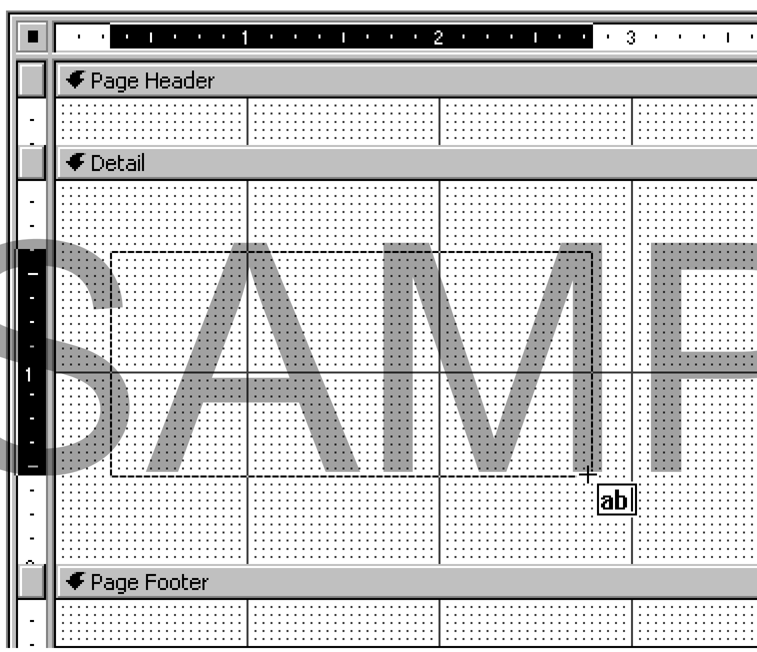
- Reports provide a way to present data in a printed format:
- Reports can be saved and distributed.

Placing Controls on a Report

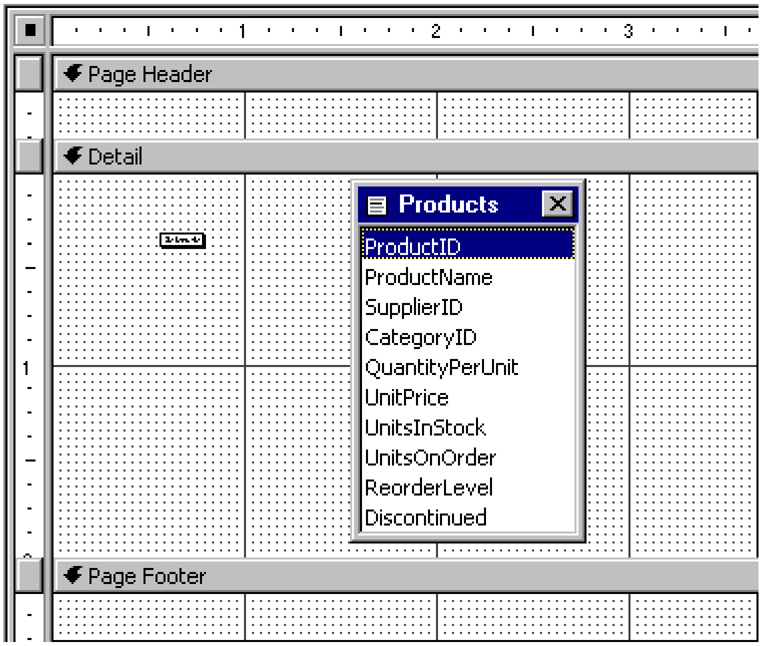
- Click **Reports** in the **Objects** pane.
- Click the **New** button. This opens the **New Report** dialog box.
- Select **Design View**.
- Select a data source for the report from the drop-down menu:



- Click **OK**.
- Access opens into **Report Design** view showing the **Detail** area, **Data Source**, and **Toolbox**.
- Click the desired control to place on the **report** on the **Toolbox** toolbar.
- Click and drag the **control** in the **Detail** area of the **report**:

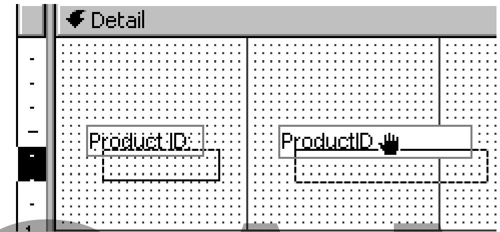


OR drag and drop a field from the **data source** to the **Detail** area of the **report**:



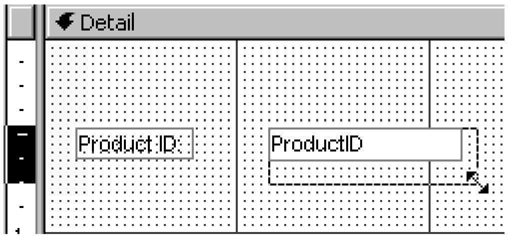
Moving a Control

- Select the control you want to move.
- Place the cursor over the **control** until the cursor changes to a hand.
- Drag the control to its new location:



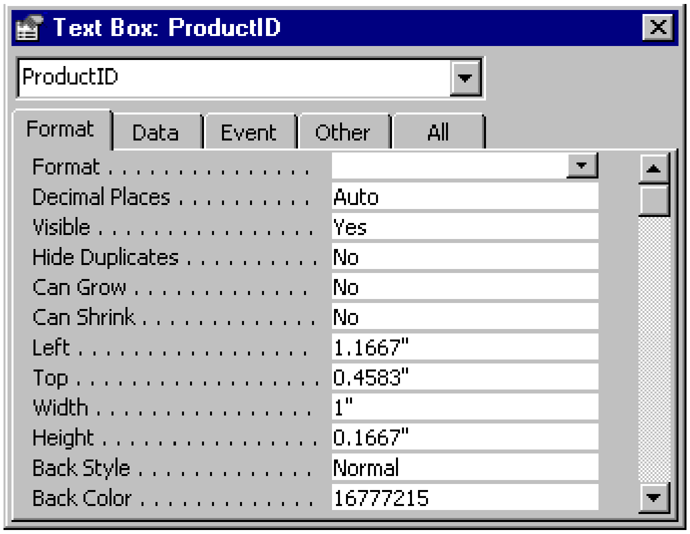
Resizing a Control

- Select the control you want to resize.
- Place the cursor over the **control** until the cursor changes to a double arrow.
- Drag control to the desired size:



Setting Control Properties

- Right-click on the control.
- From the pop-up menu, select **Properties**. This opens the **control properties** dialog box:

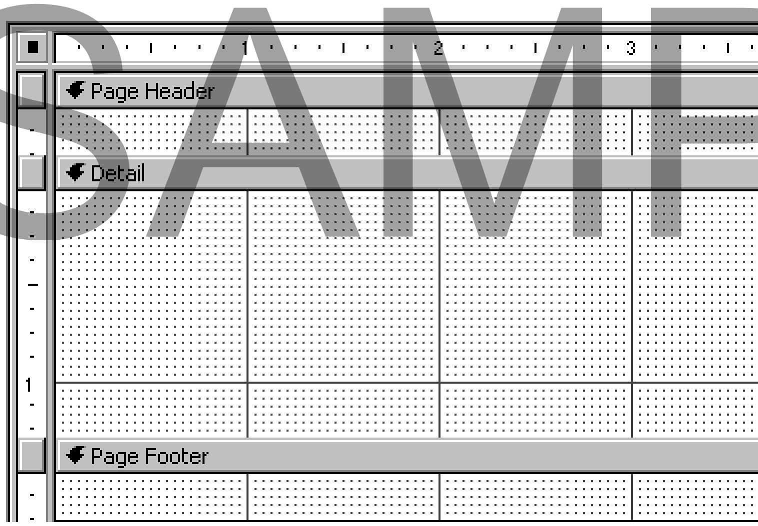


- Select the desired control property.

  Note: The available control properties will vary depending on the type of control used.

Creating Page Headers and Footers

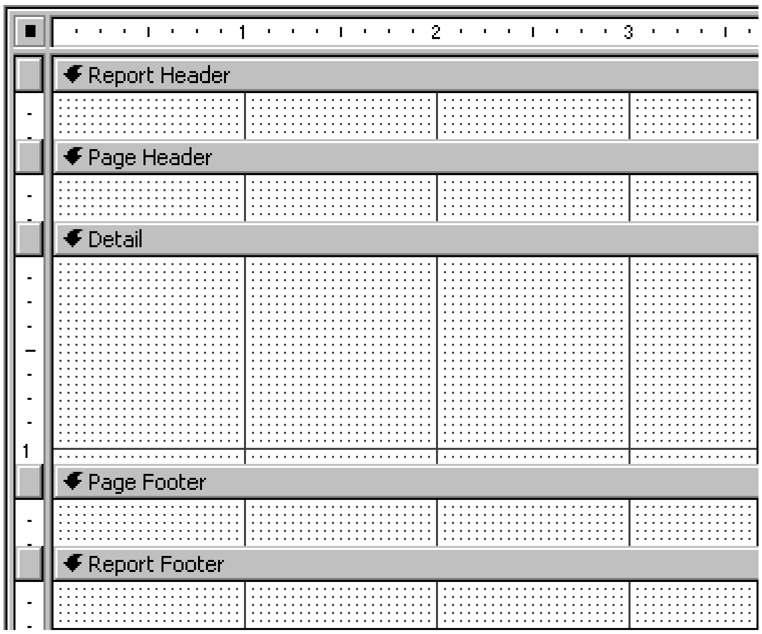
- Right-click in the **Detail** area of the report.
- From the pop-up menu, select **Page Header/Footer**. This opens the **Page Header** and **Page Footer** panes:



- Place the desired control on the **page header** or **page footer**.

Creating Report Headers and Footers

- Right-click in the **Detail** area of the report.
- From the pop-up menu, select **Report Header/Footer**. This opens the **Report Header** and **Report Footer** panes:



- Place the desired control on the report header or report footer.

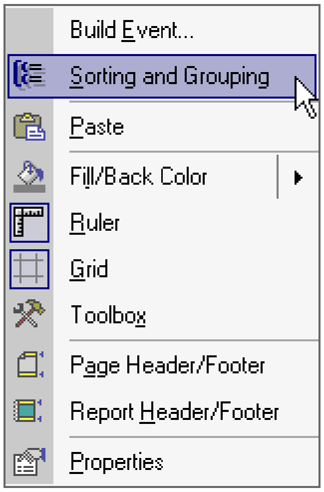
  Note: Page headers and footers and Report headers and footers can both appear on the same report.

Sorting Records on a Report

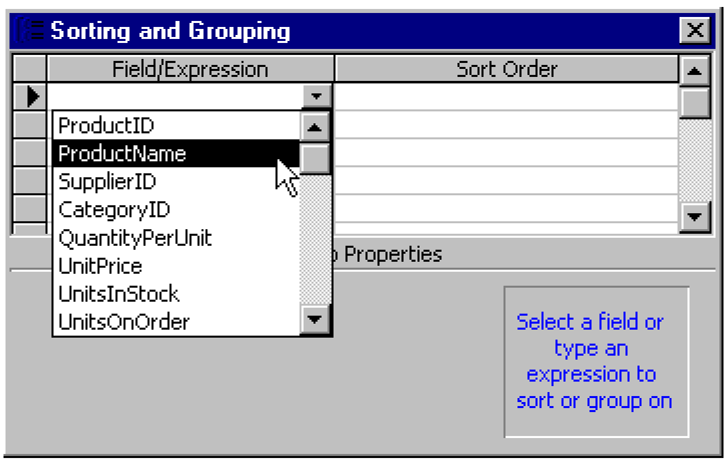
- **Sort** records when there is a need to display records in alphabetic or numeric order. An example is a report that sorts by a customer's last name.

To set sorting:

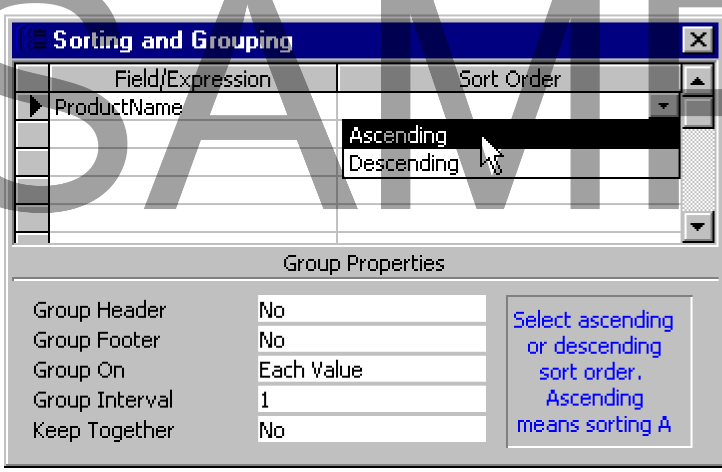
- Open a report in **Design** view.
- Right-click in the **Detail** area of the report.
- From the pop-up menu, select **Sorting and Grouping**:



- This opens the **Sorting and Grouping** dialog box.
- Select a field to sort from the **Field/Expression** drop-down menu:



- Select the desired sort order from the **Sort Order** drop-down menu:

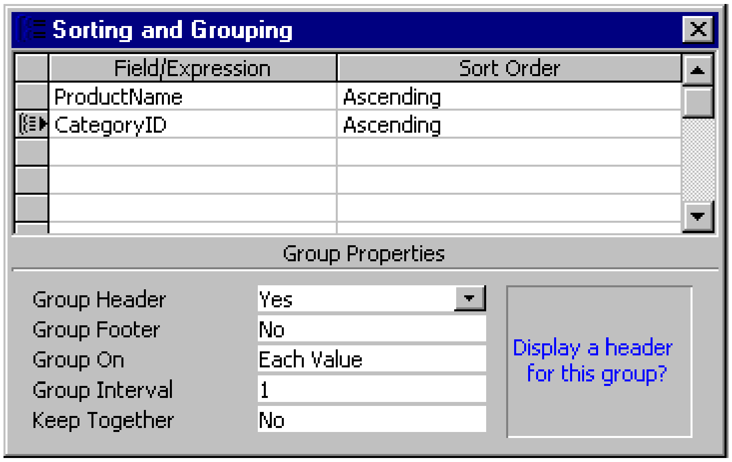


Grouping Records on a Report

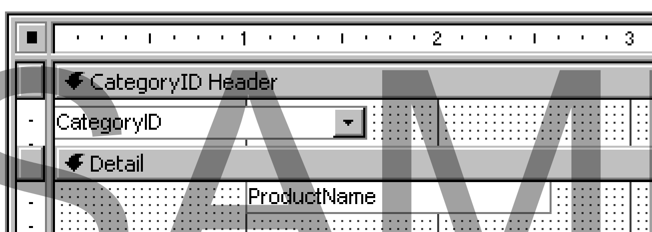
- **Group** records when there is a need to display related records together. An example is a report that shows products grouped according to their category.

To set grouping:

- Open a **report** in **Design** view.
- Right-click in the **Detail** area of the report.
- From the pop-up menu, select **Sorting and Grouping**. This opens the **Sorting and Grouping** dialog box.
- Select the desired grouping method from the **Group Properties** area of the dialog box:

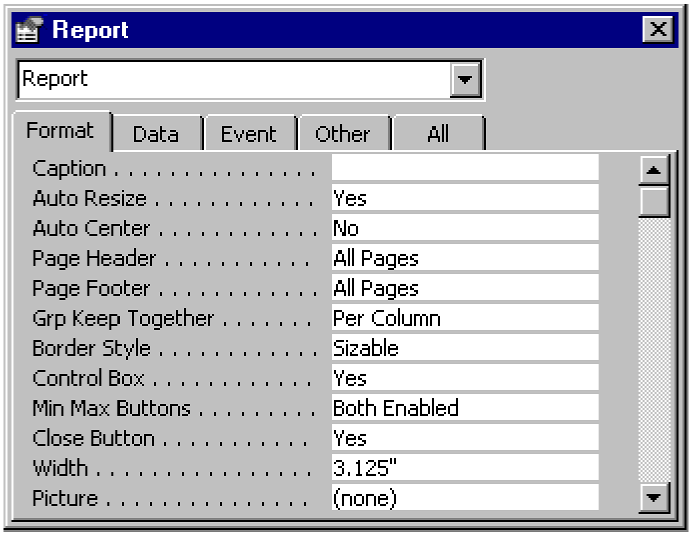


- A **Group Header** and/or **Group Footer** pane will appear depending on what grouping methods and fields are selected.
- Place the desired control in the **Group Header** and/or **Group Footer** pane:



Setting Report Properties

- Right-click on the report.
- From the pop-up menu, select **Properties**. This opens the **Report** properties dialog box:



- Configure the desired **report** properties.

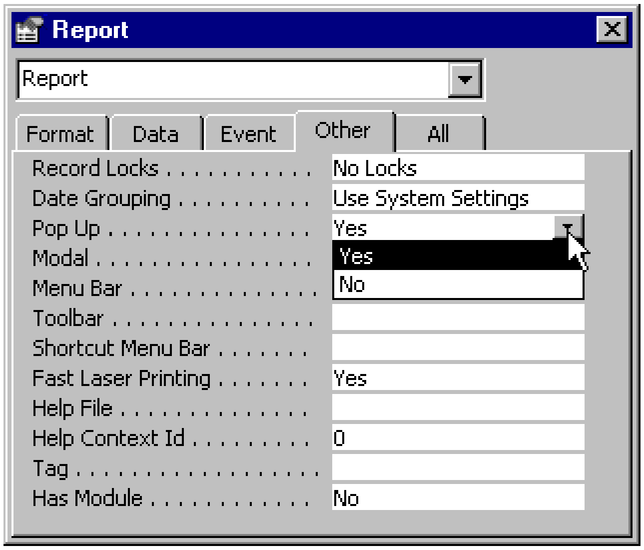
Working with Pop-up Reports

Creating a Modal Pop-up Report

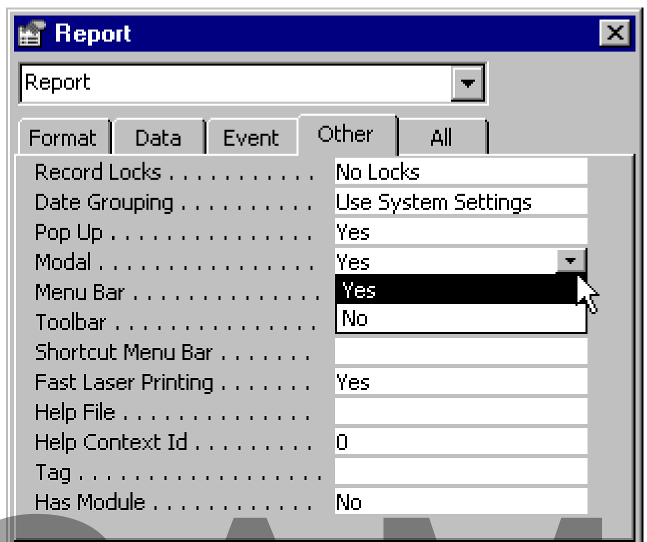
- A **modal** report is one that has exclusive focus when it is open. Other database objects are not accessible while the report is open.

To create a modal pop-up report:

- Open a report in **Design** view.
- Right-click on the main report area.
- From the pop-up menu, select **Properties**.
- Click the **Other** tab.
- Select **Yes** from the **Pop Up** drop-down menu:



- Select **Yes** from the **Modal** drop-down menu:



Creating a Modeless Pop-up Report

- A **modeless** report is one that has non-exclusive focus when it is open. Other database objects are accessible while the report is open.

To create a modeless pop-up report:

- Open a report in **Design** view.
- Right-click on the main report area.
- From the pop-up menu, select **Properties**.
- Click the **Other** tab.
- Select **Yes** from the **Pop Up** drop-down menu.
- Select **No** from the **Modal** drop-down menu.

Working with Subreports

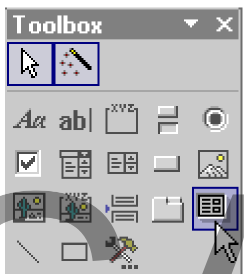
Creating a Subreport

- A **subreport** is a report inside another report. **Subreports** are useful for displaying **one-to-many relationships** where the main report displays the **one** side of the relationship and the **subreport** displays the **many** side of the relationship. Multiple subreports can be displayed on the main report. The subreports do not need to be related.

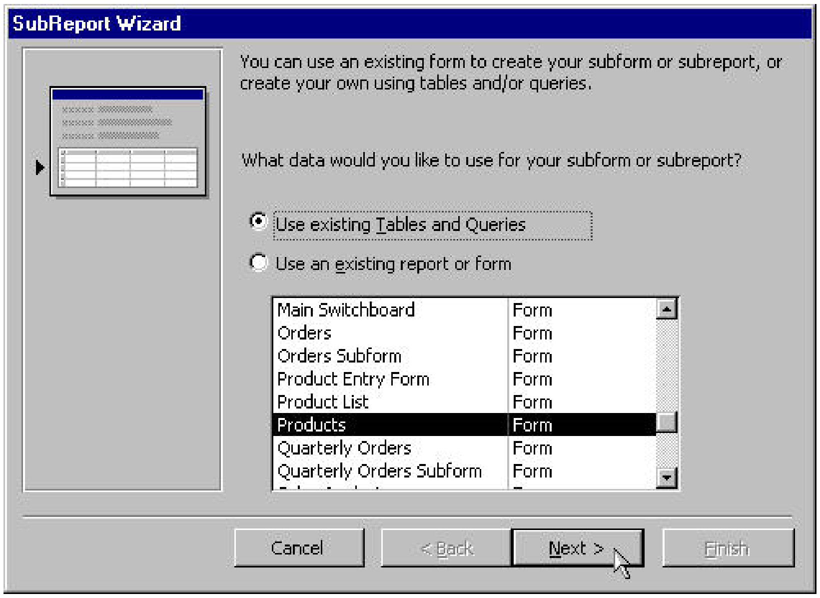
To add a subreport to a report:

- Open a report in **Design** view.
- Click the **Control Wizards** button on the **Toolbox** toolbar:

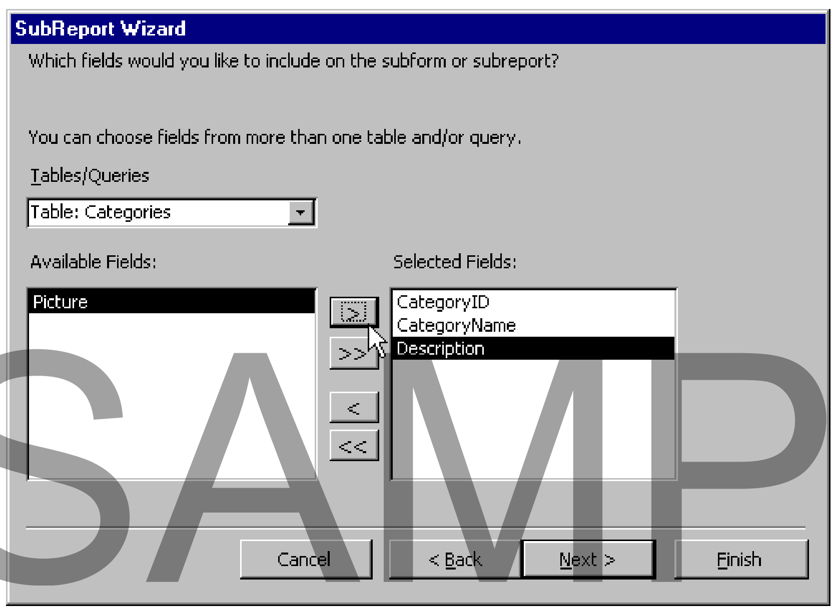
- Click the **Subform / Subreport** button on the **Toolbox** toolbar:



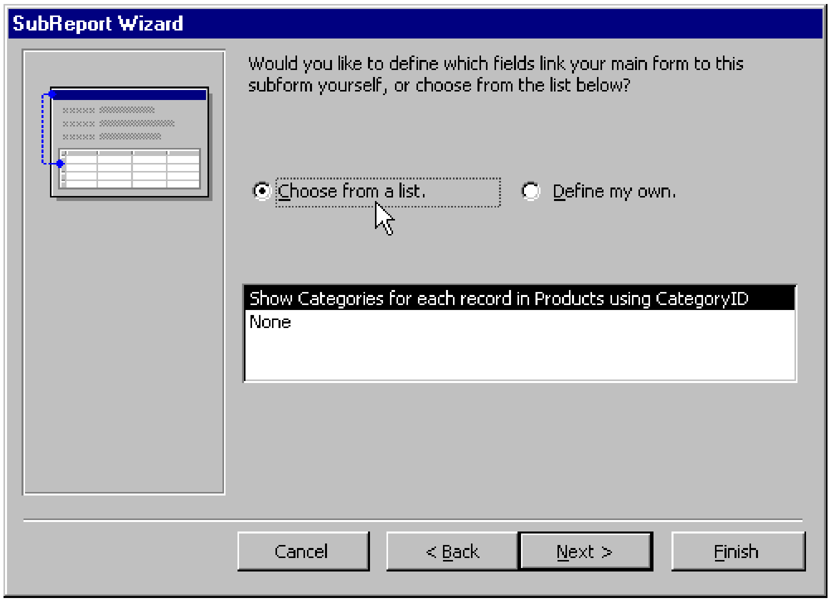
- Click and drag the control in the **Detail** area of the form. This opens the **SubReport Wizard**.
- Select the Use existing Tables and Queries option button.
- Click **Next**:



- Select a table from the **Tables / Queries** drop-down menu.
- Select a field from the **Available Fields** area.
- Click the single right arrow to add the field
  OR click the double right arrow to add all fields:



- Click **Next**.
- Select the **Choose from a list** option button
  OR select the **Define my own** option button:



Note: If **Define my own** is selected, the wizard will require the link between the main **report** and **subreport** to be manually defined.

- Click **Next**.
- Type a name for the subreport.
- Click **Finish**.

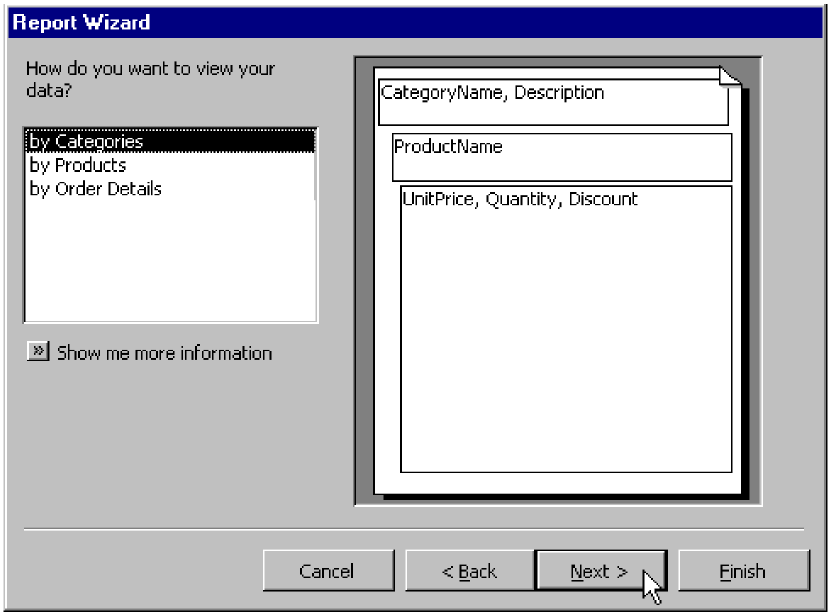
Creating a Report with Two Subreports

- A **report** with two **subreports** is often used when one **subreport** is related to another **subreport** within the same main **report**. The first **subreport** is related to a key value in the main **report**. The second **subreport** is related to the first **subreport** by a different key value.

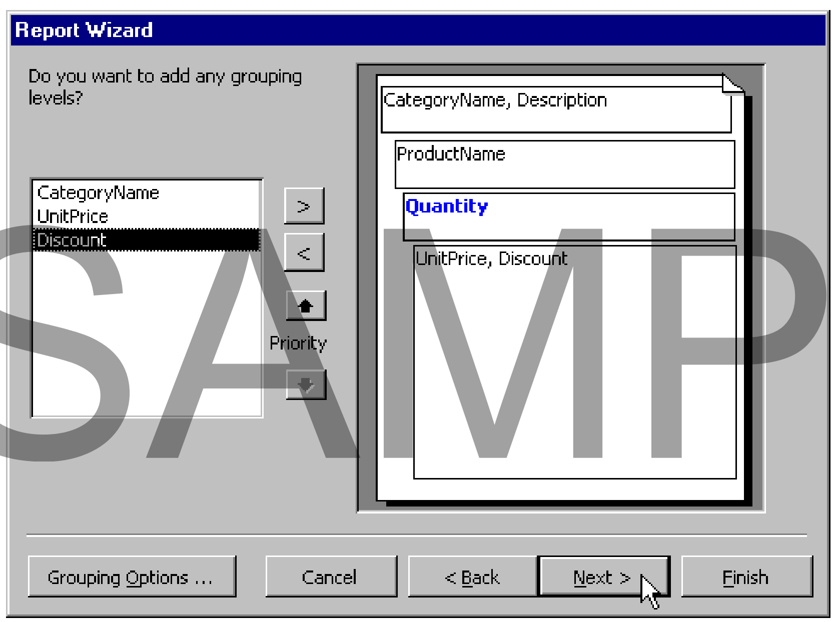
To create a report with two subreports:

- Click **Reports** in the **Objects** pane.
- Click the **New** button on the database window. This opens the **New Report** dialog box.
- Select Report Wizard.
- Click **OK**.
- Select a table from the **Tables / Queries** drop-down menu.
- Add the desired fields.
- Select another table from **Tables / Queries** drop-down menu. This will be the first **subreport**.
- Add the desired fields.
- Select another table from **Tables / Queries** drop-down menu. This will be the second **subreport**.
- Add the desired fields.

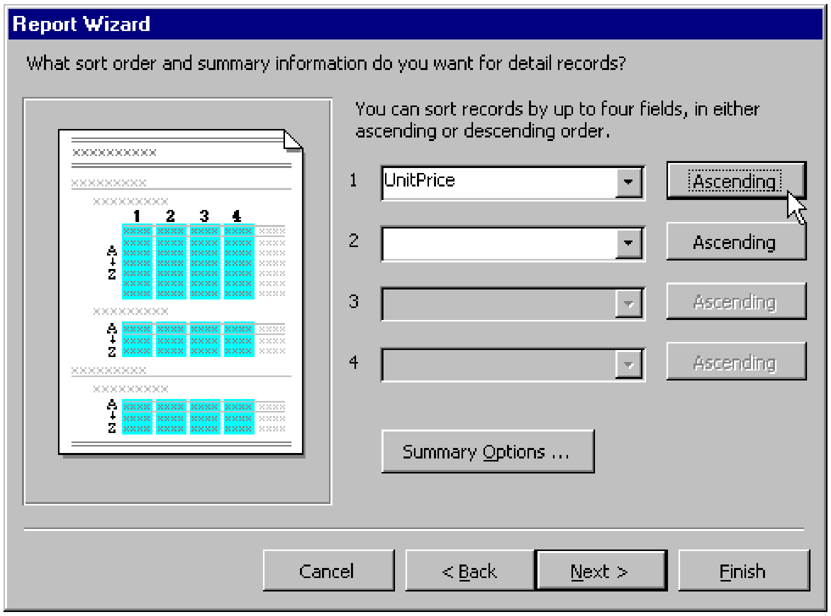
- Click **Next**.
- Select the desired view in the **How do you want to view your data** dialog box:



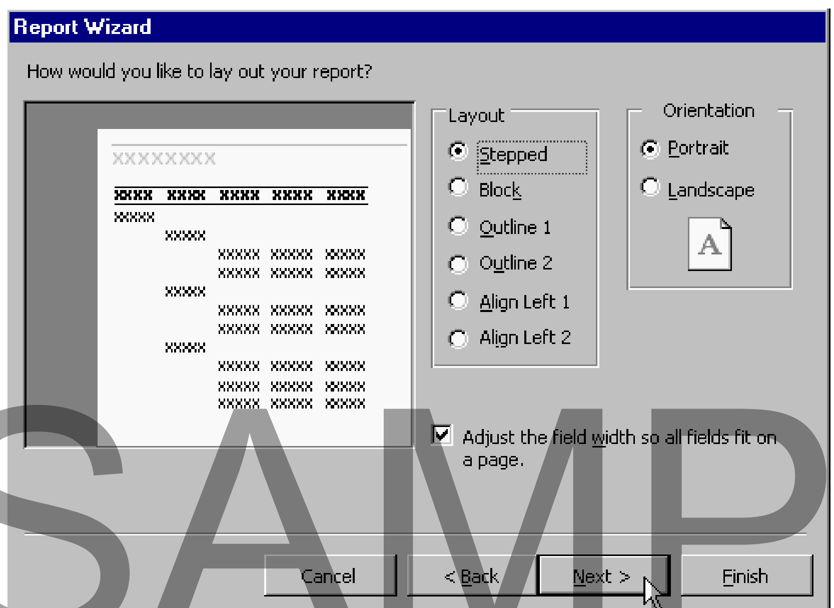
- Click **Next**.
- Select the desired grouping levels from the **Do you want to add any grouping levels** dialog box:



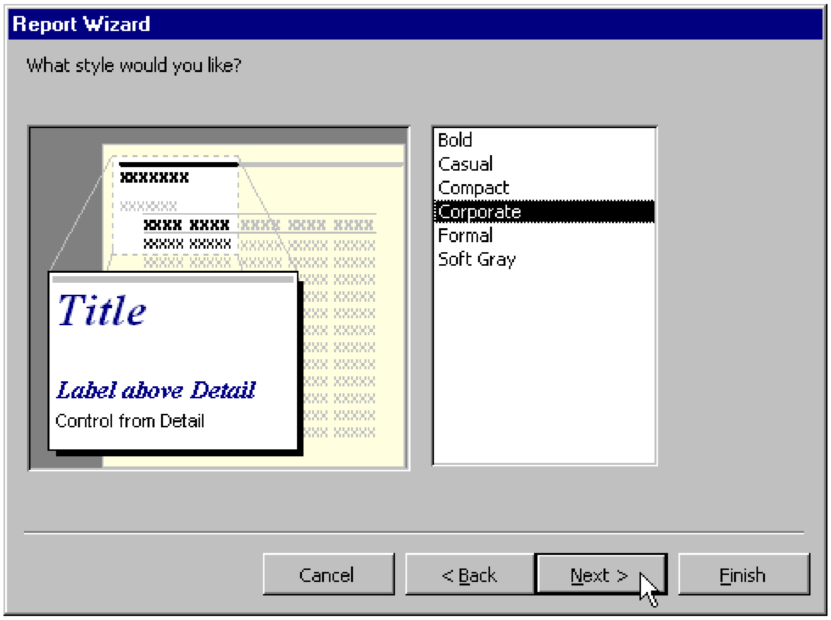
- Click **Next**.
- Select the desired field to sort and its sort order:



- Click **Next**.
- Select the desired **layout** for each subreport:



- Click **Next**.
- Select the desired **report style**:



- Click **Next**.
- Select the title for the **report**.
- Click **Finish**.

Deleting a Subreport

- Open the main report in **Design** view.
- Right-click on the subreport.
- From the pop-up menu, select **Cut**.

OR

- Right-click on the subreport in the **Reports** database window.
- From the pop-up menu, select **Delete**.

Note: Deleting the **subreport** directly from the **Reports** database window without deleting from the parent report will cause an error when opening the parent report.

Working with Report Snapshots

Creating Report Snapshots

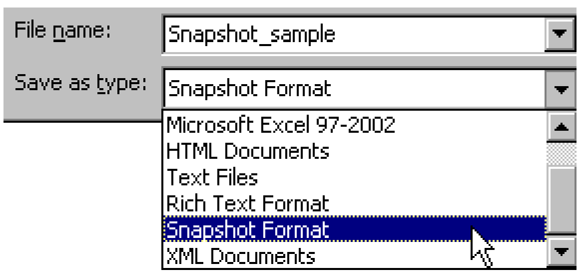
- A **report snapshot** is a high-quality copy of a report that preserves formatting and graphics. **Report snapshots** can be distributed for viewing to people who don't have a Microsoft Access license or do not have the program installed.

To create a report snapshot:

- Click **Reports** in the **Objects** pane.
- Select the report for which you want to create a snapshot.
- From the main menu, select **File > Export**.

OR

- Right-click on the report.
- From the pop-up menu, select **Export**.
- This opens the **Export Report As** dialog box.
- Enter a file name for the **snapshot** file.
- Select **Snapshot Format** from the **Save as type** drop-down menu:



- Click **Export**.

Distributing Report Snapshots

- A **report snapshot** requires that the **Snapshot Viewer** be installed either from the Office XP CD-ROM or from the Microsoft Office website at http://www.microsoft.com/office. The **Snapshot Viewer** is a license-free application that can be distributed to users who do not have a copy of Microsoft Access installed. A **report snapshot** can be distributed using the following methods:

File: A **report snapshot** is a file with a **.snp** file extension and can be copied to a central shared file repository.

E-mail: A **report snapshot** can be attached to an e-mail message in the same manner as other file types and sent to users.

Web: A **report snapshot** can be published as an embedded object in an HTML page available for Internet or Intranet access.

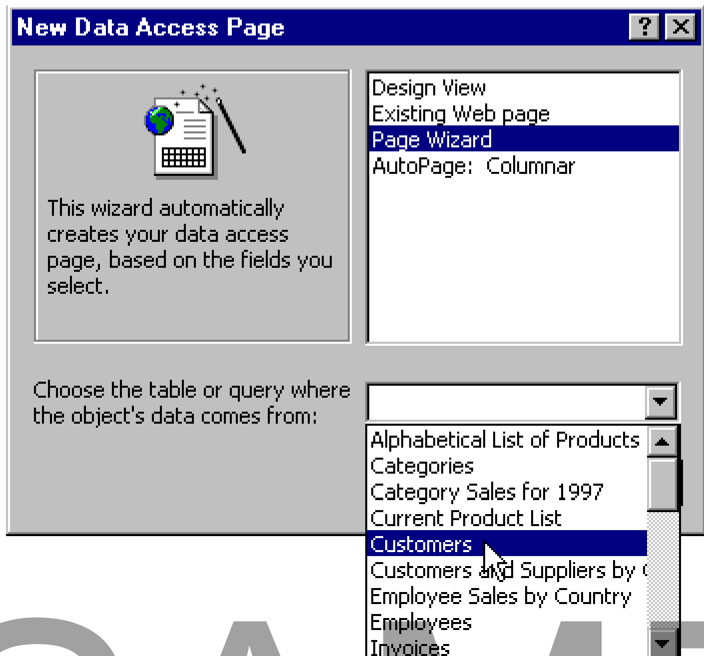
Developing Data Access Pages

Using the New Data Access Page Wizard

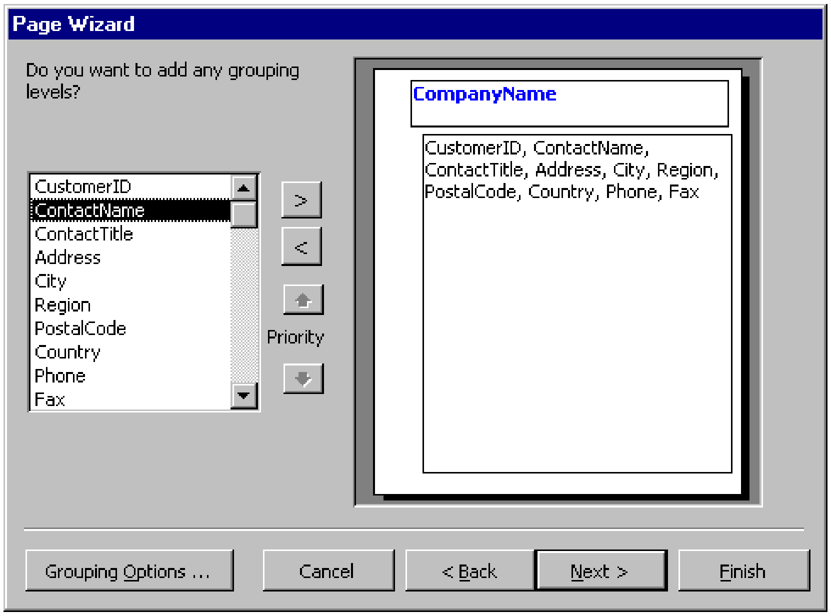
- A **data access page** is a special type of Web page designed for use with data stored in an Access database. **Data access pages** allow users to interact with live data rather than simply viewing static data.

To create a data access page using the Data Access Page Wizard:

- Click **Pages** in the **Objects** pane.
- Click the **New** button. This opens the **New Data Access Page** dialog box.
- Select Page Wizard.
- Choose a data source from the drop-down menu:



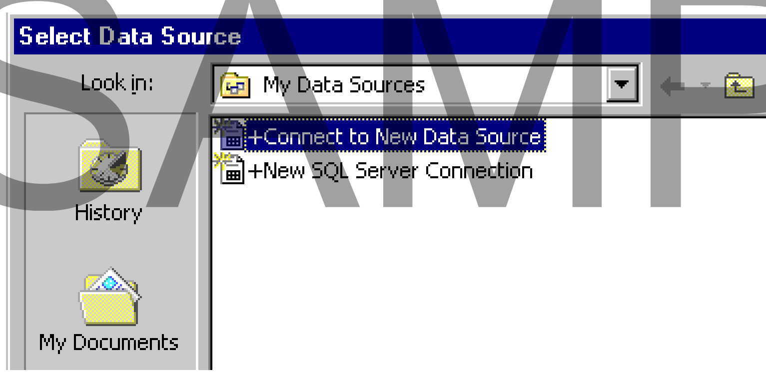
- Click **OK**.
- Select the desired fields from the **Available Fields** list.
- Click **Next**.
- Select any desired grouping levels:



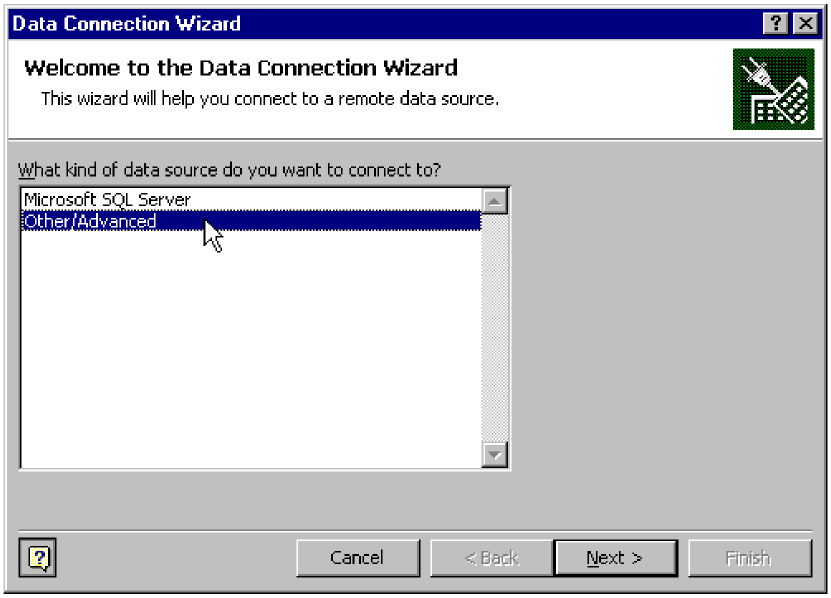
- Click **Next**.
- Select the desired sorting order.
- Click **Next**.
- Type a name for the new data access page.
- Click **Finish**.

Defining a Data Source for a Stand-Alone Data Access Page

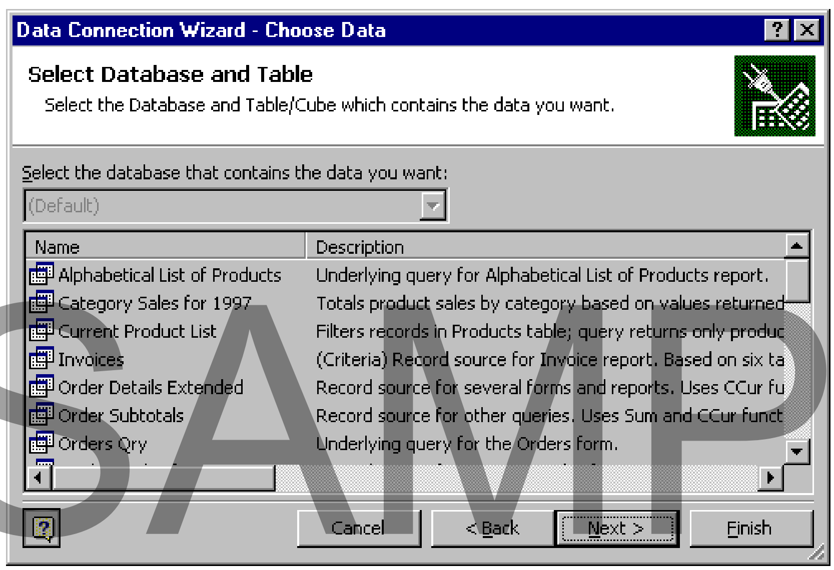
- Close all databases, then from the main menu, select **File > New**. The **New File** Task Pane appears.
- Click the **Blank Data Access Page** link on the **New File** Task Pane. This opens the **Select Data Source** dialog box.
- Double-click +Connect to New Data Source:



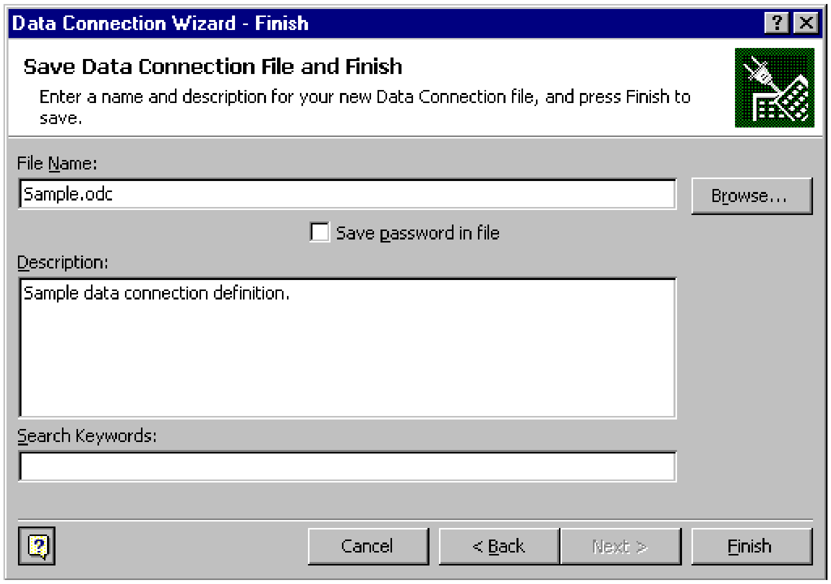
- This opens the **Data Connection Wizard** dialog box.
- Select the desired data source which to connect:



- Click **Next**.
- Select the desired data **Provider**.
- Click **Next**.
- Select the desired **Connection** properties.
- Click **OK**. This opens the **Choose Data** dialog box:



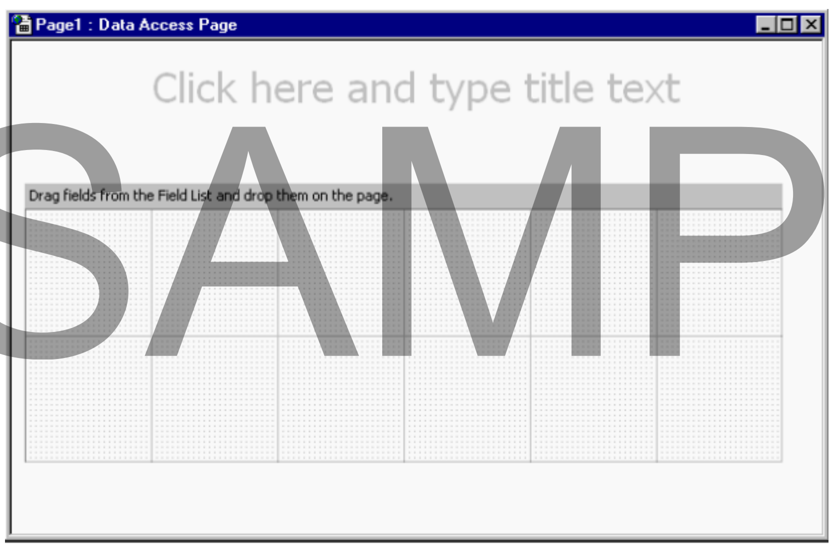
- Click **Next**.
- Type a name for the new **Data Connection**:



- Click **Finish**.

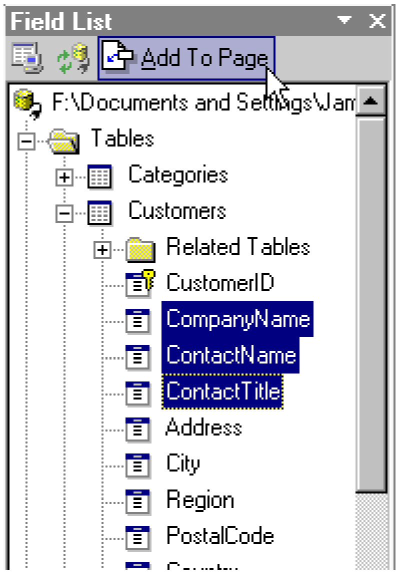
Creating Stand-Alone Data Access Pages

- With the Northwind database open, from the main menu, select **File > New**. The **New File** Task Pane appears.
- Click the **Blank Data Access Page** link on the **New File** Task Pane.
- Select a data source.
- Click **Open**.
- This opens a blank **Data Access Page**:

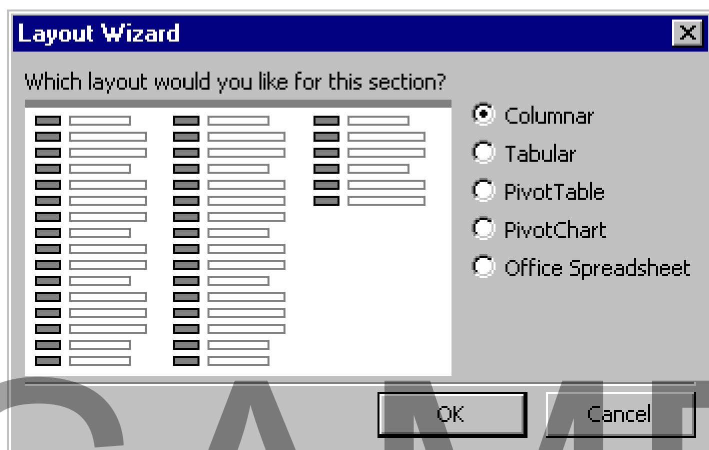


- From the main menu, select **View > Field List**. This opens the **Field List** pane which displays a listing of available table and query fields to add to the **Data Access Page**.

- Select the desired fields from the **Field List** pane.
- Click **Add To Page** to add the fields to the blank page:



- This opens the **Layout Wizard**:



- Select the desired layout.
- Click **OK**.

Review Questions

How would you:

- Place Controls on a Report?
- Move a Control?
- Resize a Control?

- Set Control Properties?
- Create Page Headers and Footers?
- Create Report Headers and Footers?
- Sort Records on a Report?
- Group Records on a Report?
- Set Report Properties?
- Create a Modal Pop-up Report?
- Create a Modeless Pop-up Report?
- Create a Subreport?
- Create a Report with Two Subreports?
- Delete a Subreport?
- Create Report Snapshots?
- Distribute Report Snapshots?
- Use the New Data Access Page Wizard?
- Define a Data Source for a Stand-Alone Data Access Page?
- Create Stand-Alone Data Access Pages?

Working with PivotTables and PivotCharts

When you have completed this learning module you will have seen how to:

- Create PivotTables
- Create PivotCharts
- Select Elements of a PivotTable
- Select Elements of a PivotChart
- Use the PivotTable AutoForm Wizard
- Delete Items from a PivotTable
- Filter Items in the PivotTable List
- Use the AutoCalc Feature
- Use the PivotChart AutoForm Wizard
- Delete Items from a PivotChart
- Filter Items in the PivotChart List
- Change PivotChart Types

Creating PivotTables and PivotCharts

Creating PivotTables

- A **PivotTable** displays summarized data from a data source. **PivotTables** allow multiple levels of data to be displayed on the same sheet.

To create a PivotTable:

- Open the desired table or query in **Datasheet** view.
- From the main menu, select **View > PivotTable View**. This opens a blank **PivotTable** worksheet and **PivotTable Field List** pane.
- Drag and drop the desired fields on the **PivotTable** worksheet.

Creating PivotCharts

- A **PivotChart** is a graphical representation of data from a data source. **PivotCharts** allow multiple levels of data to be displayed on the same sheet

To create a PivotChart:

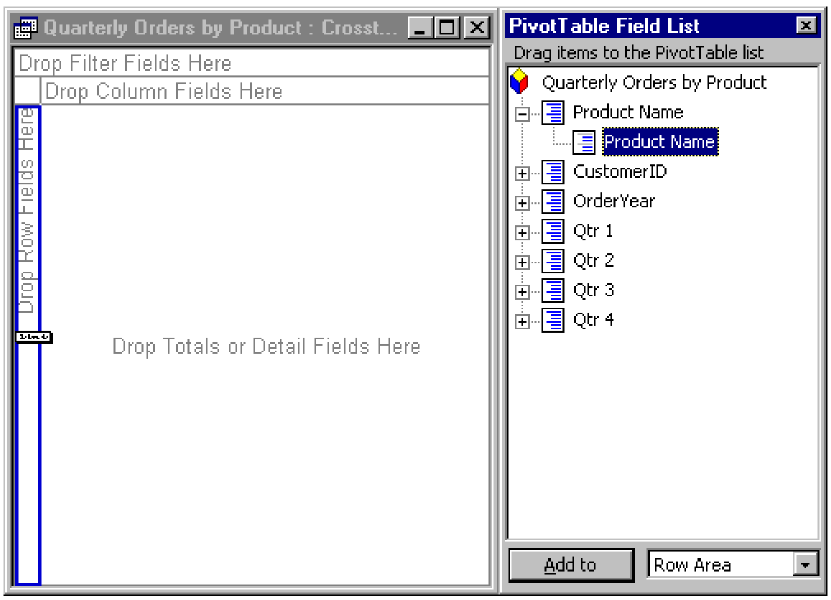
- Open the desired table or query in **Datasheet** view.
- From the main menu, select **View > PivotChart View**. This opens a blank **PivotChart** worksheet and **Chart Field List** pane.
- Drag and drop the desired fields on the **PivotChart** worksheet.

Selecting Elements of a PivotTable

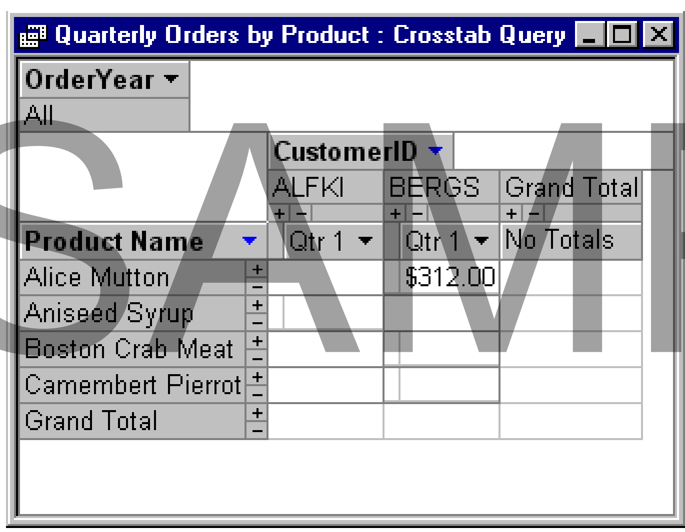
- There are four basic elements that can be added to a **PivotTable**. These elements are **rows**, **columns**, **details**, and **filters**.

To add elements to a PivotTable:

- Open a data source in **PivotTable** view.
- From the **PivotTable Field List**, drag and drop the desired field to one of the element areas in the **PivotTable** worksheet:



- Continue placing fields until all elements in the **PivotTable** are used:

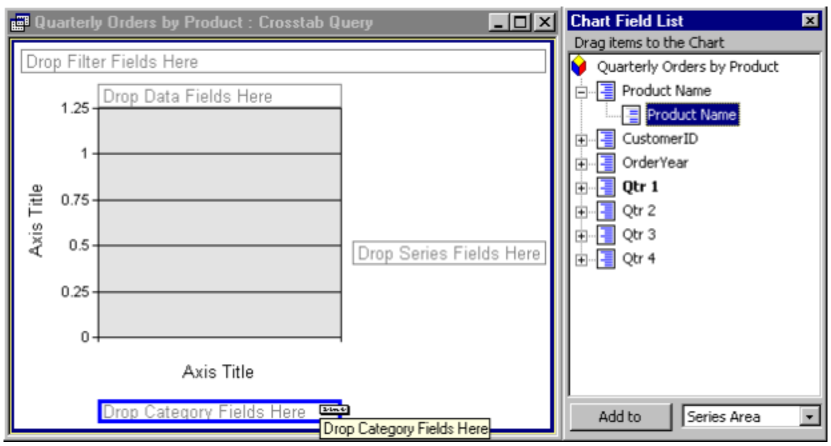


Selecting Elements of a PivotChart

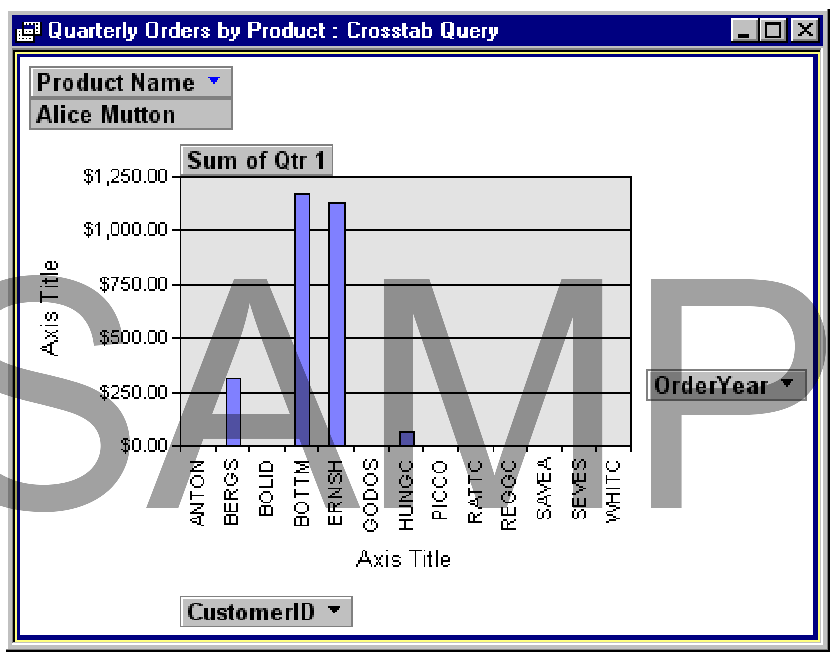
- There are four basic elements that can be added to a **PivotChart**. These elements are **data**, **series**, **category**, and **filters**.

To add elements to a PivotChart:

- Open a data source in **PivotChart** view.
- From the **Chart Field List**, drag and drop the desired field to one of the element areas in the **PivotChart** worksheet:



- Continue placing fields until all elements in the **PivotChart** are used:



Creating PivotTable Forms

Using the PivotTable AutoForm Wizard

- The **AutoForm Wizard** is useful for creating a **PivotTable** based on an existing data source.

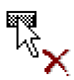
To create a PivotTable using the AutoForm Wizard:

- Click **Forms** in the **Objects** pane.
- Click the **New** button. This opens the **New Form** dialog box.
- Select AutoForm: PivotTable.
- Select a data source for the autoform from the drop-down menu.
- Click **OK**. This opens a blank **PivotTable** worksheet.
- Drag and drop the desired fields on the **PivotTable** worksheet.

Deleting Items from a PivotTable

- Open a **PivotTable** worksheet.
- Right-click on a field.
- From the pop-up menu, select **Remove**

OR drag the item off the **PivotTable** worksheet:

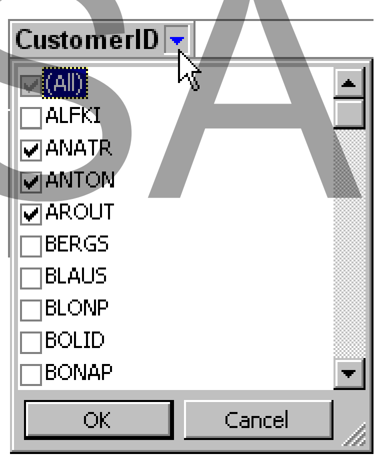


Filtering Items in the PivotTable List

- Filtering is useful for reducing the number of fields displayed or for displaying a specific record from a list of records.

To filter items in a PivotTable:

- Click the down arrow on the desired element:



- Check the field(s) to hide or display.

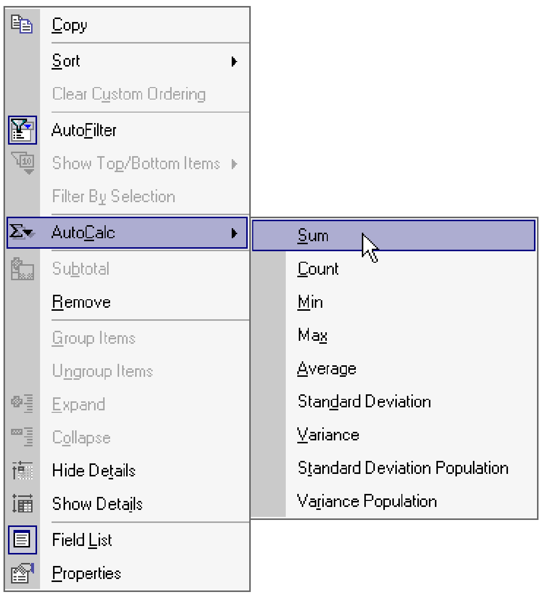
- Click **OK**.

Using the AutoCalc Feature

- Use the **AutoCalc** feature to perform pre-defined calculations such as **sum**, **count**, **average**, and **standard deviation**.

To use AutoCalc:

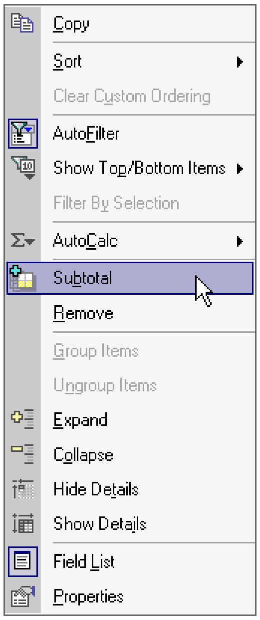
- Open a **PivotTable** worksheet.
- Right-click on a **PivotTable** element.
- From the pop-up menu, select **AutoCalc**.
- Select the desired pre-defined calculation from the **AutoCalc** sub-menu:



Displaying Subtotals

- Open a **PivotTable** worksheet.
- Right-click on a **PivotTable** element.

- From the pop-up menu, select **Subtotal**:



Creating PivotChart Forms

Using the PivotChart AutoForm Wizard

- The **AutoForm PivotChart Wizard** is useful for creating a **PivotChart** based on an existing data source.

To create a PivotChart using the AutoForm Wizard:

- Click **Forms** in the **Objects** pane.
- Click the **New** button. This opens the **New Form** dialog box.
- Select AutoForm: PivotChart.
- Select a data source for the autoform from the drop-down menu.
- Click **OK**. This opens a blank **PivotChart** worksheet.
- Drag and drop the desired fields on the **PivotChart** worksheet.

Deleting Items from a PivotChart

- Open a **PivotChart** form.
- Right-click on a field.
- From the pop-up menu, select **Remove**

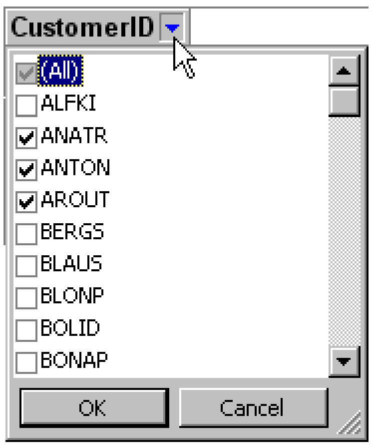
  OR drag the item off the **PivotChart** form:

Filtering Items in the PivotChart List

- Filtering is useful for reducing the number of items displayed on a chart or for displaying a single item on a chart.

To filter items in a PivotChart:

- Click the down arrow on the desired element:



- Check the field(s) to hide or display.
- Click **OK**.

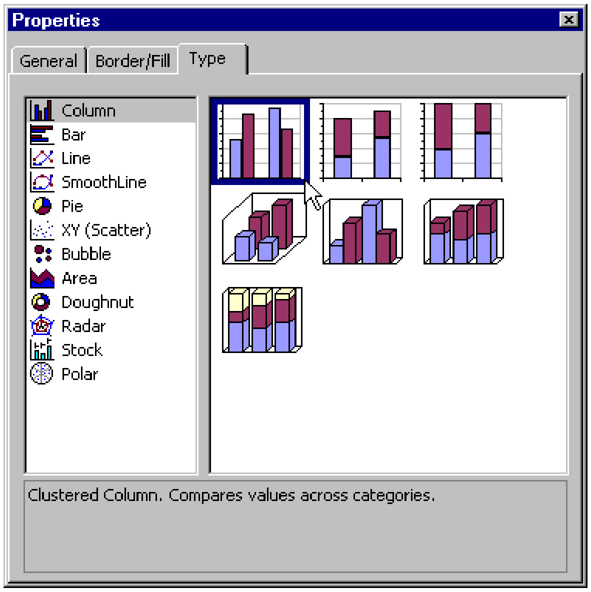
Changing PivotChart Types

- Common chart types available for PivotCharts include bar charts, line charts, pie charts, and scatter charts.

To change a PivotChart type:

- Open a **PivotChart** form.
- Right-click on the **PivotChart**.
- From the pop-up menu, select **Chart Type**. This opens the **Properties** dialog box.

- Select the desired chart type:



Review Questions

How would you:

- Create PivotTables?
- Create PivotCharts?
- Select Elements of a PivotTable?
- Select Elements of a PivotChart?
- Use the PivotTable AutoForm Wizard?
- Delete Items from a PivotTable?
- Filter Items in the PivotTable List?
- Use the AutoCalc Feature?
- Use the PivotChart AutoForm Wizard?
- Delete Items from a PivotChart?
- Filter Items in the PivotChart List?
- Change PivotChart Types?

Importing and Exporting

When you have completed this learning module you will have seen how to:

- Link to Text Files
- Link to Microsoft Excel Spreadsheets
- Link to HTML Files
- Link to Other Access Databases
- Link to a SQL Server ODBC Data Source
- Import from Excel Files
- Import from Other Access Databases
- Import from ODBC Data Sources
- Export to Files
- Export to Access Databases
- Export to ODBC Data Sources

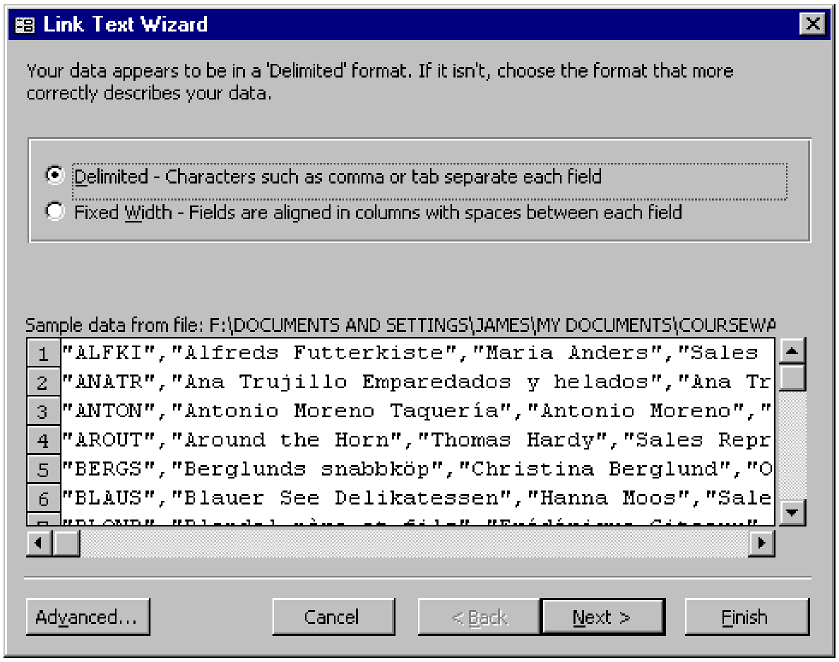
Linking to External Data Sources

Linking to Text Files

- Linking to external data sources is one of the more powerful features in Microsoft Access. Access supports linking to data in several different formats.

To link to an external text file:

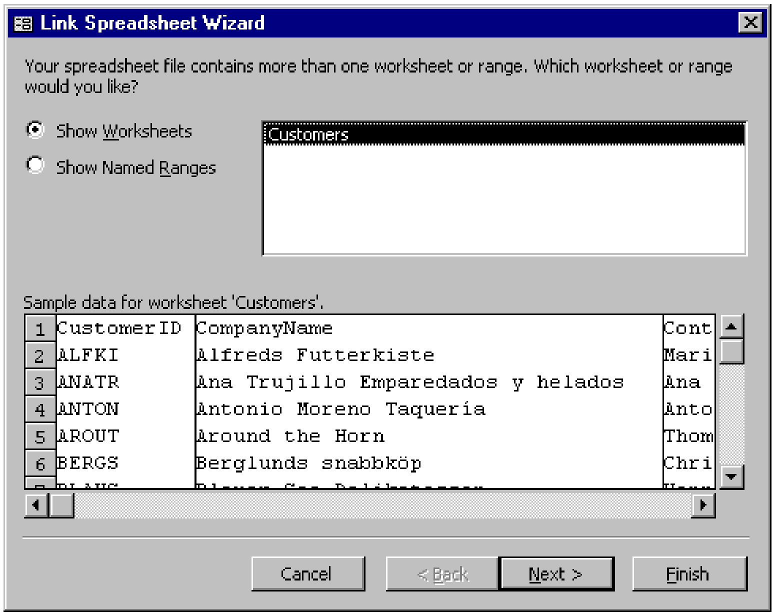
- Click **Tables** in the **Objects** pane.
- Click the **New** button. This opens the **New Table** dialog box.
- Select Link Table.
- Click **OK**. This opens the **Link** dialog box.
- From the Files of type drop-down menu, select Text Files (*.txt; *.csv; *.tab; *.asc).
- Browse to the location of the desired text file.
- Select the file.
- Click **Link**.
- This opens the **Link Text Wizard**:



- Depending on the type of **delimiter** selected, complete the wizard steps.

Linking to Microsoft Excel Spreadsheets

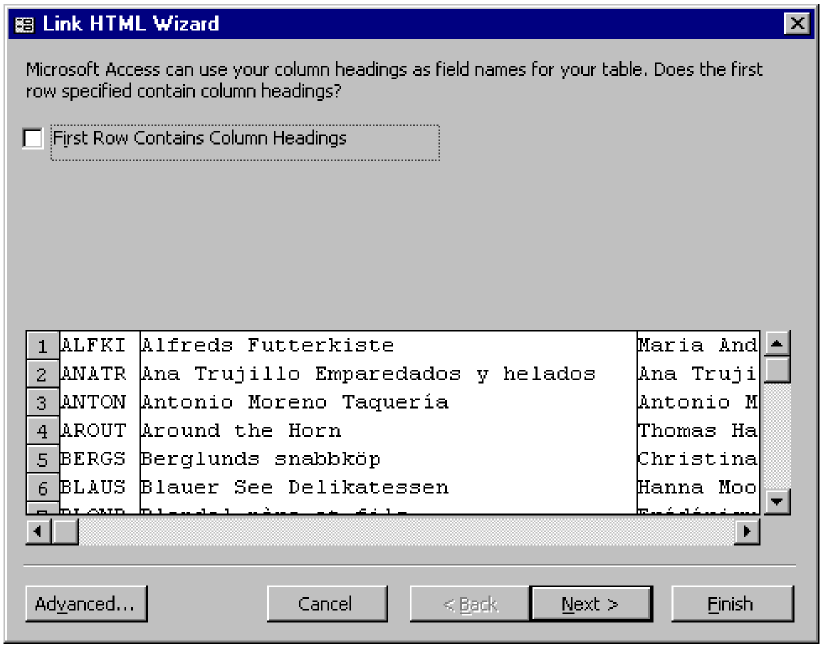
- Click **Tables** in the **Objects** pane.
- Click the **New** button. This opens the **New Table** dialog box.
- Select Link Table.
- Click **OK**. This opens the **Link** dialog box.
- From the Files of type drop-down menu, select Microsoft Excel (*.xls).
- Browse to the location of the desired Excel spreadsheet file.
- Select the file.
- Click **Link**.
- This opens the Link Spreadsheet Wizard:



- Complete the wizard steps.

Linking to HTML Files

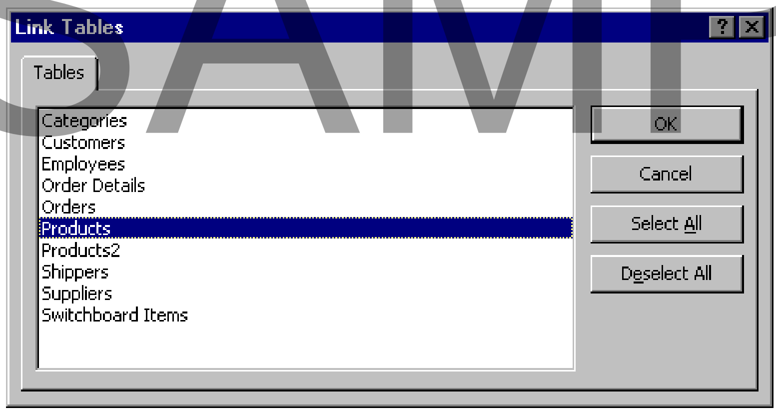
- Click **Tables** in the **Objects** pane.
- Click the **New** button. This opens the **New Table** dialog box.
- Select Link Table.
- Click **OK**. This opens the **Link** dialog box.
- From the Files of type drop-down menu, select HTML Documents (*.html; *.htm).
- Browse to the location of the desired HTML file.
- Select the file.
- Click **Link**.
- This opens the **Link HTML Wizard**:



- Complete the wizard steps.

Linking to Other Access Databases

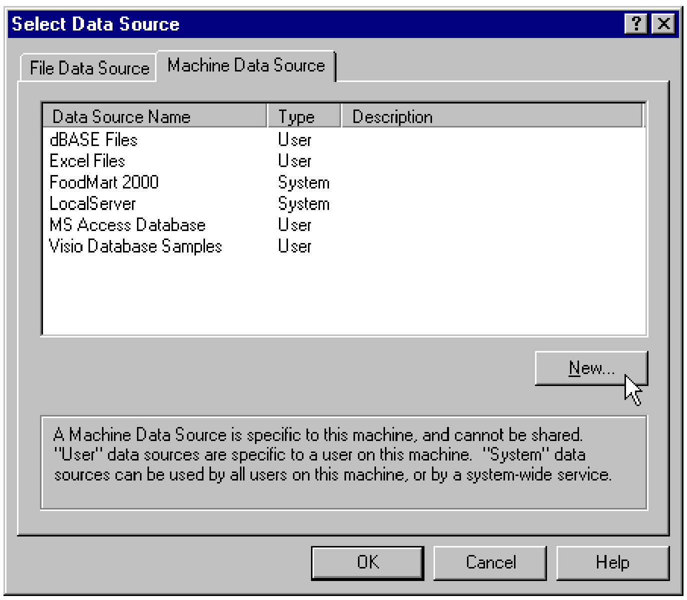
- Click **Tables** in the **Objects** pane.
- Click the **New** button. This opens the **New Table** dialog box.
- Select Link Table.
- Click **OK**. This opens the **Link** dialog box.
- From the Files of type drop-down menu, select Microsoft Access (*.mdb; *.mda; *.mde).
- Browse to the location of the desired Access database file.
- Select the file.
- Click **Link**. This opens the **Link Tables** dialog box:



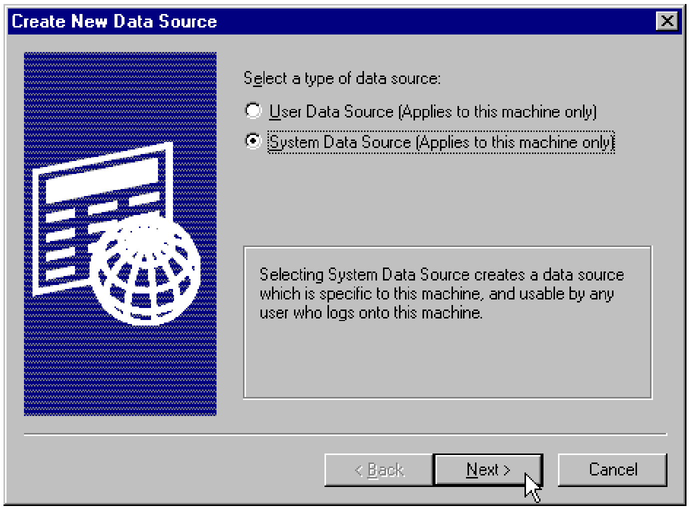
- Select the desired tables.
- Click **OK**.

Linking to a SQL Server ODBC Data Source

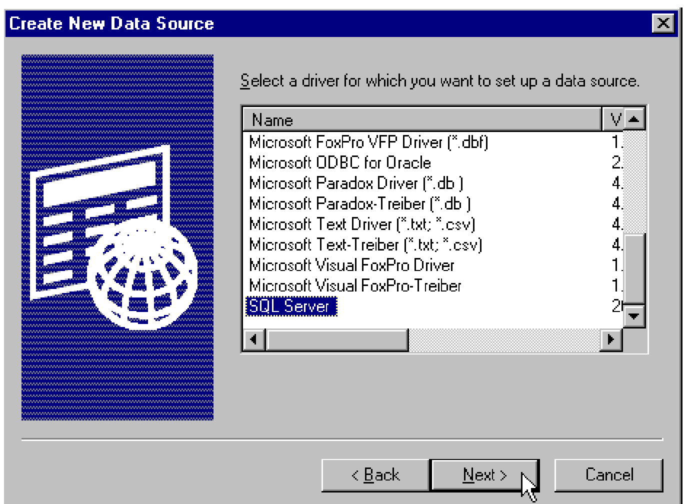
- Click **Tables** in the **Objects** pane.
- Click the **New** button. This opens the **New Table** dialog box.
- Select Link Table.
- Click **OK**. This opens the **Link** dialog box.
- From the **Files of type** drop-down menu, select **ODBC Databases()**. This opens the **Select Data Source** dialog box.
- Click the Machine Data Source tab.
- Click the **New** button:



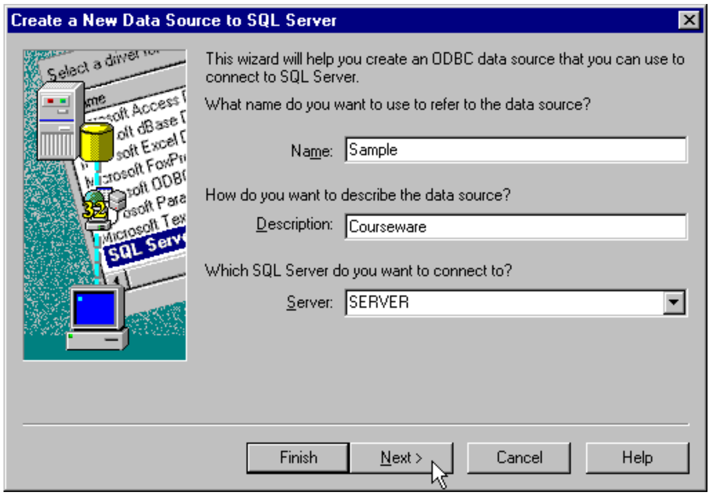
- This opens the **Create New Data Source** wizard.
- Select the desired type of data source.
- Click **Next**:



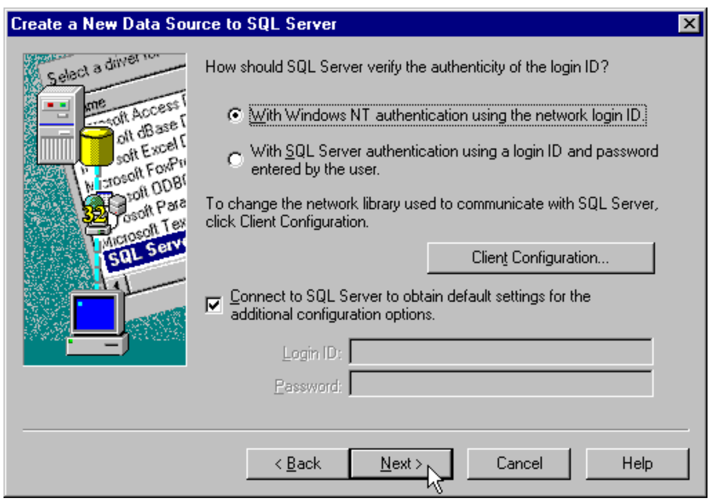
- Select the desired data source driver.
- Click **Next**:



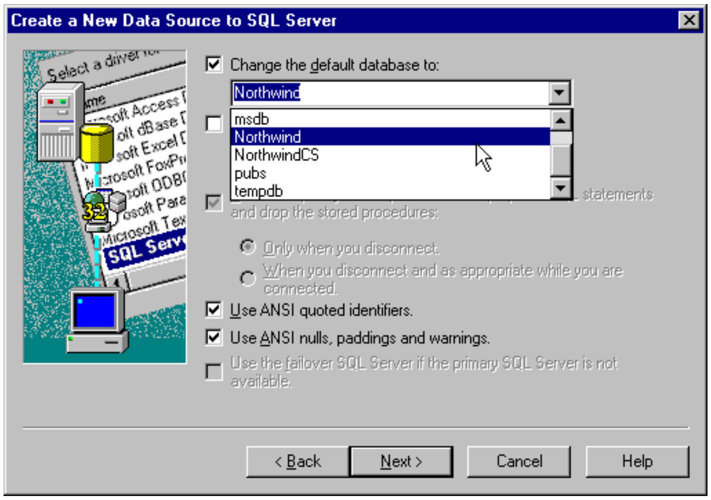
- Click **Finish**. This opens the Create a New Data Source to SQL Server dialog box.
- Complete the blank fields in the dialog box:



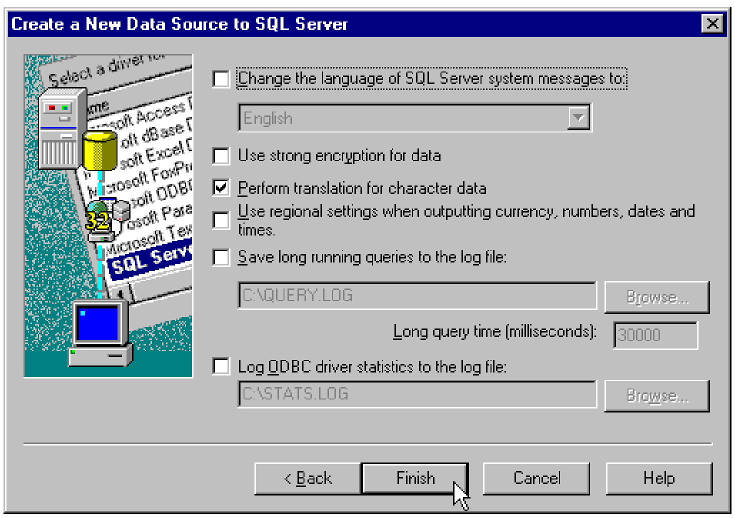
- Click **Next**.
- Select the desired authentication method:



- Click **Next**.
- Select the desired database from the drop-down menu:

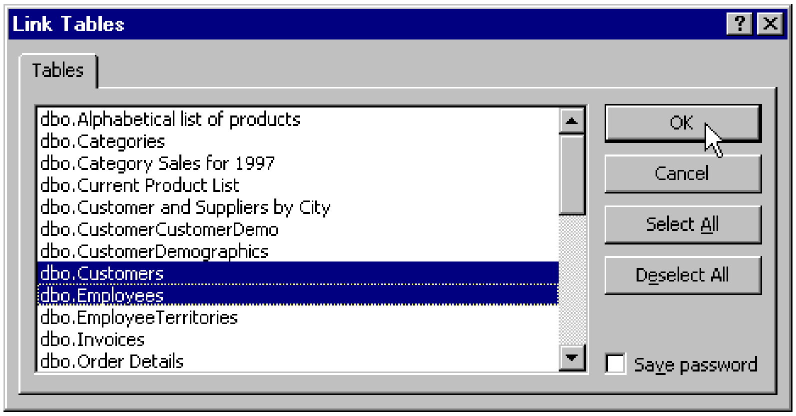


- Click **Next**.
- Select the desired ODBC connection properties:



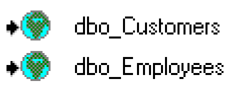
- Click **Finish**. This opens the **Test Data Source** pop-up window.
- Click **OK**.
- Click **OK** again. This opens the **Link Tables** dialog box.

- Select the desired tables from the list:



- Click **OK**.

Note: The linked ODBC data source appears in the **tables** window as a green globe icon with an arrow:



Importing Data into Access

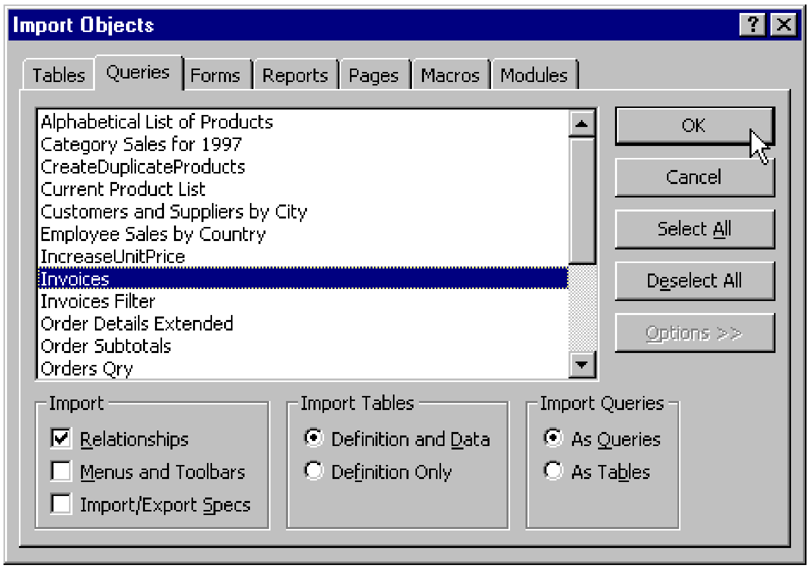
Importing from Excel Files

- Click **Tables** in the **Objects** pane.
- Click the **New** button. This opens the **New Table** dialog box.
- Select Import Table.
- Click **OK**. This opens the **Import** dialog box.
- From the Files of type drop-down menu, select Microsoft Excel (*.xls).
- Browse to the location of the desired Excel spreadsheet file.
- Select the file.
- Click **Import**.
- Complete the wizard steps.

Importing from Other Access Databases

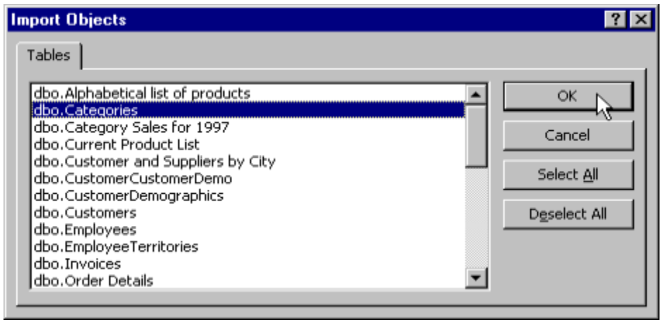
- Click **Tables** in the **Objects** pane.
- Click the **New** button. This opens the **New Table** dialog box.
- Select Import Table.
- Click **OK**. This opens the **Import** dialog box.

- From the Files of type drop-down menu, select Microsoft Access (*.mdb; *.adp; *.mda; *.mde; *.ade).
- Browse to the location of the desired Access database file.
- Select the file.
- Click **Import**. This opens the **Import Objects** dialog box.
- Click on the desired object tab.
- Select the object to import.
- Click **OK**:



Importing from ODBC Data Sources

- Click **Tables** in the **Objects** pane.
- Click the **New** button. This opens the **New Table** dialog box.
- Select Import Table.
- Click **OK**. This opens the **Import** dialog box.
- From the **Files of type** drop-down menu, select **ODBC Databases()**. This opens the **Select Data Source** dialog box.
- Select the desired data source.
- Click **OK**. This opens the **Import Objects** dialog box.
- Select the table(s) to import.
- Click **OK**:



Note: Linking and importing are similar functions. The main difference is that a linked data source retains the data externally whereas imported data is stored in the Access database.

Exporting Data from Access

Exporting to Files

- Data can be exported from a table or query to a variety of file types including **text**, **Excel**, and **XML**.

To export data to a file:

- Select the desired table or query to export.
- From the main menu, select **File > Export**. This opens the **Export To** dialog box.
- From the **Save as type** drop-down menu, select the desired file type.
- Click **Export**.
- Depending on the file type selected, follow the wizard steps.

Exporting to Access Databases

- Select the desired table or query to export.
- From the main menu, select **File > Export**. This opens the **Export To** dialog box.
- From the Files of type drop-down menu, select Microsoft Access (*.mdb; *.adp; *.mda; *.mde; *.ade).
- Browse to the location of the desired Access database file.
- Click **Export**. This opens the **Export** dialog box.
- Type the name of the destination object.
- Click **OK**.

Exporting to ODBC Data Sources

- Select the desired table or query to export.
- From the main menu, select **File > Export**. This opens the **Export To** dialog box.
- From the **Files of type** drop-down menu, select **ODBC Databases()**. This opens the **Export** dialog box.
- Type the name of the destination object.
- Click **OK**. This opens the **Select Data Source** dialog box.
- Select the desired data source.
- Click **OK**.

Review Questions

How would you:

- Link to Text Files?
- Link to Microsoft Excel Spreadsheets?
- Link to HTML Files?
- Link to Other Access Databases?
- Link to a SQL Server ODBC Data Source?
- Import from Excel Files?
- Import from Other Access Databases?
- Import from ODBC Data Sources?
- Export to Files?
- Export to Access Databases?
- Export to ODBC Data Sources?

Building Expressions

When you have completed this learning module you will have seen how to:

- Use the Expression Builder in Queries
- Use the Expression Builder in Forms
- Use the Expression Builder in Reports
- Use Date/Time Functions
- Use Financial Functions
- Use Math Functions
- Use Text Functions

Using the Expression Builder

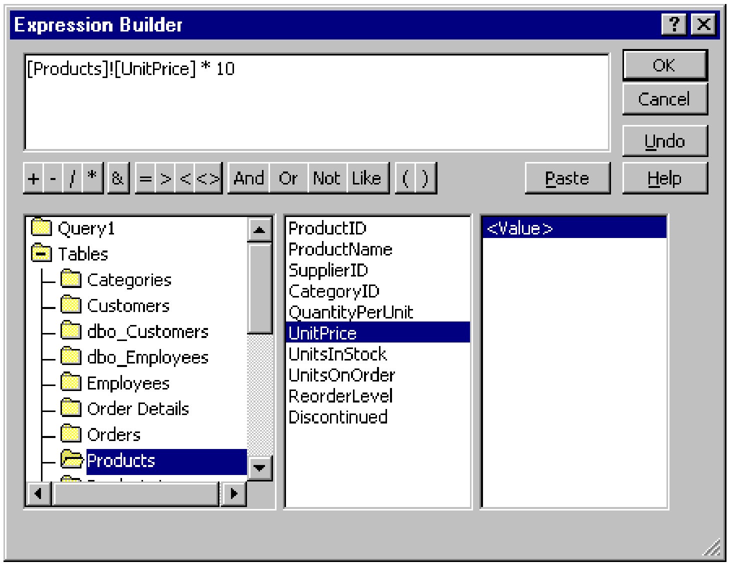
Using the Expression Builder in Queries

- The **Expression Builder** is a graphical tool used to create complex formulas. The **Expression Builder** can be used with any object that supports expressions including queries, forms, and reports.

To create an expression in a query using the Expression Builder:

- Open a query in **Design** view.
- Click in a field on the query grid.
- Click the **Build** button on the **Query Design** toolbar:

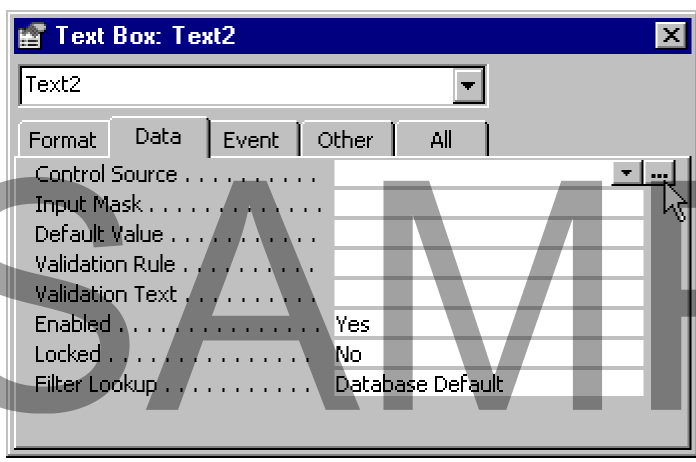
- This opens the Expression Builder.
- Build an expression using an item from the field list:



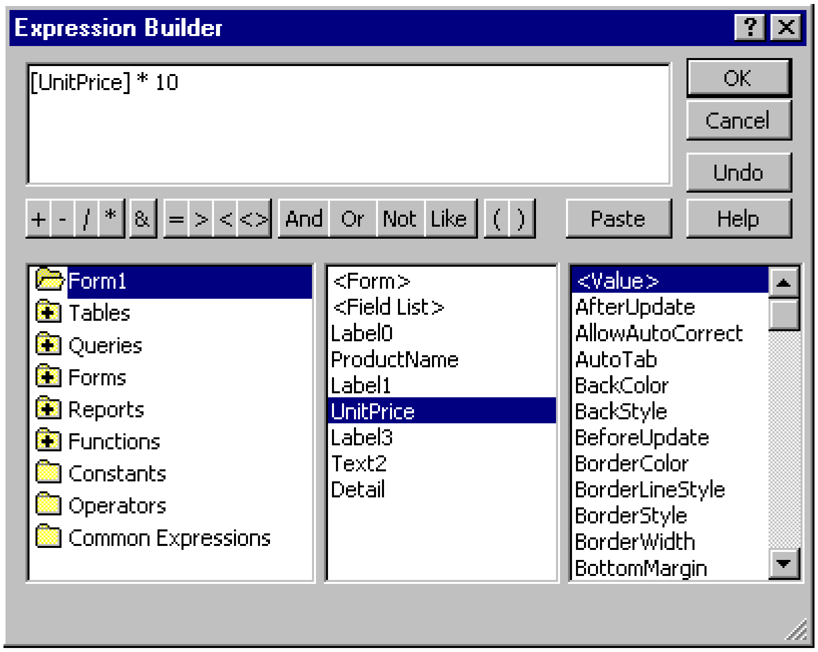
- Click **OK**.
- **Run** the query to see the results.

Using the Expression Builder in Forms

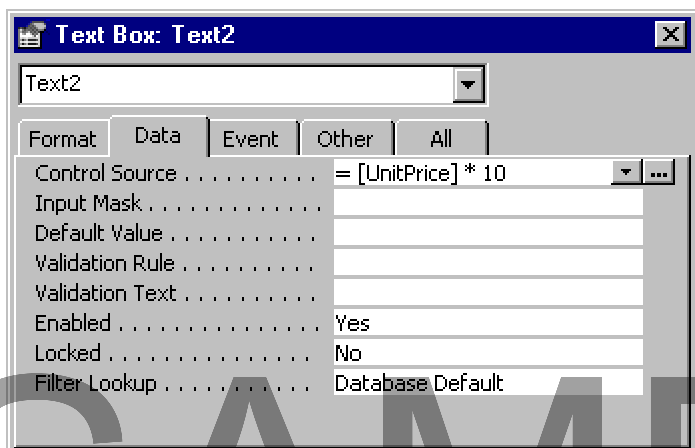
- Open a form in **Design** view.
- Double-click on a control in the form.
- Click the **Data** tab.
- Click the ellipses next to the **Control Source** field:



- This opens the Expression Builder.
- Build an expression using an item from the field list:



- Click **OK**.
- Notice the format of the **Control Source** expression:



- **View** the form to see the results.

Using the Expression Builder in Reports

- Open a report in **Design** view.
- Double-click on a control in the form.
- Click the **Data** tab.
- Click the ellipses next to the **Control Source** field. This opens the **Expression Builder**.
- Build an expression using an item from the field list.
- Click **OK**.

- **View** the report to see the results.

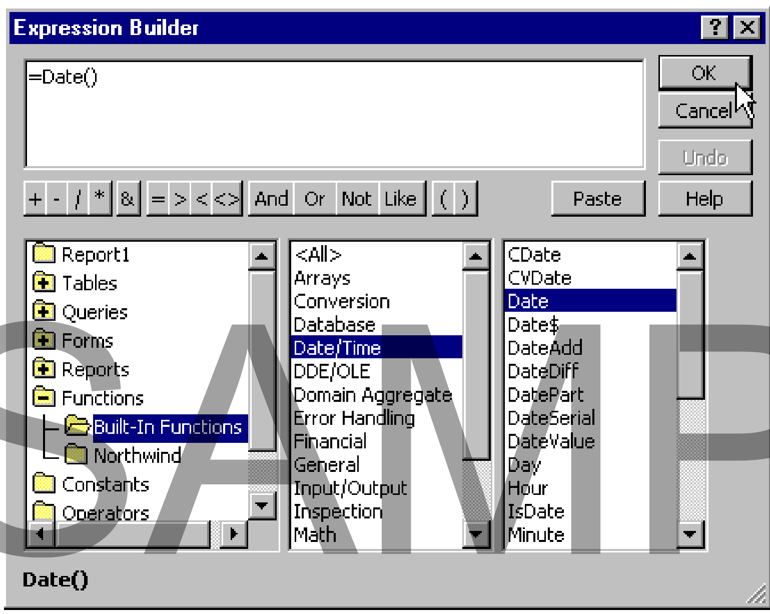
Using Common Built-in Functions

Using Date/Time Functions

- The **Date/Time** function is useful for displaying the date and time on a report header or footer or form header or footer.

To add a date/time function to a report:

- Open a report in **Design** view.
- Add a blank **Text Box** control to the report.
- Double-click on the control.
- Click the **Data** tab.
- Click the ellipses next to the **Control Source** field. This opens the **Expression Builder**.
- From the field list, select **Functions > Built-In Functions > Date/Time > Date**.
- Double-click **Date** to add it to the control:



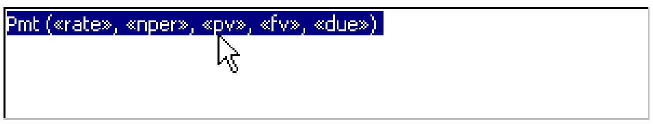
- Click **OK**.
- **View** the report to see the results.

Using Financial Functions

- **Financial** functions are useful for displaying complex financial calculations on a form or report. Financial functions such as present value, future value, and internal rate of return are available.

To add a financial function to a report:

- Open a report in **Design** view.
- Add a blank **Text Box** control to the report.
- Double-click on the control.
- Click the **Data** tab.
- Click the ellipses next to the **Control Source** field. This opens the **Expression Builder**.
- From the field list, select **Functions > Built-In Functions > Financial**.
- Add the desired function.
- Replace the generic elements with the desired values.



- Click **OK**.

  Note: If no explicit values are specified, Access will prompt for values when the form or report is opened.

Using Math Functions

- **Math** functions are useful for displaying advanced mathematical calculations on a form or report. **Math** functions such as sine, cosine, tangent, and logarithm are available.

To add a math function to a report:

- Open a report in **Design** view.
- Add a blank **Text Box** control to the report.
- Double-click on the control.
- Click the **Data** tab.
- Click the ellipses next to the **Control Source** field. This opens the **Expression Builder**.
- From the field list, select **Functions > Built-In Functions > Math**.
- Add the desired function.
- Replace the generic elements with the desired value.
- Click **OK**

Using Text Functions

- **Text** functions are useful for manipulating text and string values. Text functions such as left trim, right trim, length, and replace are available.

To add a text function to a report:

- Open a report in **Design** view.
- Add a blank **Text Box** control to the report.
- Double-click on the control.
- Click the **Data** tab.
- Click the ellipses next to the **Control Source** field. This opens the **Expression Builder**.
- From the field list, select **Functions > Built-In Functions > Text**.
- Add the desired function.
- Replace the generic elements with the desired value.
- Click **OK**

Review Questions

How would you:

- Use the Expression Builder in Queries?
- Use the Expression Builder in Forms?
- Use the Expression Builder in Reports?
- Use Date/Time Functions?
- Use Financial Functions?
- Use Math Functions?
- Use Text Functions?