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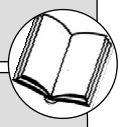

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Quick reference: Access shortcut keys

Command	Keystroke
Add new record	Ctrl +
Builder	Ctrl-F2
Check/uncheck box or option button	spacebar
Close	Ctrl-W
Copy	Ctrl-C
Cut	Ctrl-X
Cut current line and copy to Clipboard	Ctrl-Y
Cycle through sections	F6/Shift-F6
Cycle through tab of each object's type (toggle)	Ctrl-Tab/Shift-Ctrl-Tab
Database window	F11
Delete current record	Ctrl -
Edit/Navigation mode (toggle)	F2
Exit subform and move to next/previous field in next record	Ctrl-Tab/Shift-Tab
Extend selection to next/previous record	Shift-Dn/Up
File/Save As	F12
Find	Ctrl-F
Find Next	Shift-F4
Find Previous	Shift-F3
GoTo	Ctrl-G
Insert current date	Ctrl ;
Insert current time	Ctrl :
Insert default value	Ctrl-Alt-spacebar
Insert new line	Ctrl-Enter
Insert value from same field in previous record	Ctrl '
Menu bar	F10
Move to beginning/end of multiple-line field	Ctrl-Home/End
Move to current field in first/last record (Navigation mode)	Ctrl-Up/Dn
Move to first field in first record (Navigation mode)	Ctrl-Home
Move to first/last field in current record (Navigation mode)	Home/End
Move to last field in last record (Navigation mode)	Ctrl-End
Move to left edge of page	Home or Ctrl-Left
Move to page number/record number box	F5
Move to right edge of page	End or Ctrl-Right
Next window	Ctrl-F6
Open combo box	F4
Open in Design view	Ctrl-Enter

Quick reference: Access shortcut keys

Command	Keystroke
Paste	Ctrl-V
Print	Ctrl-P
Property sheet	Alt-Enter
Refresh combo box	F9
Replace	Ctrl-H
Requery underlying tables in subform	Shift-F9
Save current record	Shift-Enter
Screen left/right	Ctrl-PgUp/PgDn
Select/unselect column (Navigation mode)	Ctrl-spacebar
Switch to Form view	F5
Turn on Move mode	Ctrl-F8
Undo	Ctrl-Z
Undo previous extension	Shift-F8
Zoom box	Shift-F2

Course Objectives

1. Create relational databases
2. Work with related tables
3. Define data entry rules
4. Use advanced query features
5. Create advanced queries
6. Create advanced form design
7. Use advanced report features

Creating relational databases

Unit 1 objectives

- Normalize tables to reduce data redundancy
- Set relationships between tables
- Implement referential integrity between related tables

Your notes: Unit 1

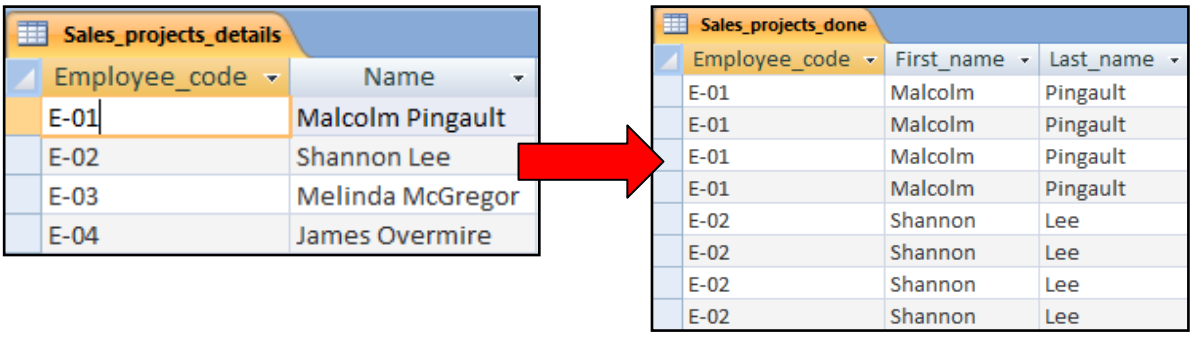
Your notes: Unit 1

Visual summary: Unit 1 objectives

Normalization

First normal form:

- Break fields down into smallest parts.



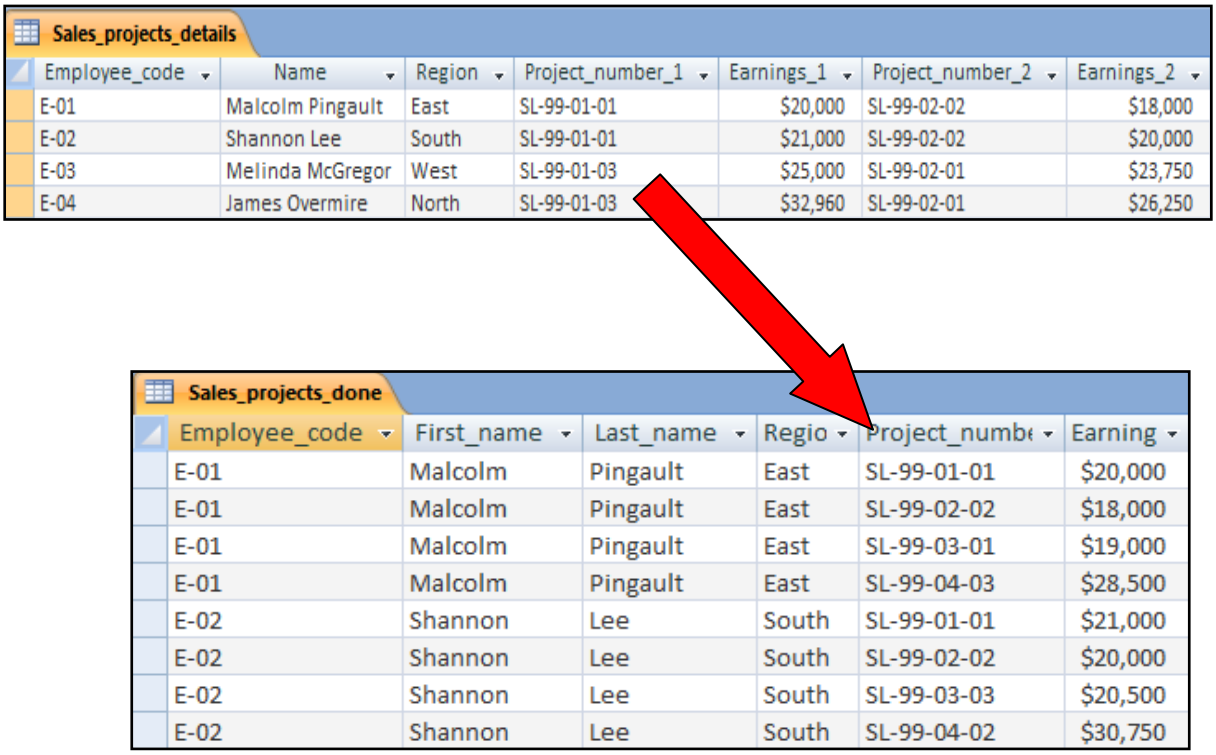
Sales_projects_details

Employee_code	Name
E-01	Malcolm Pingault
E-02	Shannon Lee
E-03	Melinda McGregor
E-04	James Overmire

Sales_projects_done

Employee_code	First_name	Last_name
E-01	Malcolm	Pingault
E-01	Malcolm	Pingault
E-01	Malcolm	Pingault
E-01	Malcolm	Pingault
E-02	Shannon	Lee
E-02	Shannon	Lee
E-02	Shannon	Lee
E-02	Shannon	Lee

- Remove repeating Fields



Sales_projects_details

Employee_code	Name	Region	Project_number_1	Earnings_1	Project_number_2	Earnings_2
E-01	Malcolm Pingault	East	SL-99-01-01	$20,000	SL-99-02-02	$18,000
E-02	Shannon Lee	South	SL-99-01-01	$21,000	SL-99-02-02	$20,000
E-03	Melinda McGregor	West	SL-99-01-03	$25,000	SL-99-02-01	$23,750
E-04	James Overmire	North	SL-99-01-03	$32,960	SL-99-02-01	$26,250

Sales_projects_done

Employee_code	First_name	Last_name	Regio	Project_numbe	Earning
E-01	Malcolm	Pingault	East	SL-99-01-01	$20,000
E-01	Malcolm	Pingault	East	SL-99-02-02	$18,000
E-01	Malcolm	Pingault	East	SL-99-03-01	$19,000
E-01	Malcolm	Pingault	East	SL-99-04-03	$28,500
E-02	Shannon	Lee	South	SL-99-01-01	$21,000
E-02	Shannon	Lee	South	SL-99-02-02	$20,000
E-02	Shannon	Lee	South	SL-99-03-03	$20,500
E-02	Shannon	Lee	South	SL-99-04-02	$30,750

- Remove Calculated Fields

Visual summary: Unit 1 objectives

Second normal form:

- Find all fields related to only part of composite primary key

Sales_projects_done

Field Name	Data Type
Employee_code	Text
First_name	Text
Last_name	Text
Region	Text
Project_number	Text
Earnings	Number

- Group these fields into another table

Sales_projects_done

Employee_code	First_name	Last_name	Region	Project_number	Earnings
E-01	Malcolm	Pingault	East	SL-99-01-01	$20,000
E-01	Malcolm	Pingault	East	SL-99-02-02	$18,000
E-01	Malcolm	Pingault	East	SL-99-03-01	$19,000
E-01	Malcolm	Pingault	East	SL-99-04-03	$28,500
E-02	Shannon	Lee	South	SL-99-01-01	$21,000
E-02	Shannon	Lee	South	SL-99-02-02	$20,000
E-02	Shannon	Lee	South	SL-99-03-03	$20,500
E-02	Shannon	Lee	South	SL-99-04-02	$30,750

Sales_employees

Employee_code	First_name	Last_name	Region
E-01	Malcolm	Pingault	East
E-02	Shannon	Lee	South
E-03	Melinda	McGregor	West
E-04	James	Overmire	North

Sales_employees

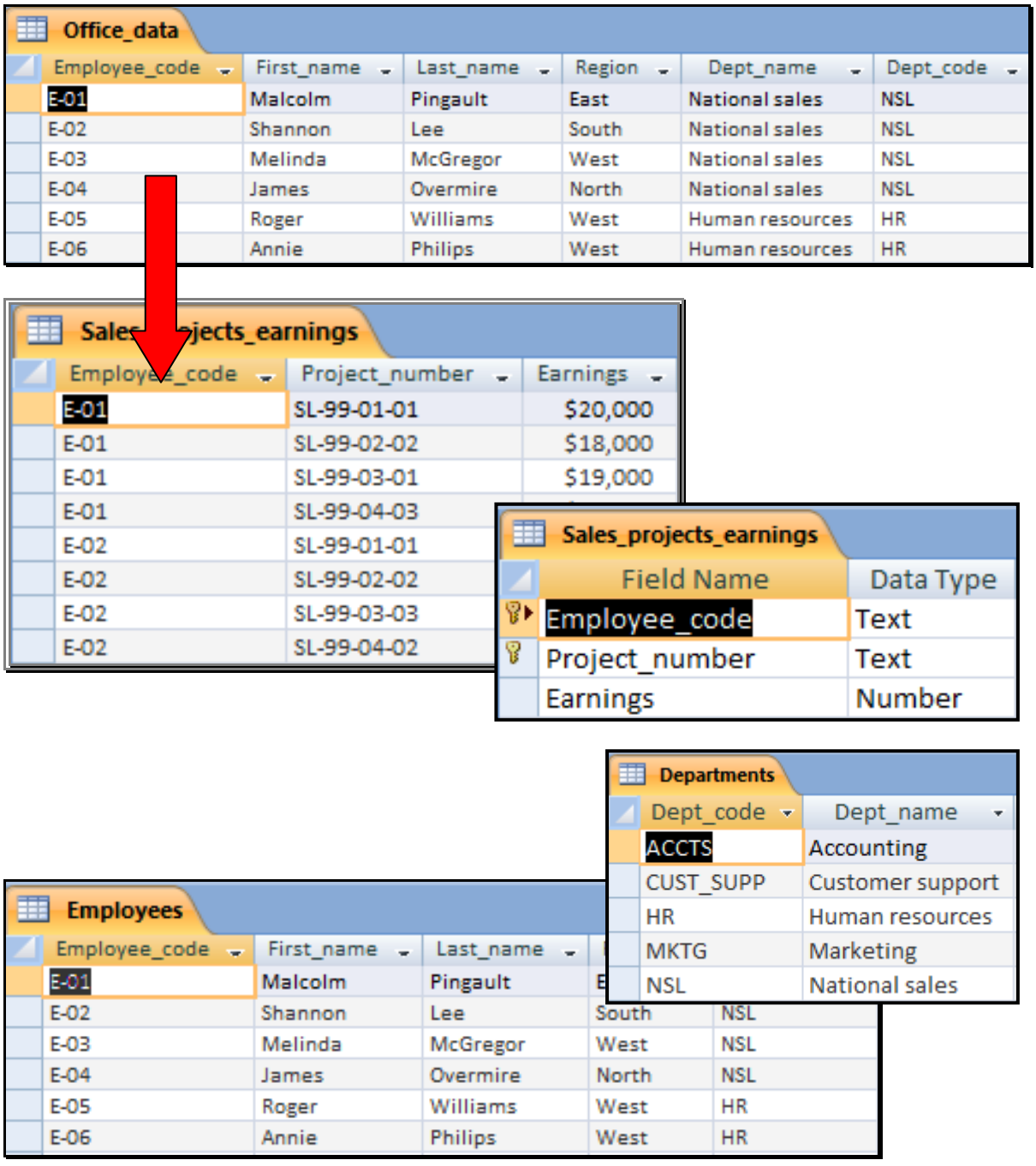
Field Name	Data Type
Employee_code	Text
First_name	Text
Last_name	Text
Region	Text

- All remaining fields should directly relate to both of the fields of the composite key and so forming a table which is in 2nd Normal Form.

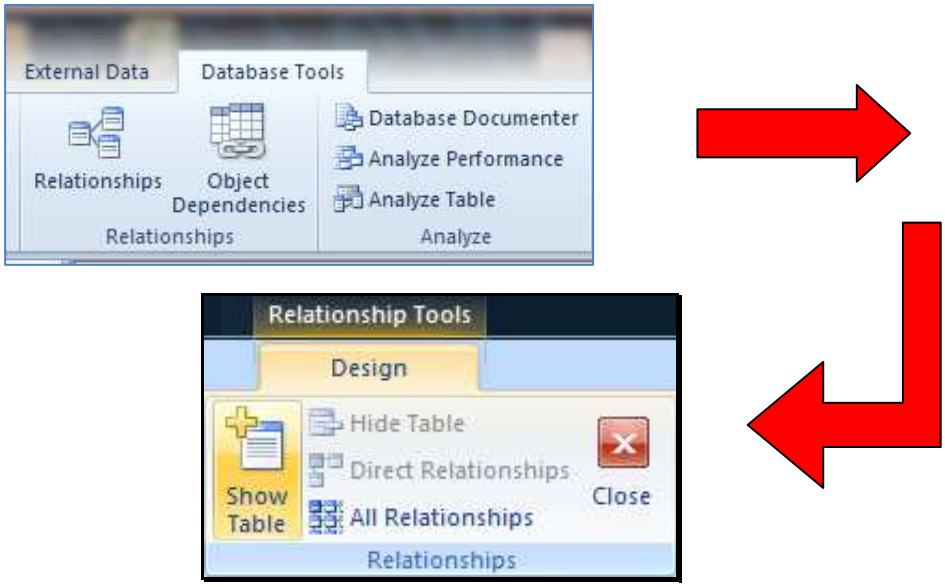
Visual summary: Unit 1 objectives

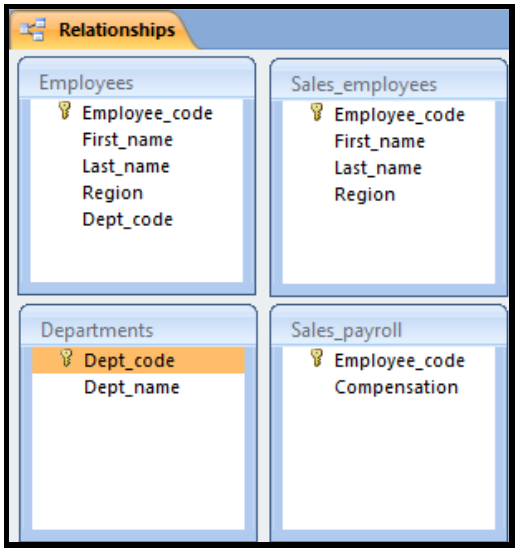
Third normal form:

- Table is in the first normal form
- All fields relate to the primary key (Remove Transient Dependencies)

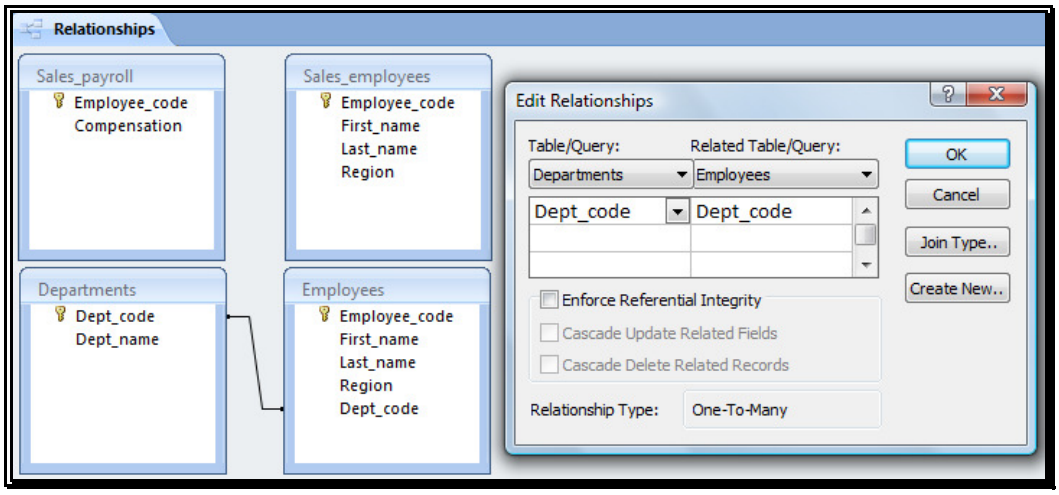


Relating Tables





By dragging similar fields from different tables over each other a relationship can be built.



Unit 1 Practice Activity

1. Open **Relational Databases.accdb**.
2. Open the Relationships window.
3. Create a one-to-many relationship between the **Retailer** and **Transaction** tables. The relationship should include all of the records from **Retailer** and only those records from **Transaction** where the joined fields are equal.
4. Create a many-to-many relationship between the Retailer and Product tables by creating a one-to-many relationship between the Product and Transaction tables.
5. Save the relationships.
6. Enforce cascading deletes between the Retailer and Transaction tables.
7. Update the Relationships.
8. Test cascading deletes between the Retailer and Transaction tables.
9. Enforce Cascading updates between the Retailer and Transaction tables.
10. Update the relationship.
11. Test cascading updates between the Retailer and Transaction tables.
12. Close the database.

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Working with related tables

Unit 2 objectives

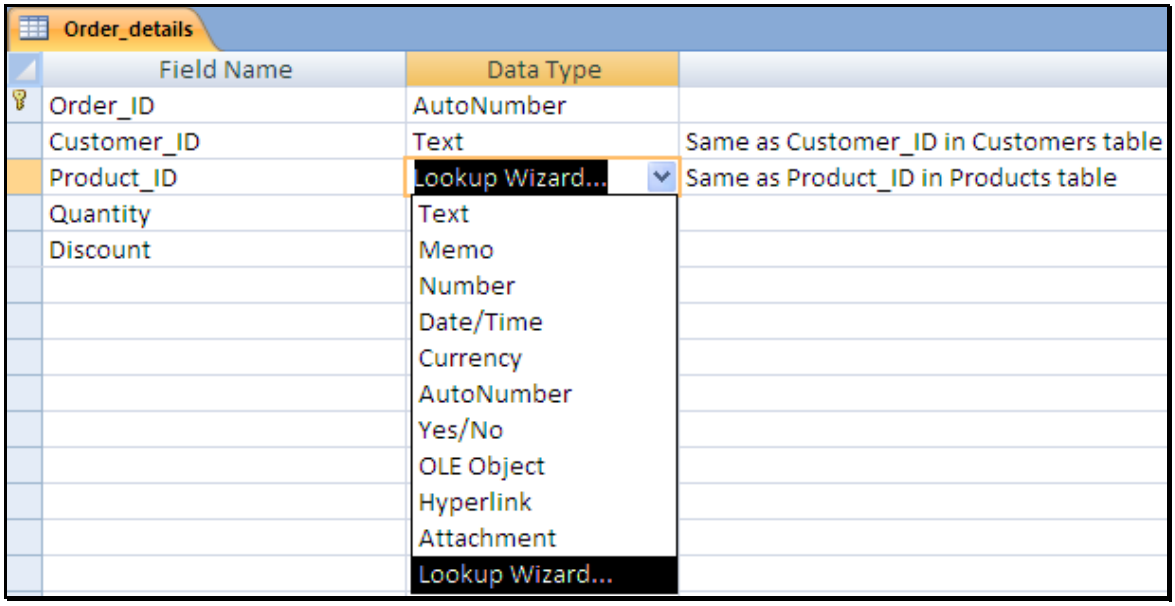
- Use the Lookup Wizard to create a Lookup list field
- Use Design view to modify Lookup field properties
- Use a subdatasheet to add data to related tables

Your notes: Unit 2

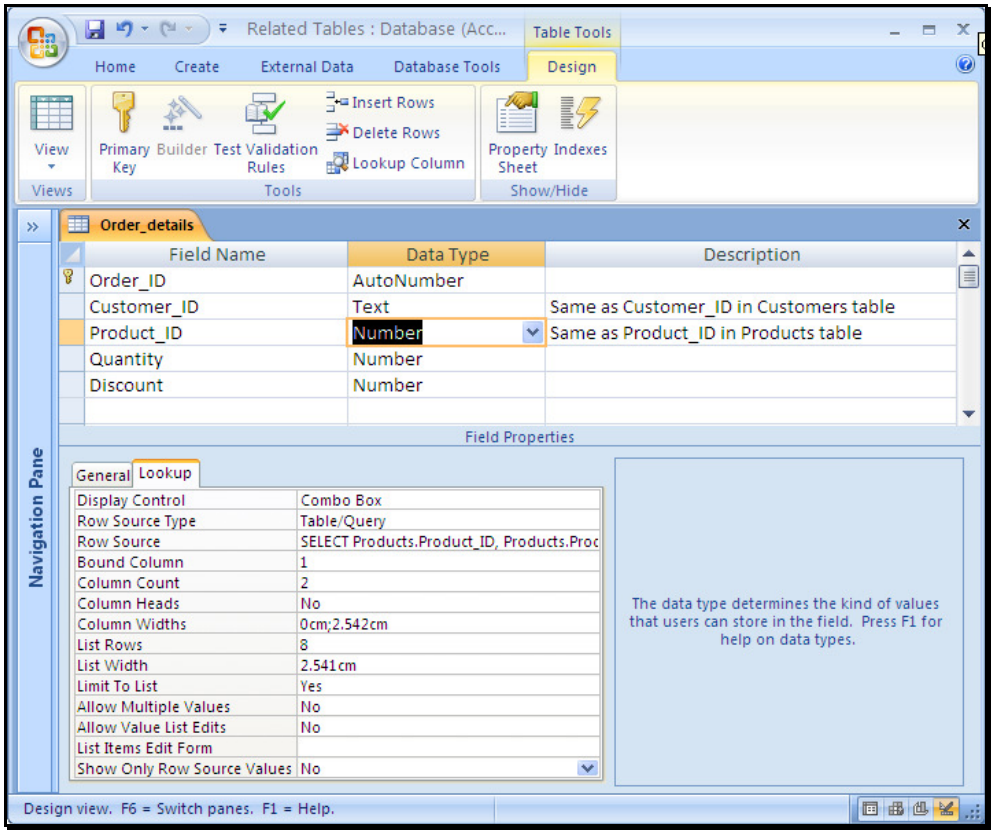
Your notes: Unit 2

Visual summary: Unit 2 objectives

Using the Lookup Wizard



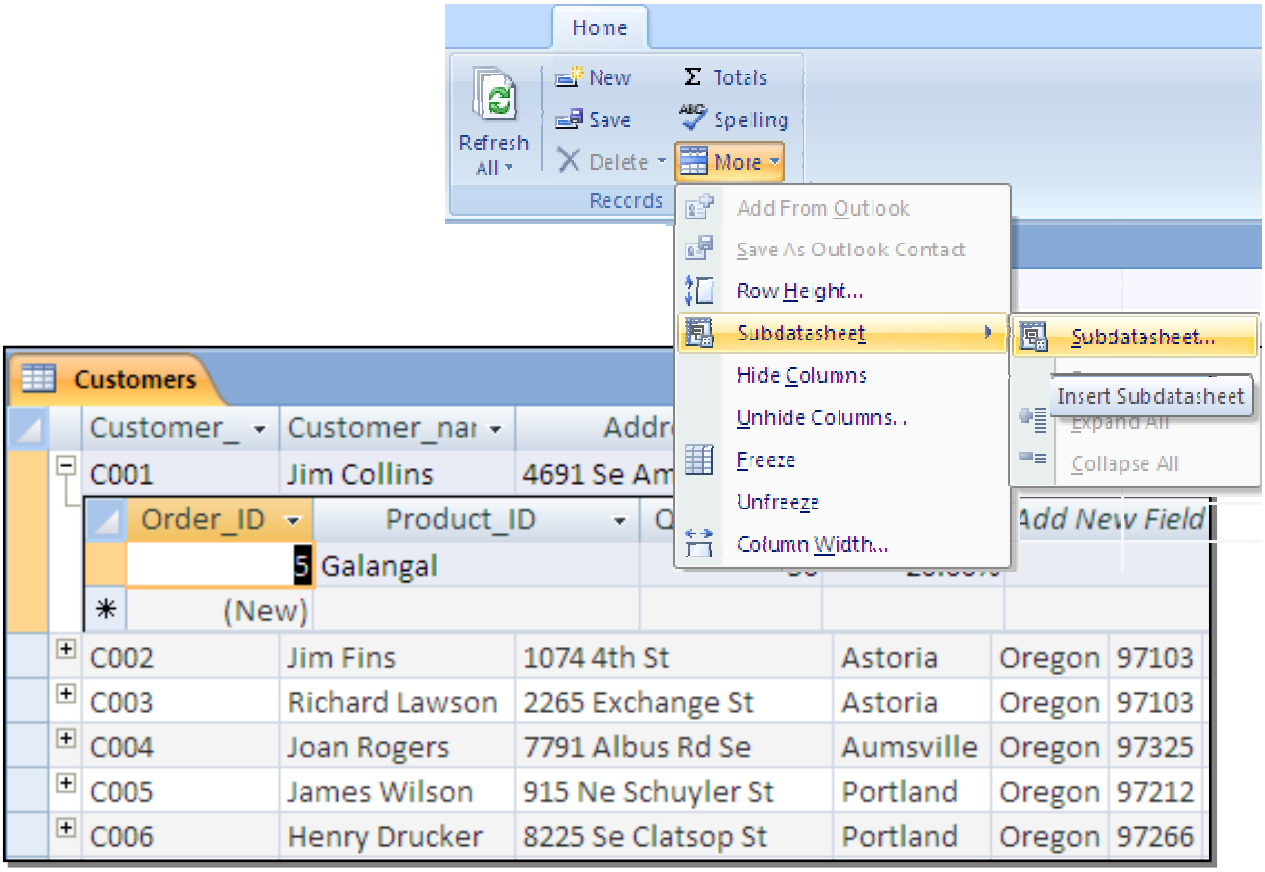
Modifying Lookup Fields



Visual summary: Unit 2 objectives

Adding Data to Related Tables

Using a subdatasheet.



Unit 2 Practice Activity

1. Open **Working_with_related_tables.accdb**.
2. In the Transaction table, create a Lookup list for Retailer_code by using the Retailer_code field from the Retailer table.
3. In the Transaction table, create a Lookup list for Product_ID to display product names from the Product table.
4. Update the table.
5. Add a record to the Transaction table by using the Lookup lists as shown below:

   Transaction_ID: T011

   Product_name: Cinnamon Ground

   Retailer_code: R005

   Qty_sold: 350

6. Update the table.
7. Change the caption of the Product_ID column in the Transaction table to Product.
8. Update the table.
9. View the contents of the Transaction table.
10. Compare the table with the example shown below.

Transaction

Transaction_ID	Product_ID	Retailer_code	Qty_sold
T001	Annatto Seed	R001	150
T002	Cloves	R002	400
T003	Asafoetida Powder	R002	110
T004	Basil Leaf	R003	140
T005	Anise Seeds	R004	120
T006	Cinnamon Ground	R005	100
T007	Lemon Grass	R006	100
T008	Italian Parsley	R007	321
T009	Anise Seeds	R008	200
T010	Basil Leaf	R004	250
T011	Cinnamon Ground	R005	350

Practice activity continues on the following page

Unit 2 Practice Activity continued

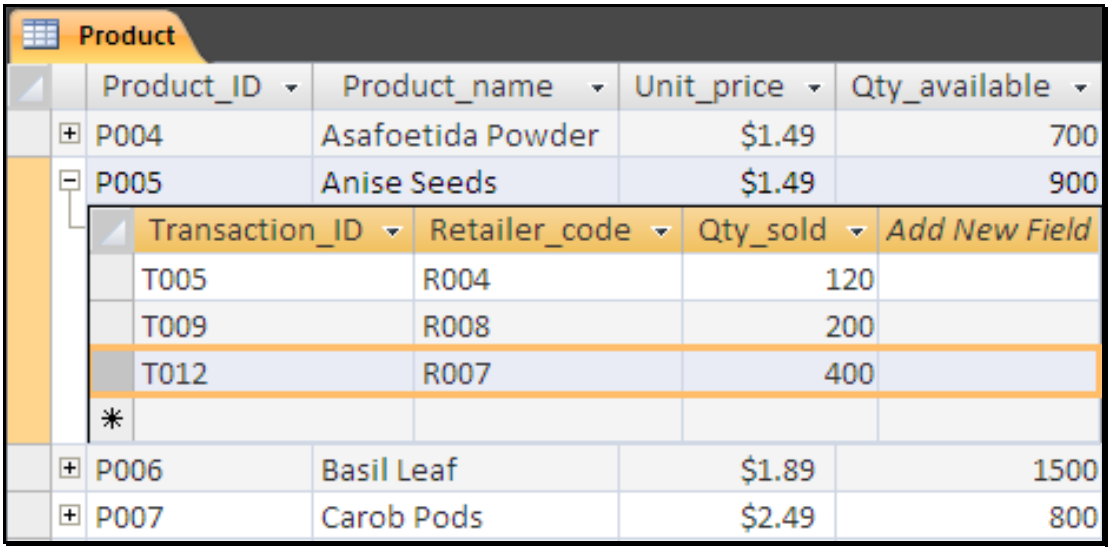
11. Close the table.
12. Insert the Transaction table as a subdatasheet in the Product table.
13. Add a record in the Transaction table for the Product_ID P005 in the product table as shown below:

    Transaction_ID: T012

    Retailer_code: R007

    Qty_sold: 400

14. Update and close the table.
15. View the record in the Transaction table that you entered in Step 13.
16. Close the table.
17. Close the database.



Product

Product_ID	Product_name	Unit_price	Qty_available
P004	Asafoetida Powder	$1.49	700
P005	Anise Seeds	$1.49	900

Transaction_ID	Retailer_code	Qty_sold	Add New Field
T005	R004	120	
T009	R008	200	
T012	R007	400	
*			

P006	Basil Leaf	$1.89	1500
P007	Carob Pods	$2.49	800

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Defining data entry rules

Unit 3 objectives

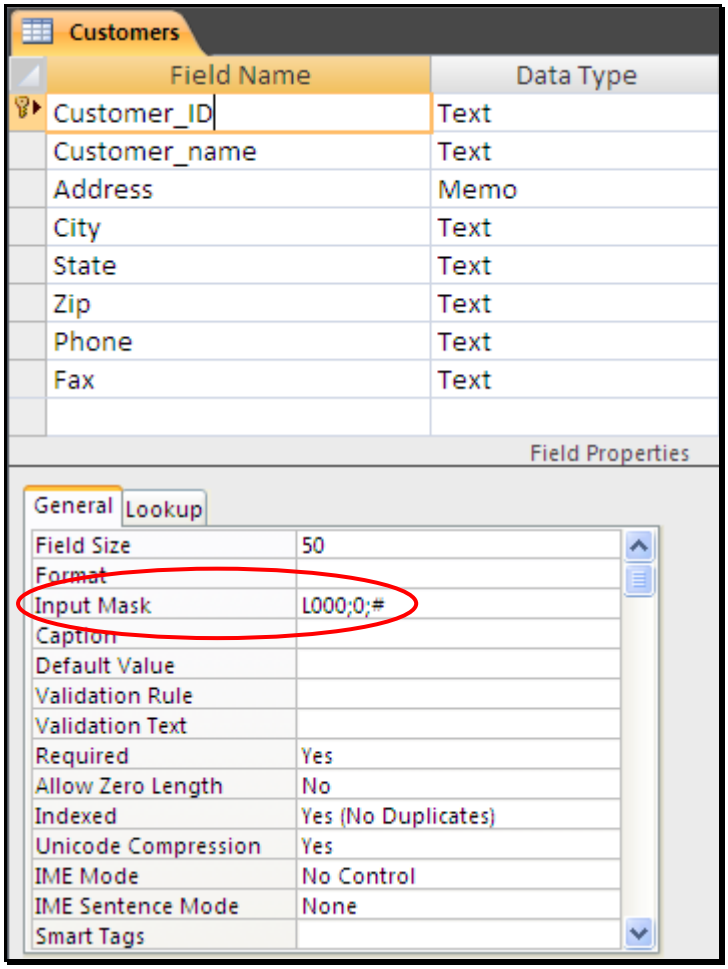
- Use the Input Mask Wizard to create input masks for fields
- Use Design view to set properties for a field
- Use Design view to set validation rules for entering data in a field

Your notes: Unit 3

Your notes: Unit 3

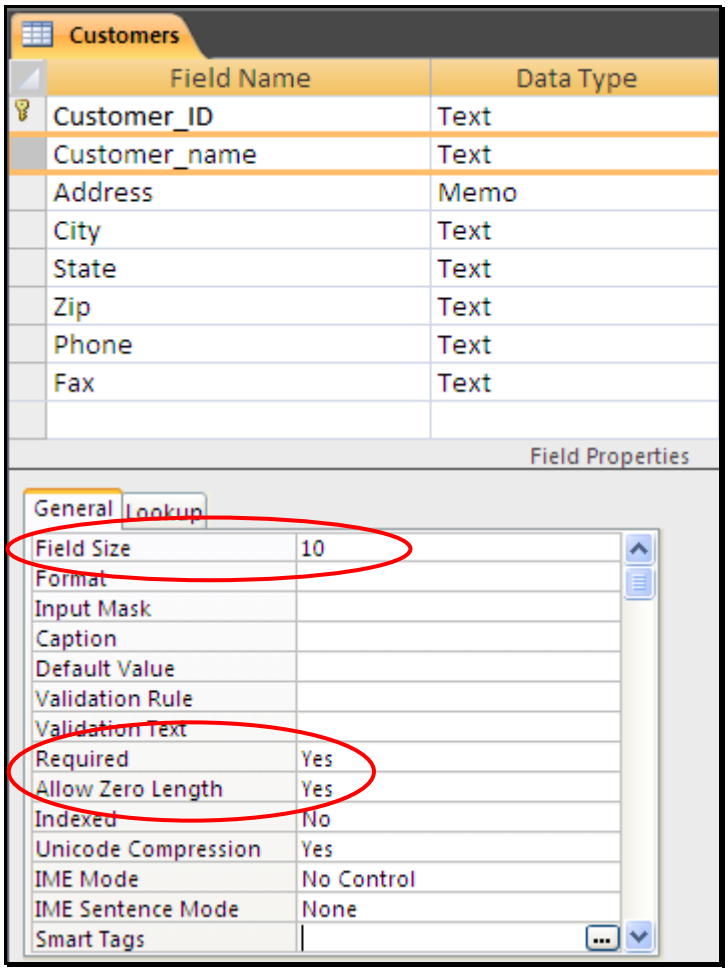
Visual summary: Unit 3 objectives

Working with Input Masks



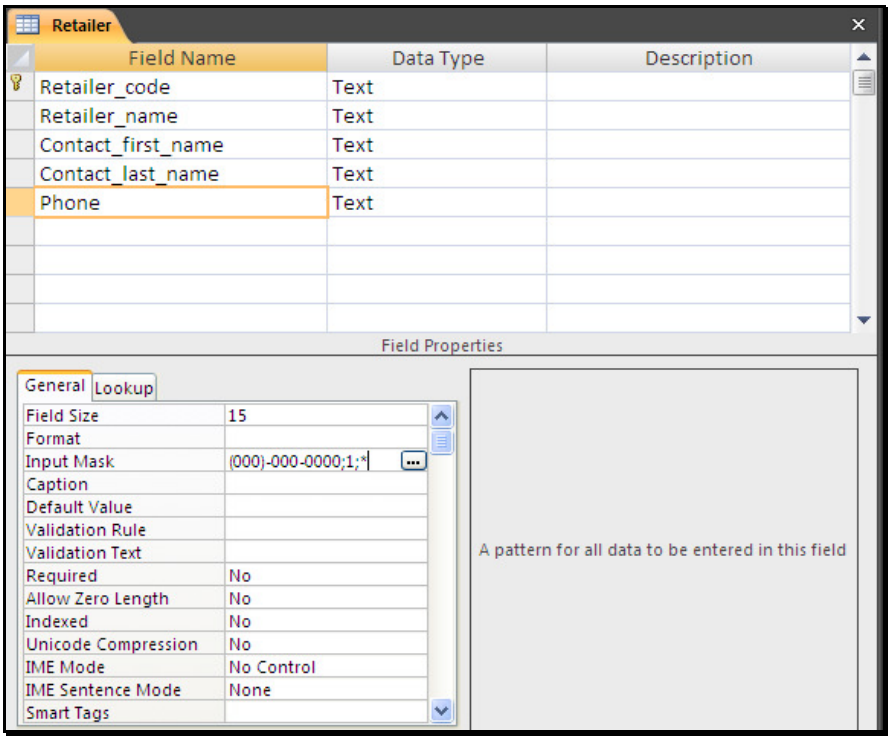
Setting Properties

- Required
- AllowZeroLength
- Field Size



Unit 3 Practice Activity

1. Open **Defining_data_entry_rules.accdb**.
2. Create an input mask for the Phone field in the Retailer table. The input mask should ensure that only 10 numbers are entered in the field and should resemble the input mask shown in the example below. Ensure that although the input mask will display numbers in a specific format in the table, only the numbers (not the literal characters) are stored in the table. Use an asterisk (*) as a placeholder.



3. Update the table.
4. Add a new record in the Retailer table with the following details:

   Retailer_code: R013

   Retailer_name: Spice Life

   Contact_first_name: Greg

   Contact_last_Name: Jefferson

   Phone: 4156489301

5. Update and close the table.
6. Set the Required property for the Product_name field so the Product table to Yes.

Practice activity continues on the following page

Unit 3 Practice Activity continued

7. Set the Default Value property for the Min_order field of the Product table to 50.
8. Create an input mask for the Product_ID field of the Product table to ensure that the data in the field always starts with a letter followed by three digits. Use a placeholder of your choice.
9. Create a validation rule and the appropriate validation text in the Product table to ensure that the Product_ID field contains only four characters with 'P' as the first character.
10. Update the table.
11. Test the properties and validation rule by entering sample data.
12. Update and close the table.
13. Close the database.

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Using advanced query features

Unit 4 objectives

- Use Design view to create join queries
- Create queries to add, delete, and modify data in tables and to create new tables

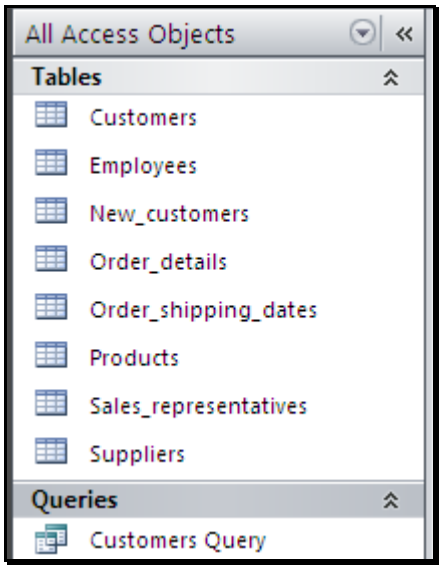
Your notes: Unit 4

Your notes: Unit 4

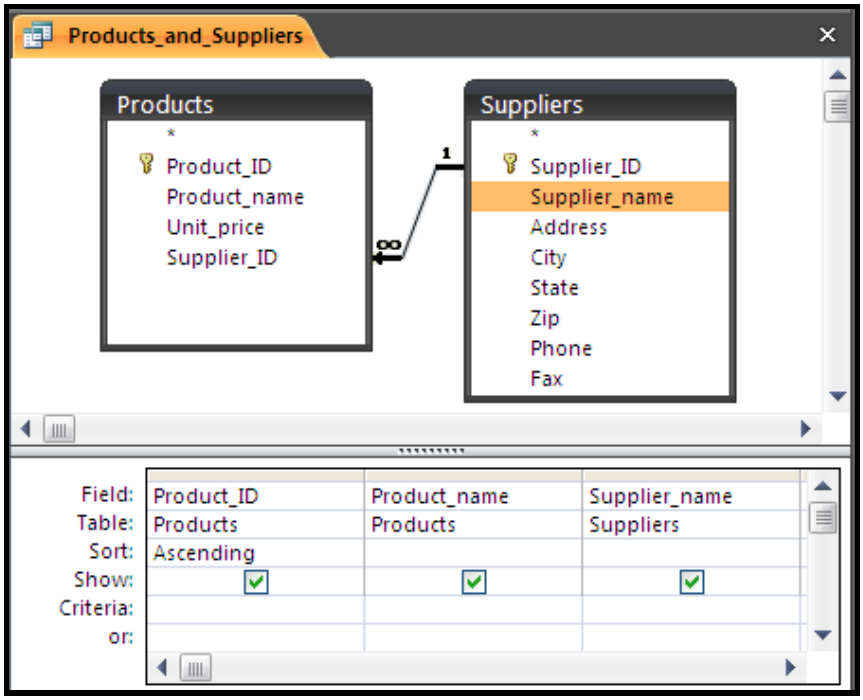
Visual summary: Unit 4 objectives

Joining Tables in Queries

Simple Query Wizard

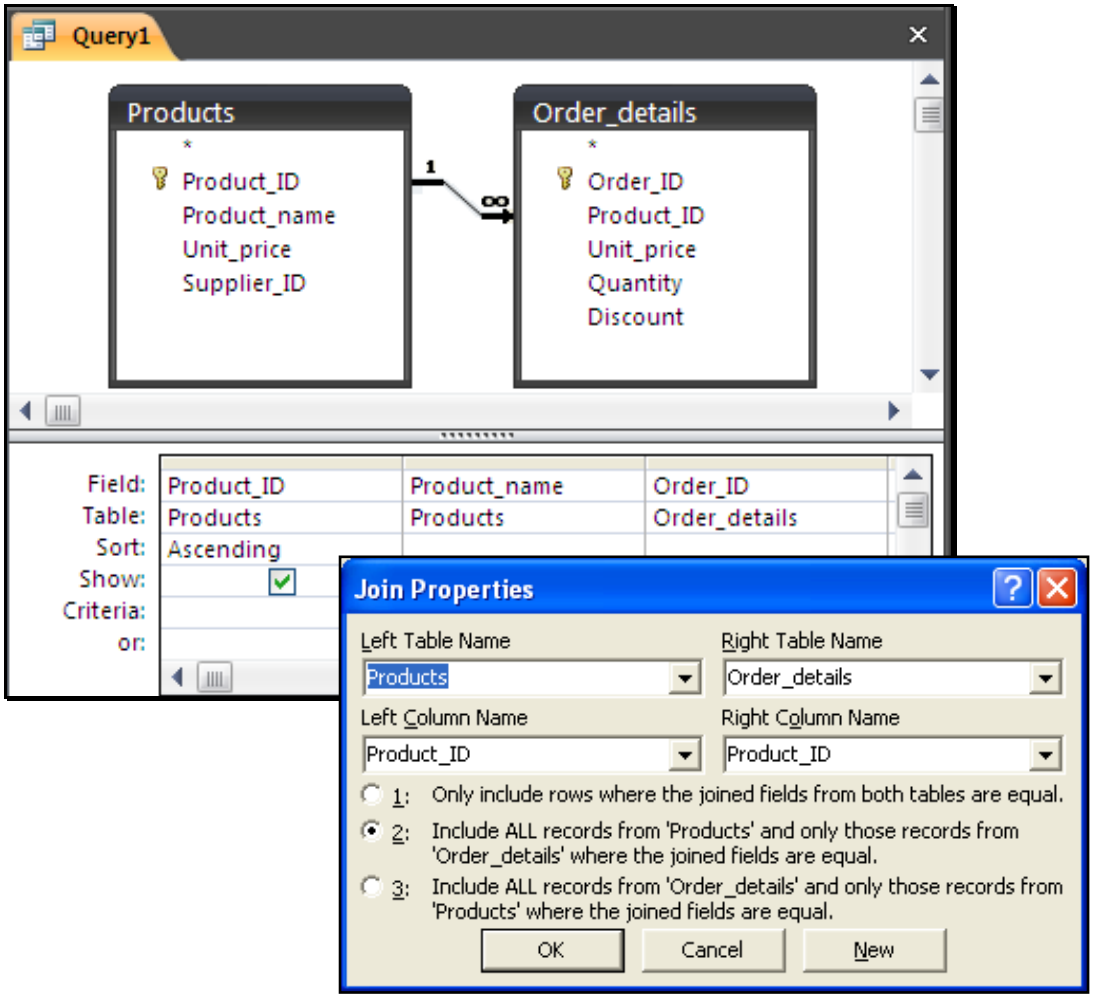


Creating a join in design view



Visual summary: Unit 4 objectives

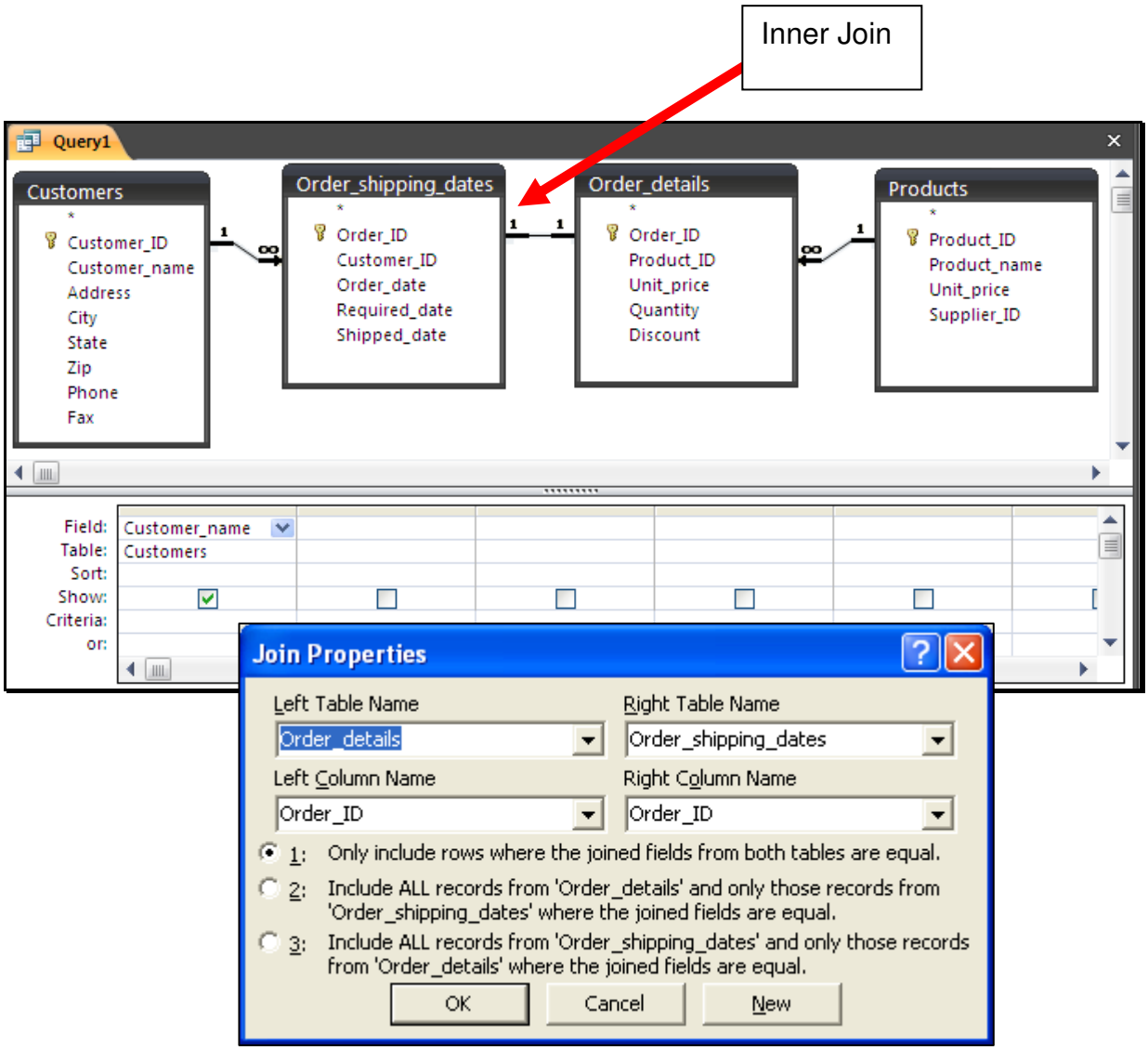
Outer Joins



Visual summary: Unit 4 objectives

Inner Joins

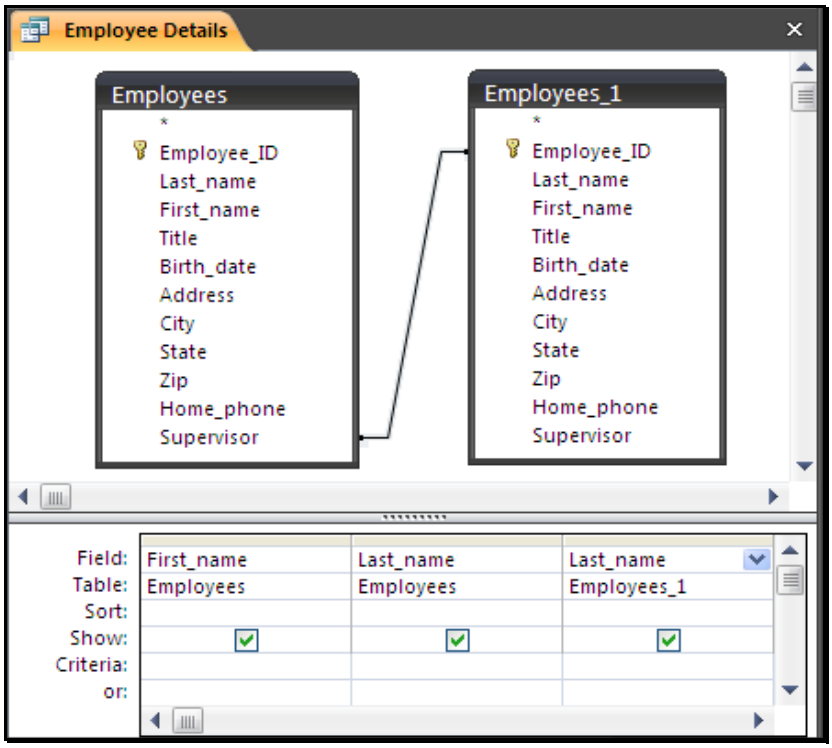
Create an Inner Join by using an intermediate table/s. The results of the matching records will be obtained first for this inner join and the results of the outer joins will be calculated thereafter.



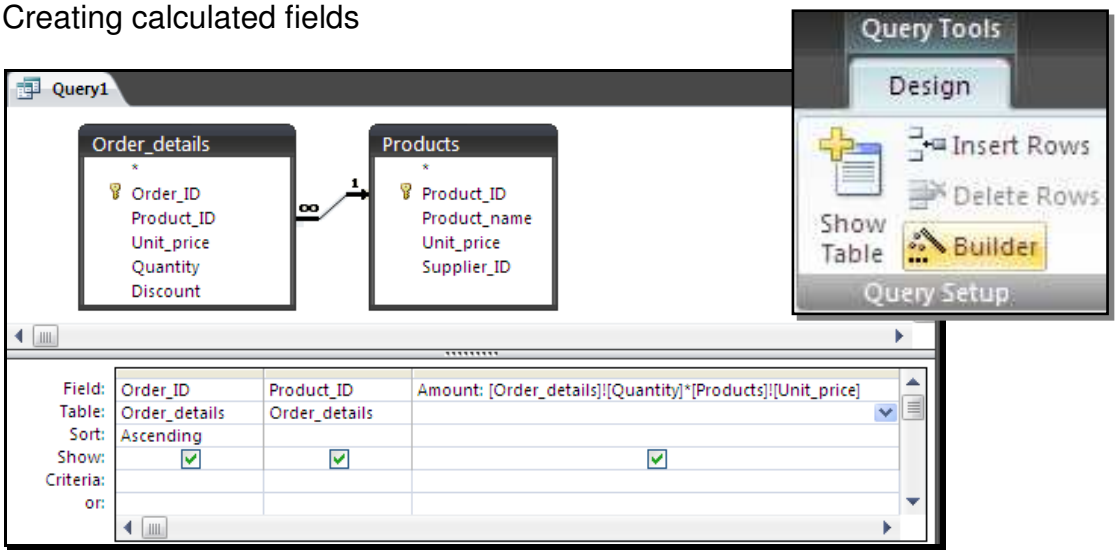
Visual summary: Unit 4 objectives

Self-join queries

You can create a self join by using two copies of the same table. A self-join is a query that displays matching records from the same table when there are matching values in two fields.



Creating calculated fields

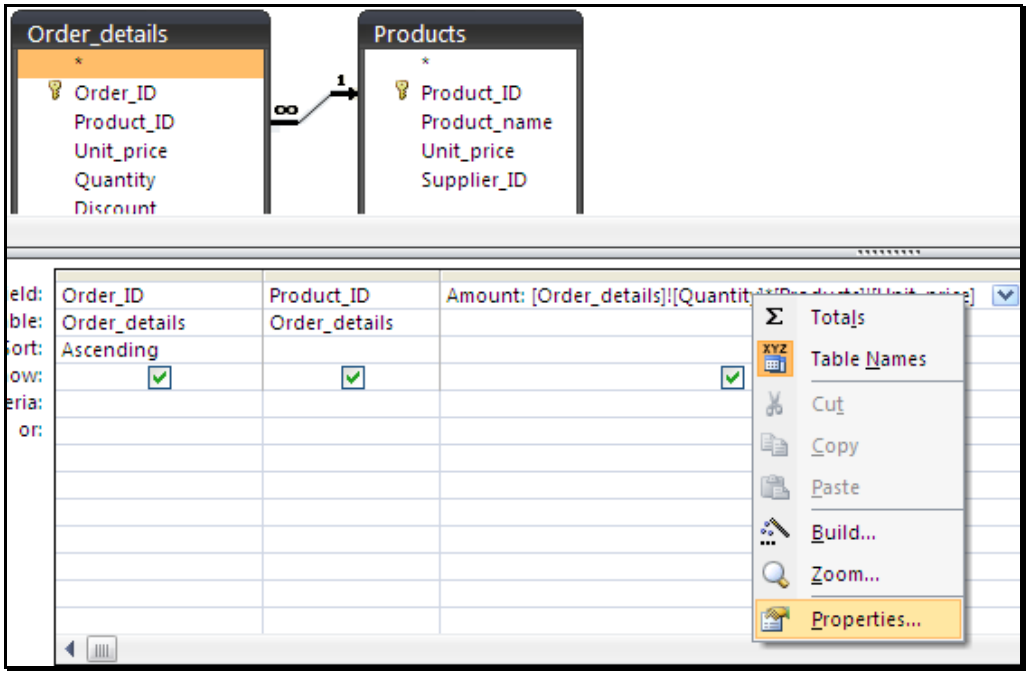


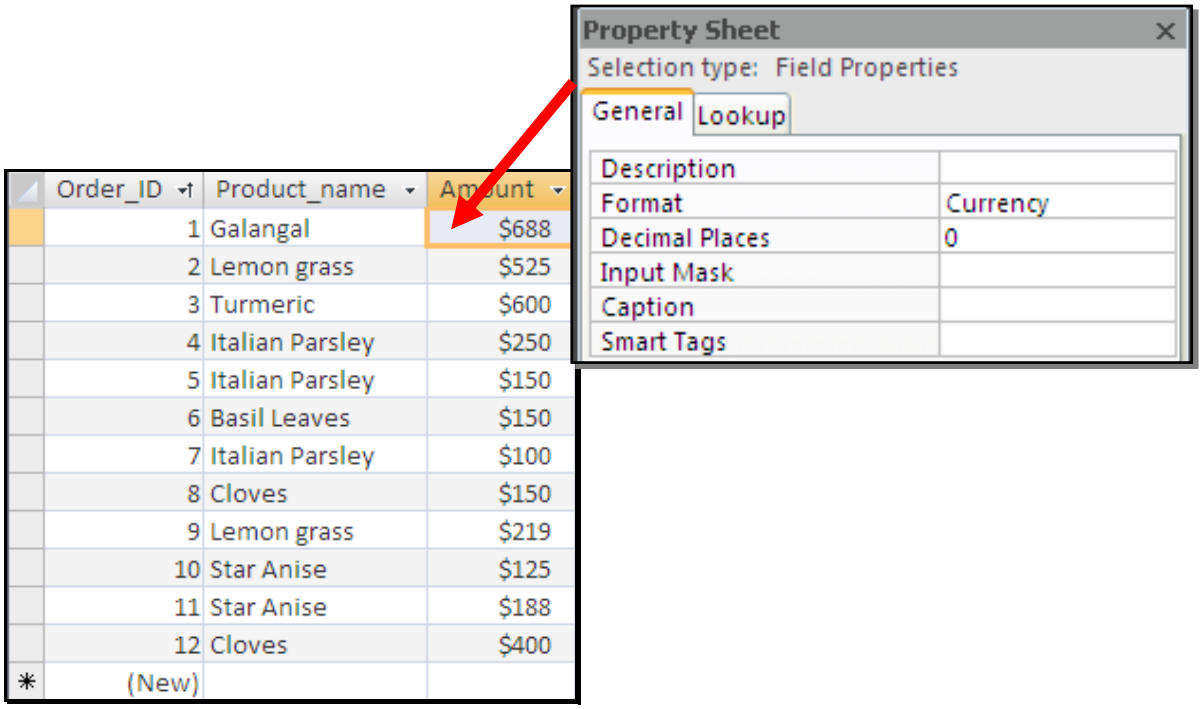
Amount: [Order_details]![Quantity]*[Products]![Unit_price]

Visual summary: Unit 4 objectives

Modifying Formats

In query design view, right-click on the field that you want to format and choose properties.

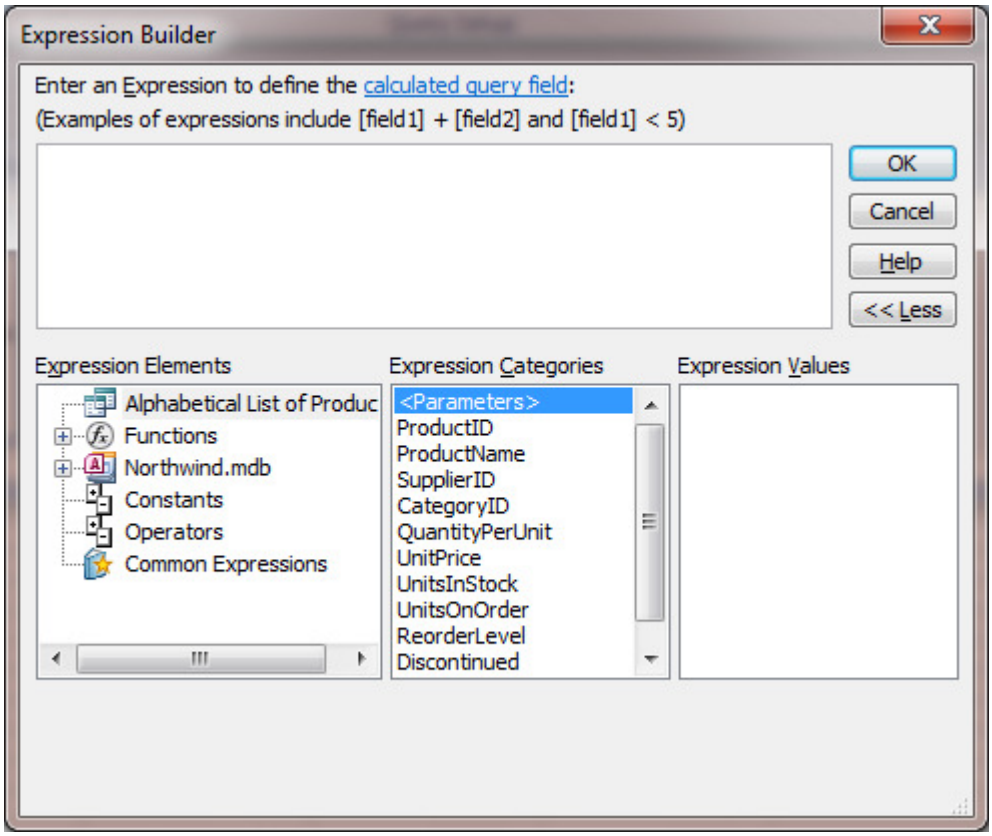




Visual summary: Unit 4 objectives

The Expression Builder

Calculated fields can be built in the expression builder.

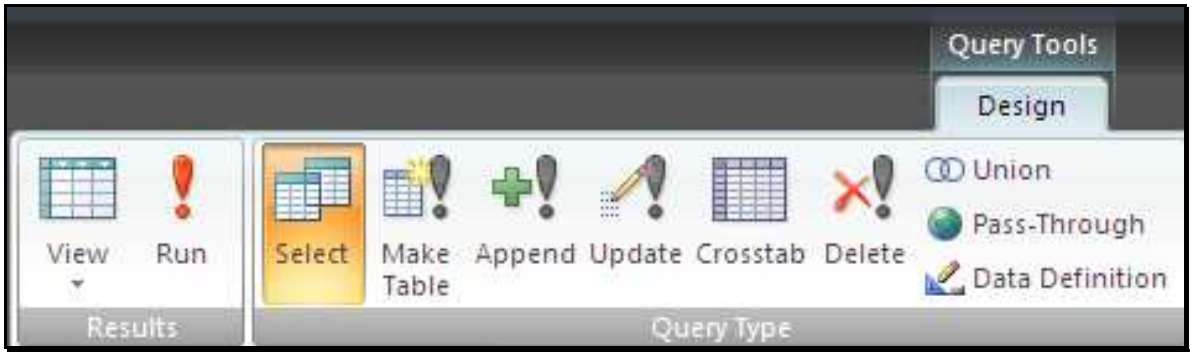


Visual summary: Unit 4 objectives

Using action queries

Action queries are queries that perform certain actions in tables. There are four types:

Append query	This type of query is used to append data from one table to another.
Delete query	This type of query is used to delete records from tables based on specified criterion.
Update query	This type of query is used to update data in different tables at the same time.
Make-table query	This type of query is used to create a table from the result of a query.



Unit 4 Practice Activity

1. Open **Advanced_query_features.accdb**.
2. Using the Product and Transaction tables, create an outer join where all records from the Product table and the Transaction_ID appear in the query results.
3. Create a query that displays the Product_name and the difference between Qty_available and Min_stock for each product from the Product table.
4. Create a query to append all data from the New_products table to the Product table.
5. Use an update query to increase the discount percent of all transactions in the Transactions table that have Qty_sold greater than 250 by 5%.
6. Create a new table by using a make-table query to include the Transaction_ID from the Transaction Table, Product_name from the Product table, and the value of each transaction. Be sure all of the records form the Transaction table and only the matching records from the Product table appear in the new table.
7. Close the database.

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Creating advanced queries

Unit 5 objectives

- Use queries to join fields, and find unmatched records different tables
- Use parameter queries to view results based on criteria entered while running the query
- Create single and multiple-field indexes to quickly sort and filter data in a table

Your notes: Unit 5

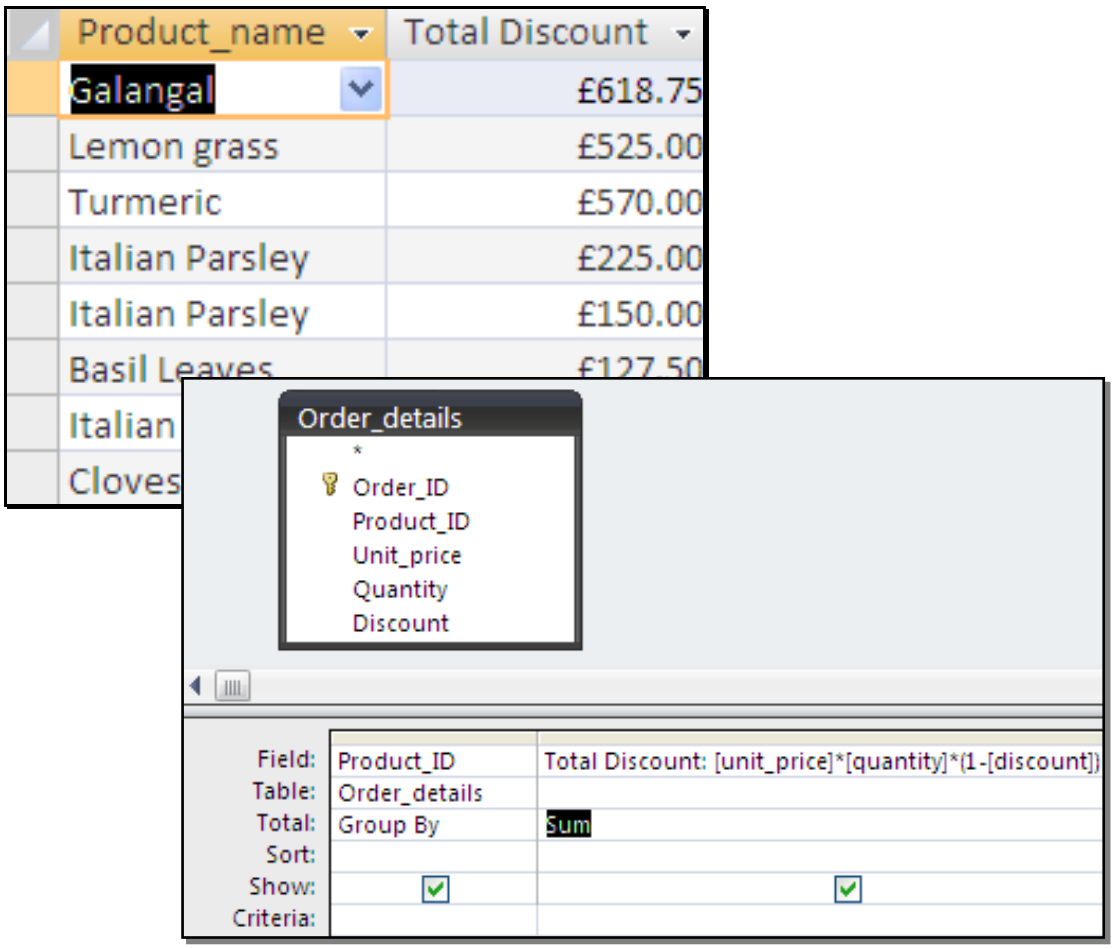
Your notes: Unit 5

Visual summary: Unit 5 objectives

Summarising and grouping values

Summary functions

A summary function is used to calculate the aggregate value (e.g. sum, average) of data which has been grouped, e.g. the total sales of a particular product.

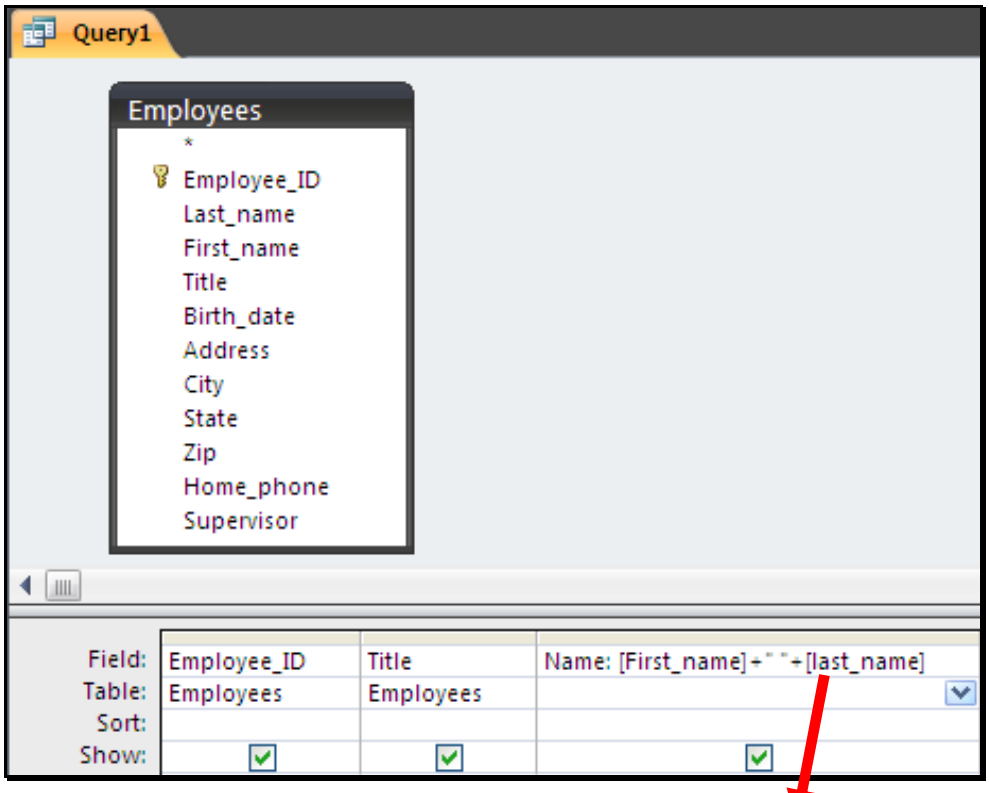


Visual summary: Unit 5 objectives

Concatenation

You can combine values from different fields into one field.

Employee_ID	Title	Name
E001	Customer Service Representative	Kim Leong
E002	Market Analyst	Solena Hernanadez
E003	IT Consultant	Thomas Boorman
E004	Senior Buyer	Ron Timmons
E005	Project Management Consultant	Kathy Sinclair
E006	VP Financial Services	Ann Salinski
E007	VP Sales	Jack Thomas
E008	Manager, IT	Elise Sethan
E009	Business Consulatnt (External)	Susan Gianni

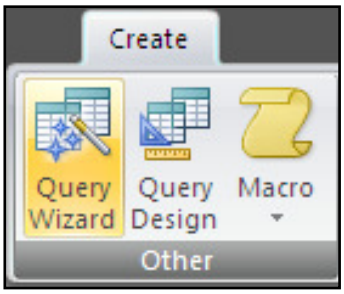


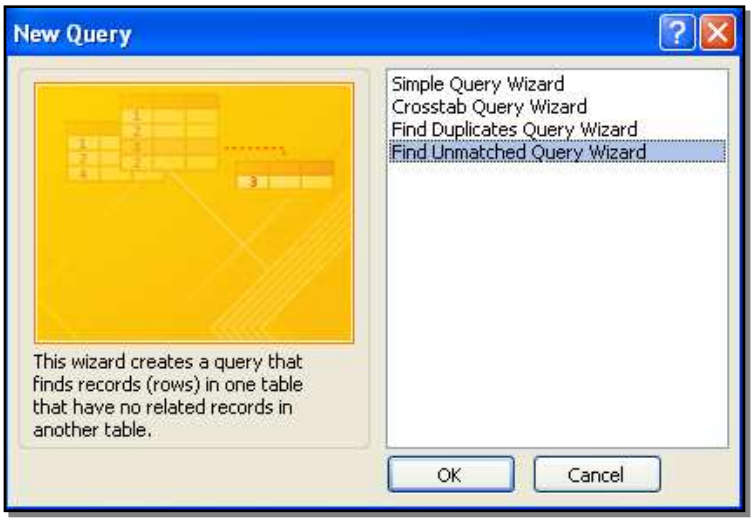
Name: [First_name] + " " + [Last_name]

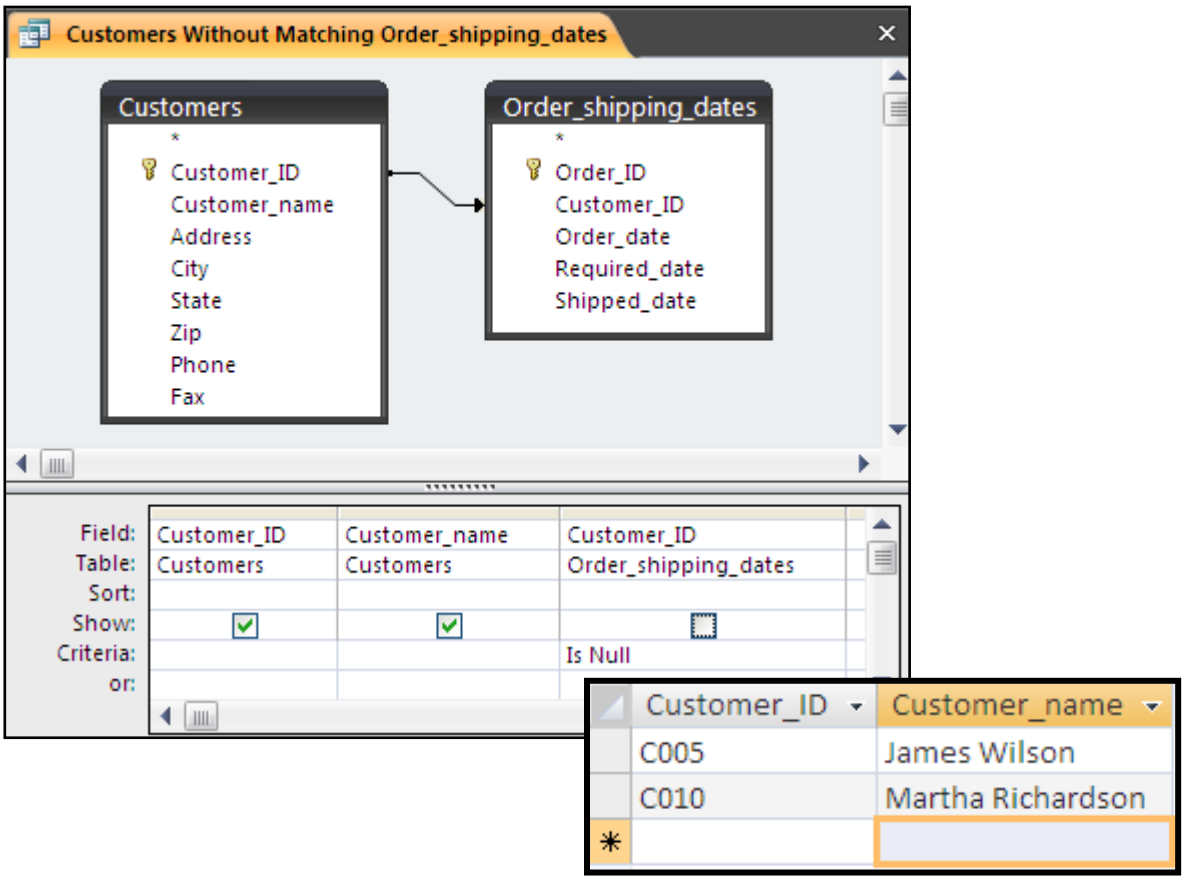
Visual summary: Unit 5 objectives

Find unmatched queries

You can use *find unmatched query*, to view records that don't have a matching record in another table. For example which customers from the customers table haven't placed any orders in the orders table.



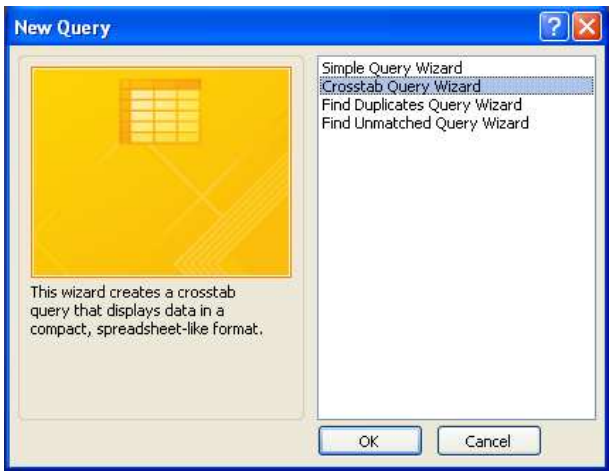


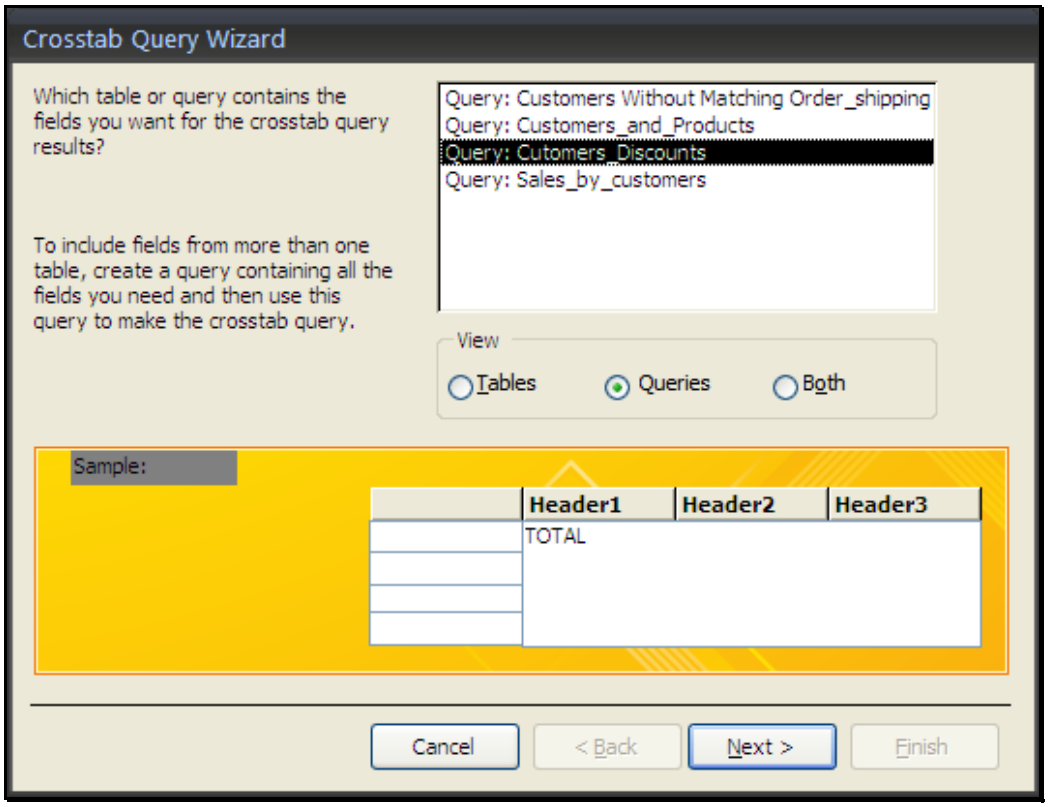


Visual summary: Unit 5 objectives

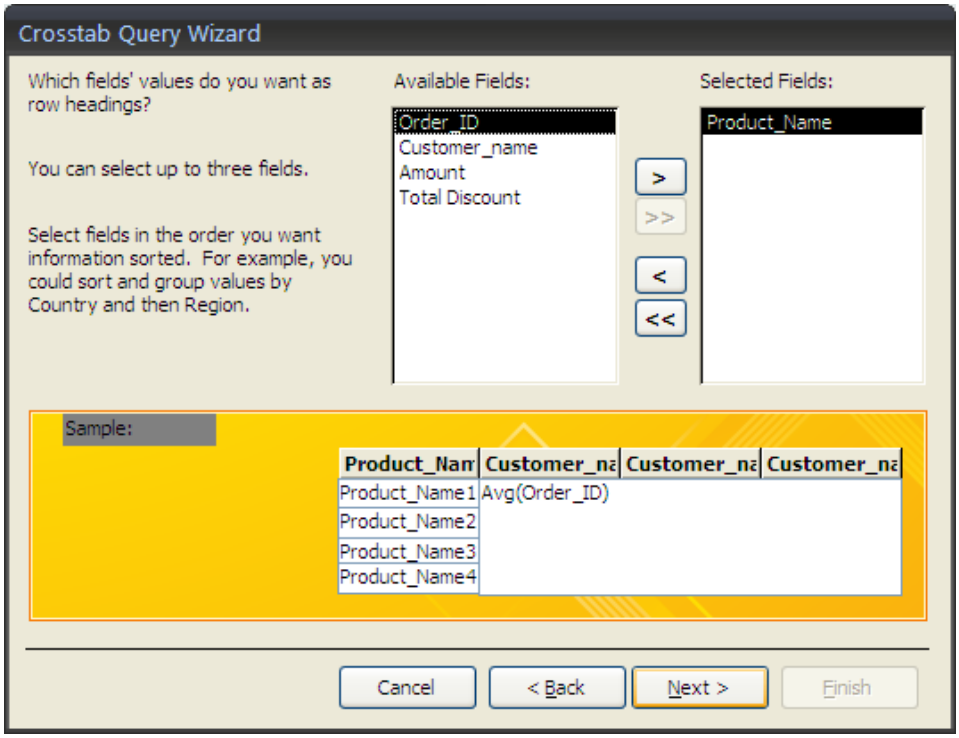
Creating cross-tab queries

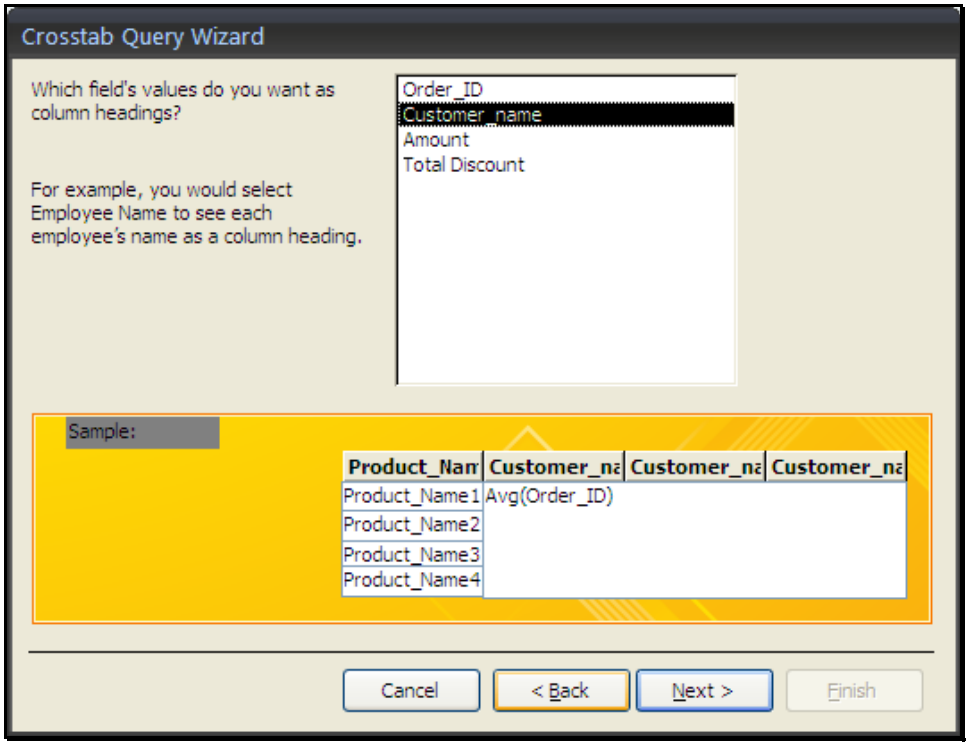
You can display a summary of values based on two different types of information by creating a cross-tab query.



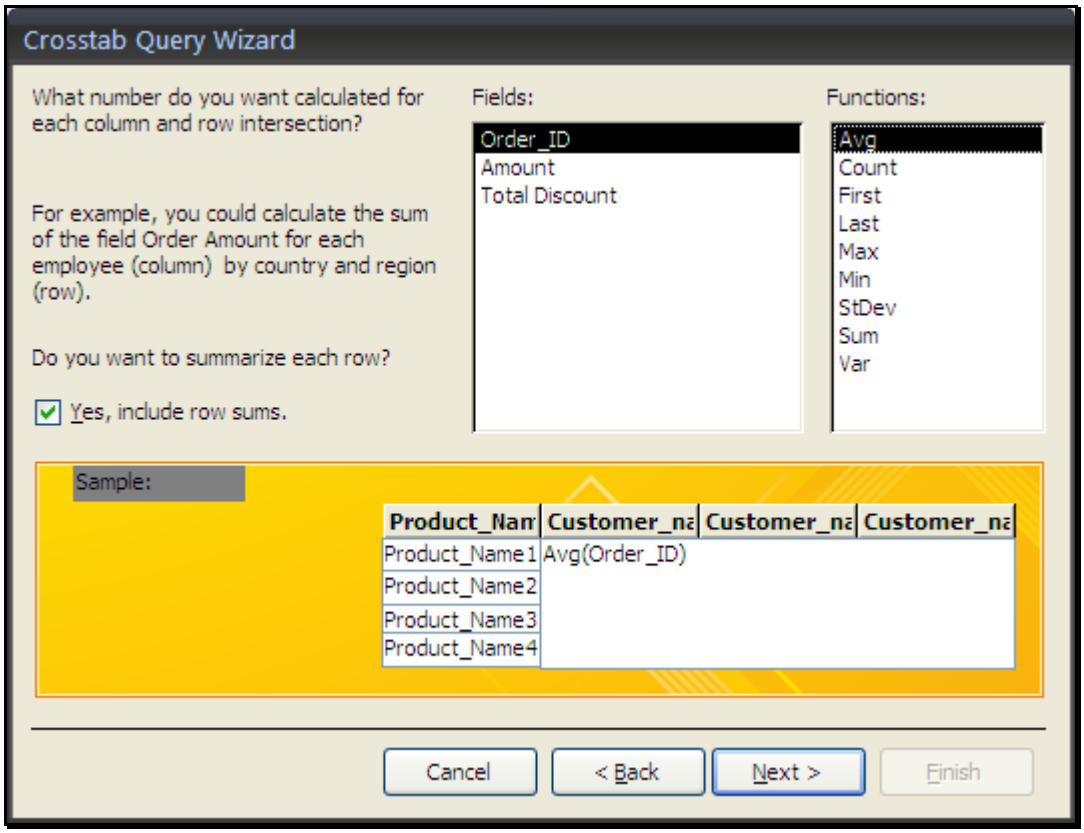


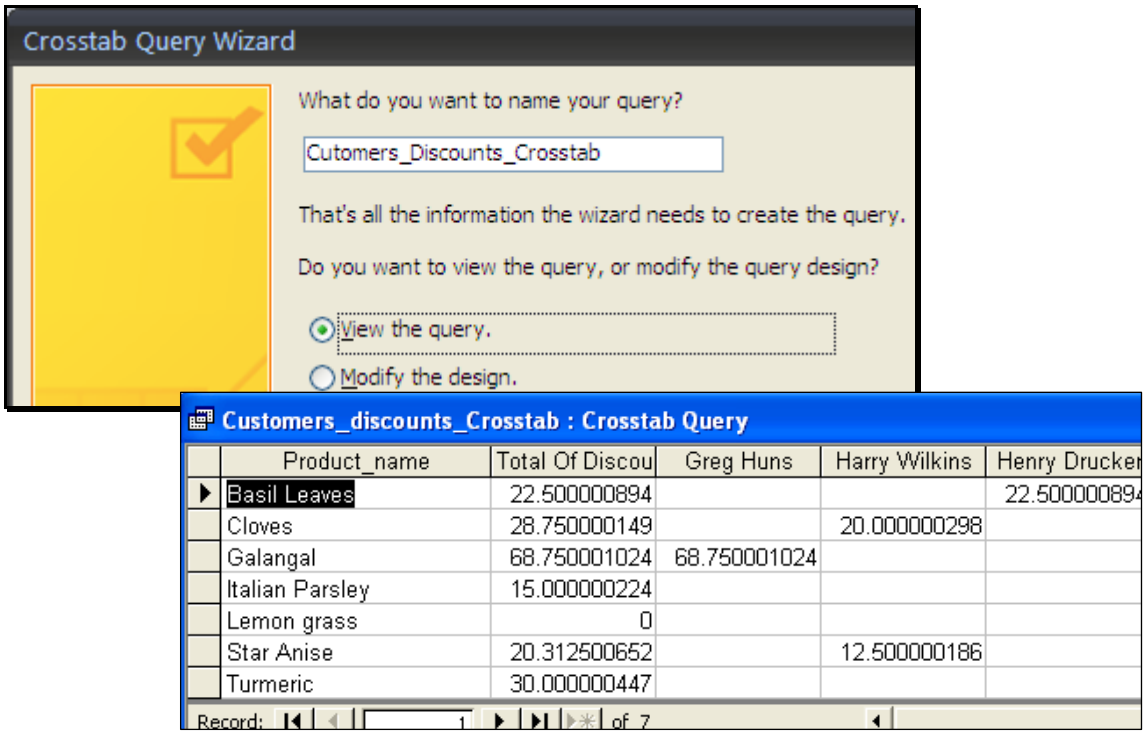
Visual summary: Unit 5 objectives





Visual summary: Unit 5 objectives



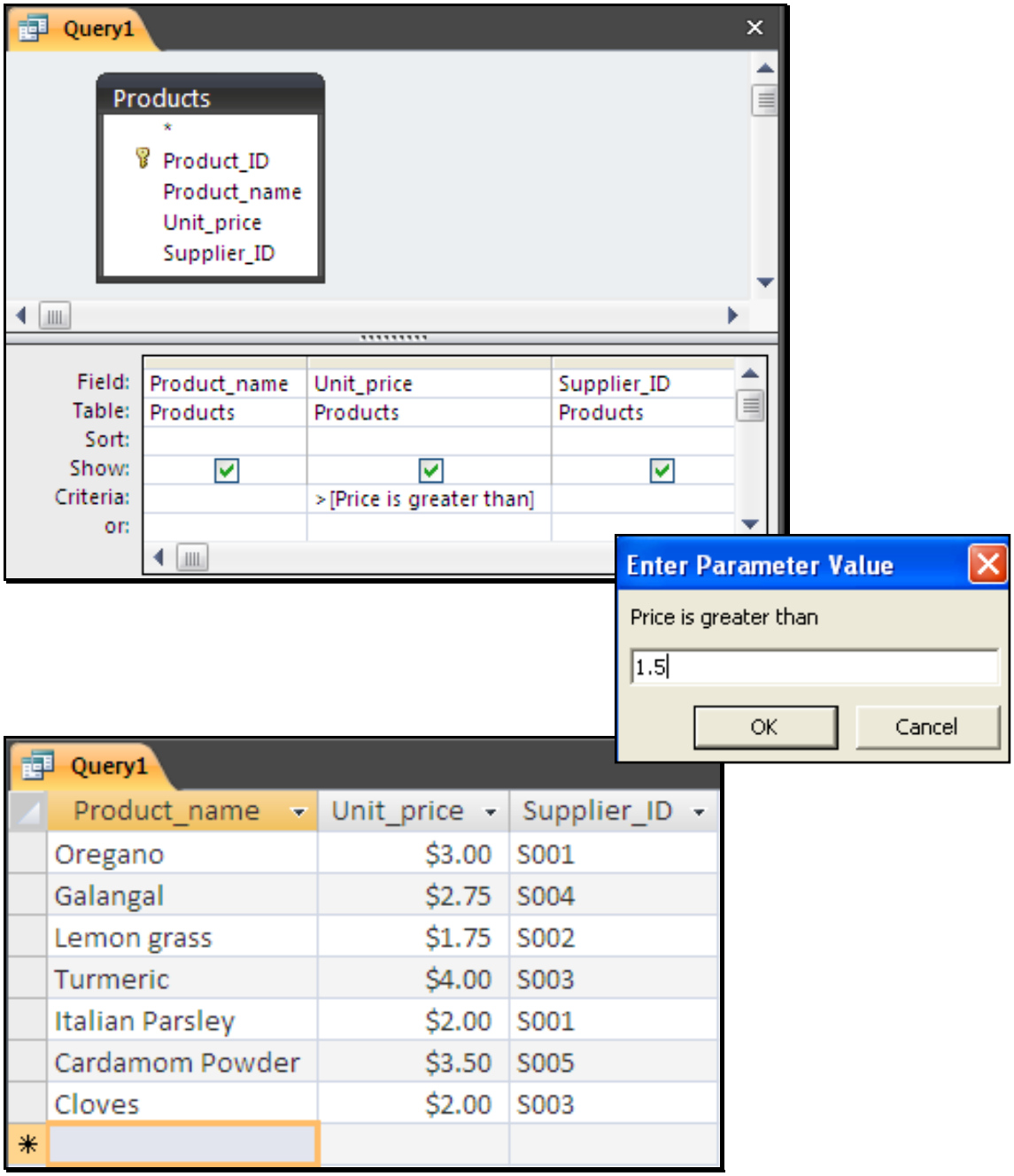


Visual summary: Unit 5 objectives

Using parameter queries

A parameter query displays results based on criteria specified when you run the query.

Single-criterion parameter queries



Visual summary: Unit 5 objectives

Multiple criteria parameter queries

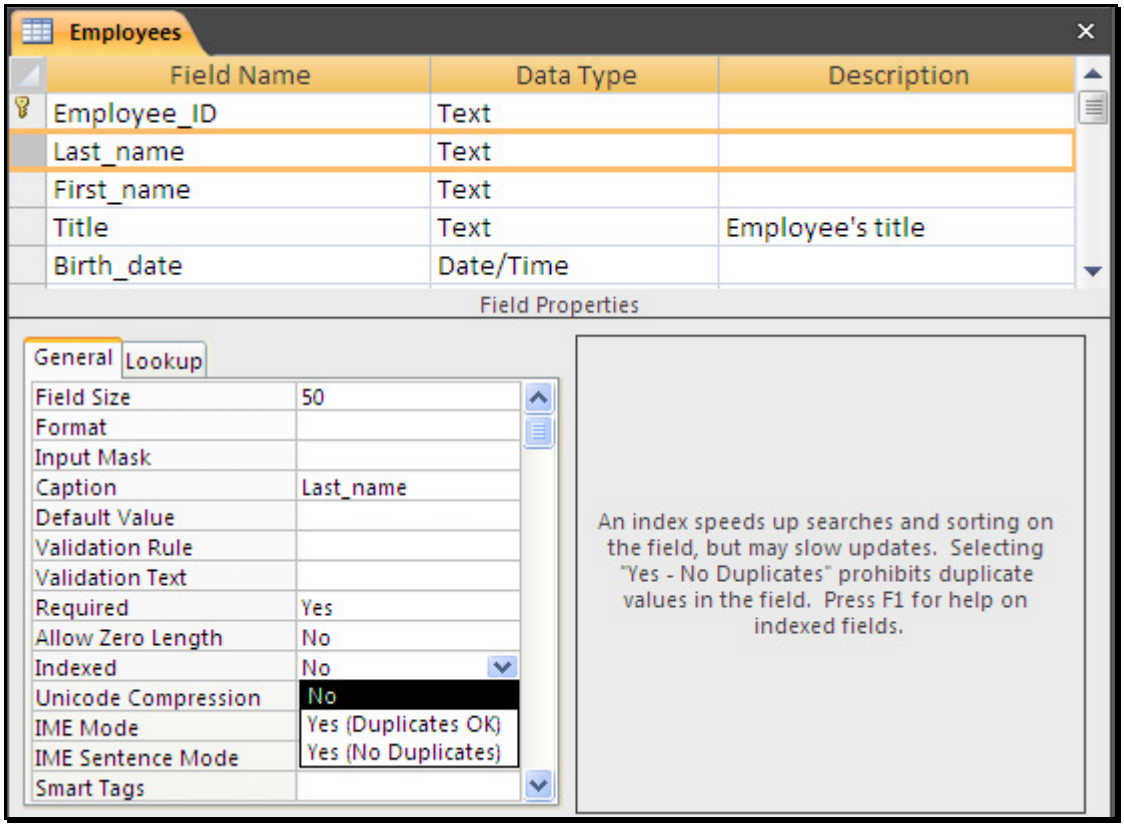
Using “Between” and “And”.

Between [Lower Value] And [Higher Value] (eg Between 21/10/2006 And 31/10/2006)

Wildcards in parameter queries

Like [First letter of name]+”*” (eg Like “S*”)

Using indexes



Unit 5 Practice Activity

1. Open **Advanced_queries.accdb**.
2. Create a query that displays the Retailer_code and the Total Sales_value for each Retailer from the **Transaction** and the **Product** tables.
3. Create a sum of the Sale_values and group the query based on the Retailer_codes.
4. Compare the result of the query that you created in Step 2, with the following.

	Retailer_code	Total_sales
▶	R001	£187.50
	R002	£965.00
	R003	£280.00
	R004	£985.00
	R005	£250.00
	R006	£200.00
	R007	£481.50
	R008	£300.00

5. Create a query called Retailer_details that displays the Retailer_code and both Retailer_name columns. The Contact_name column should contain the values from the Contact_first_name and Contact_last_name fields of the retailer table (*hint*: concatenate the two fields).
6. Create a cross-tab query from the Transaction table that displays the total quantity of each product sold to each Retailer.
7. Create a parameter query from the Transaction table that displays the Product_ID and Qty_sold fields for all products that have a Qty_sold value that's less than a specified value.
8. Create a parameter query from the Product table that displays the Product_ name, Qty_available, and Min_stock fields for all products that have the Min_stock value between two specified values.
9. Close the database.

Creating advanced form design

Unit 6 objectives

- Use controls to add graphics to a form
- Use controls to add calculated fields to a form
- Add a combo box to a form
- Add unbound controls to a form

Your notes: Unit 6

Your notes: Unit 6

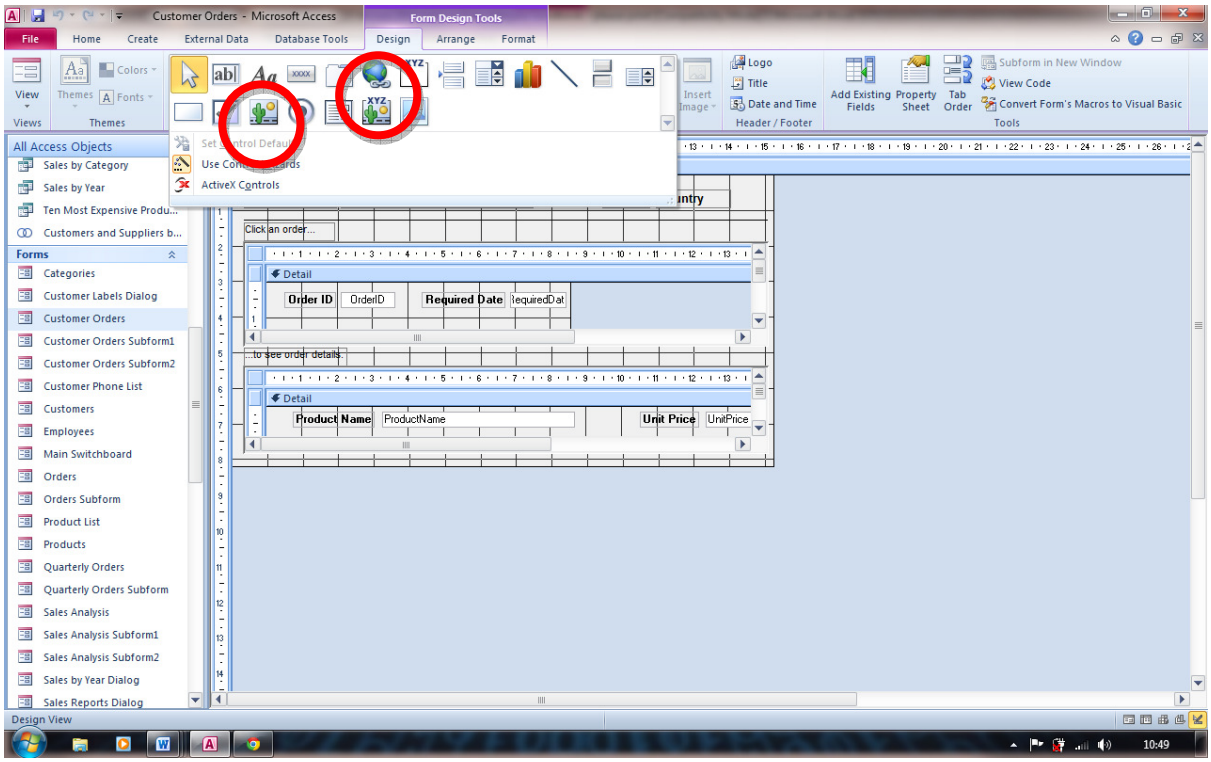
Visual summary: Unit 6 objectives

Adding graphics

Control Types

Unbound Controls	These controls are not linked to any field in a table or a query. They are used to enhance the appearance of a form or to display information that isn't linked to any field in a table or a query. Graphics are unbound controls because they aren't linked to any table or query.
Bound Controls	These controls are linked to a field in a table or a query. They are used to display a field value, to accept a value in a field in a table or a query, or to modify the value of a field in a table or a query.
Calculated Controls	These are used to display a calculated value based on one or more fields in a table or a query.

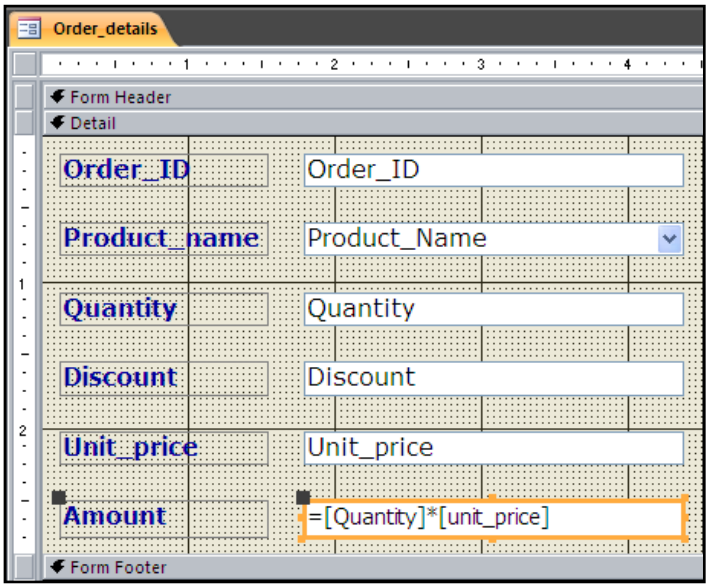
Image controls & Unbound object frame controls

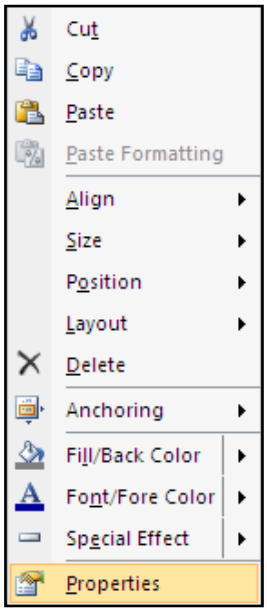


Visual summary: Unit 6 objectives

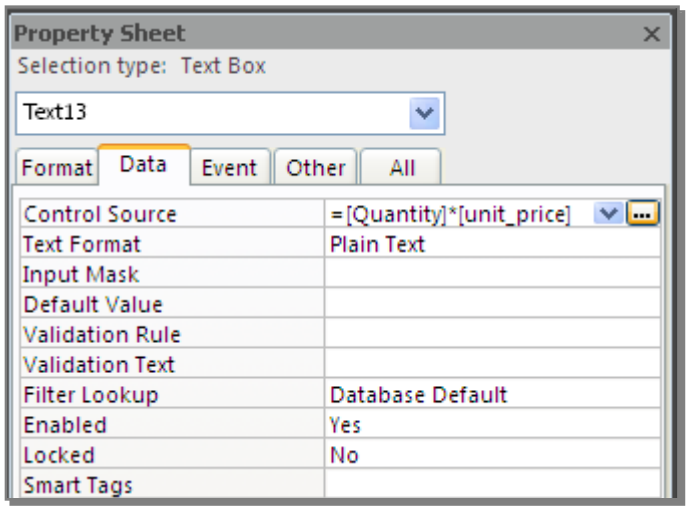
Adding calculations

Creating a calculated control in a form, use the Arrange tab to align boxes.





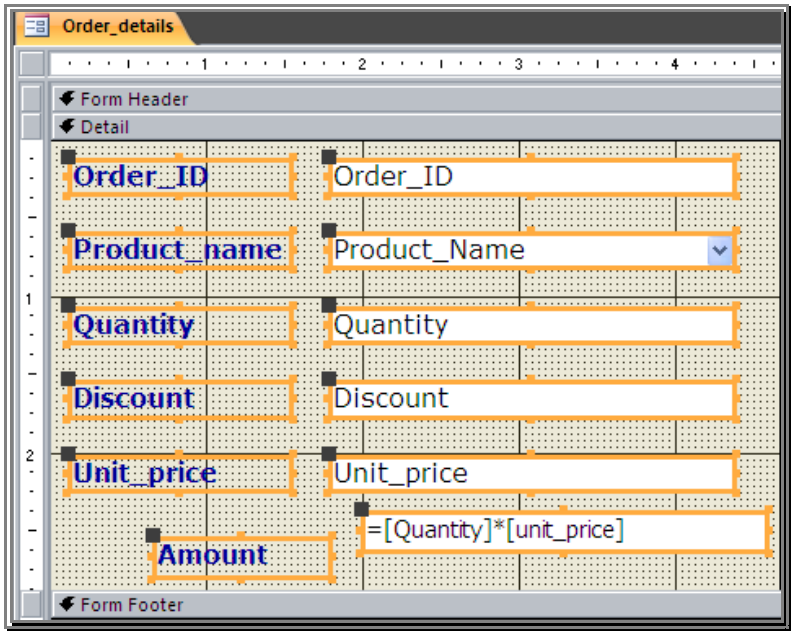
Right-click on field box and choose **Properties**, type in the formula under **Data** tab → **Control Source**

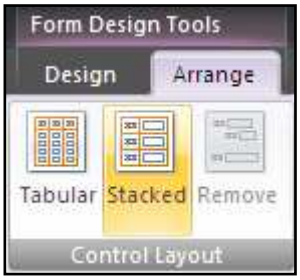


Visual summary: Unit 6 objectives

Aligning controls in a form

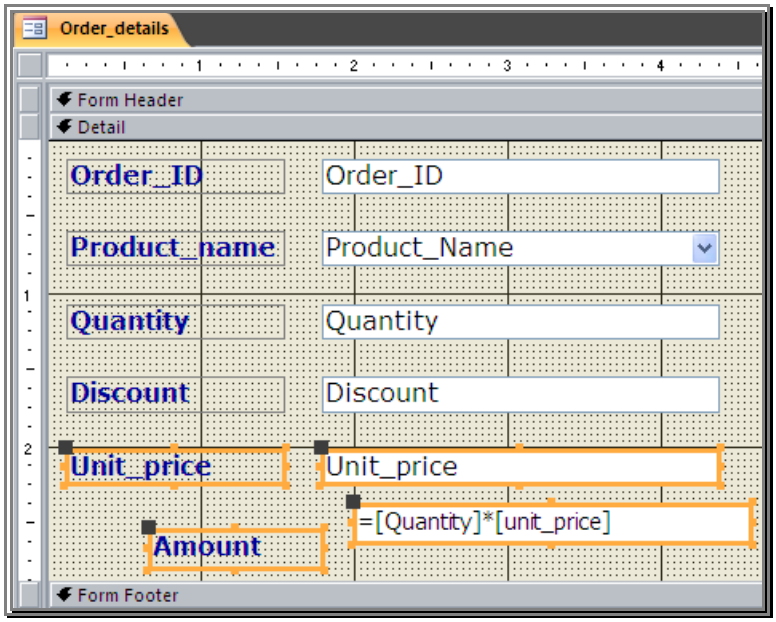
Select all the controls (CTRL + A), choose **Stacked**.





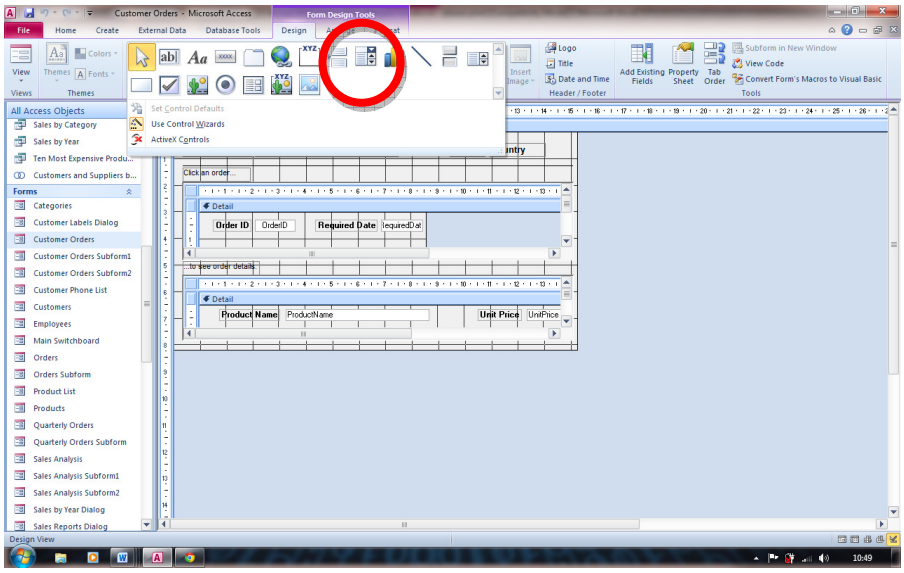
OR

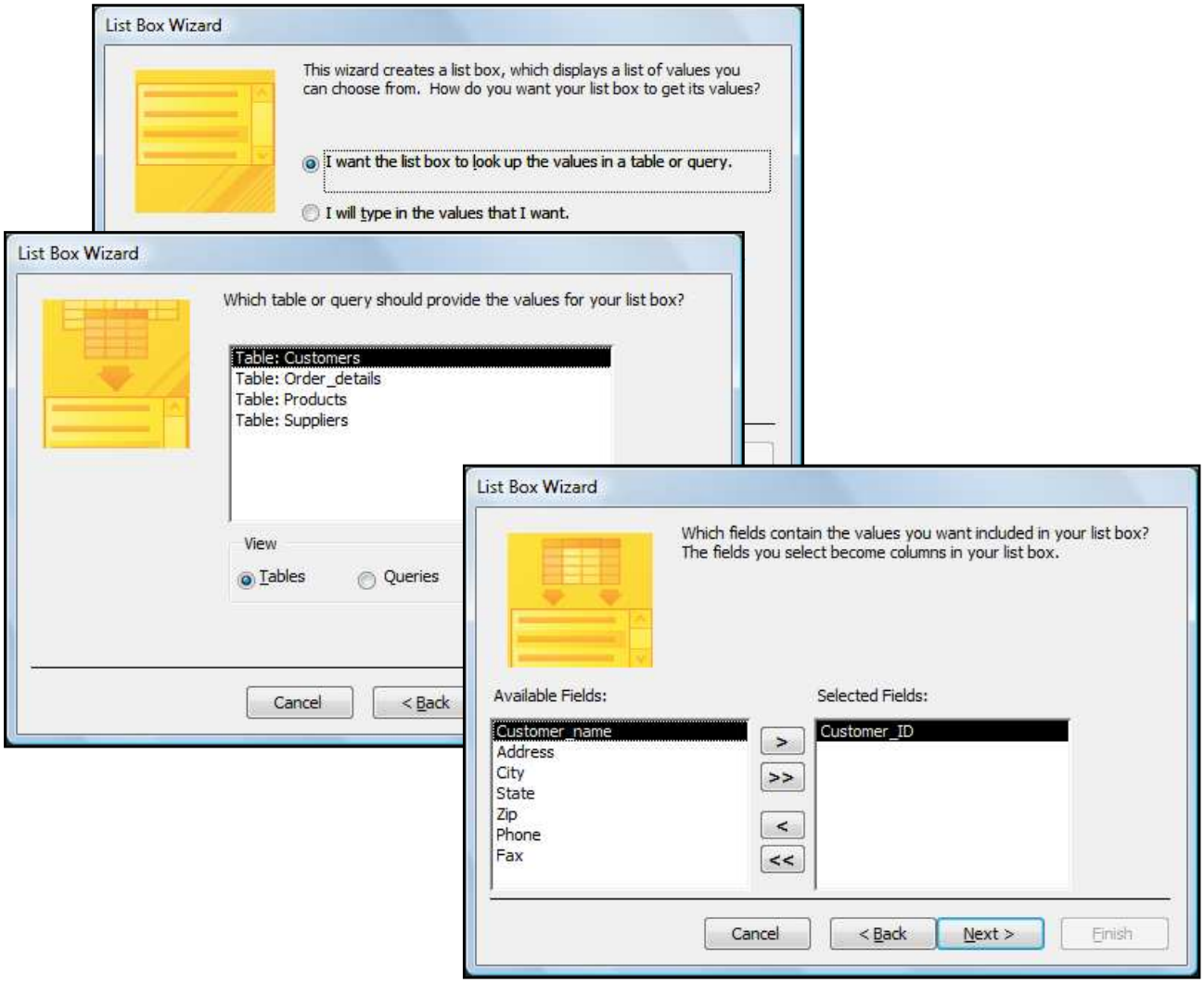
Select controls individually (SHIFT + Click), choose appropriate alignment.



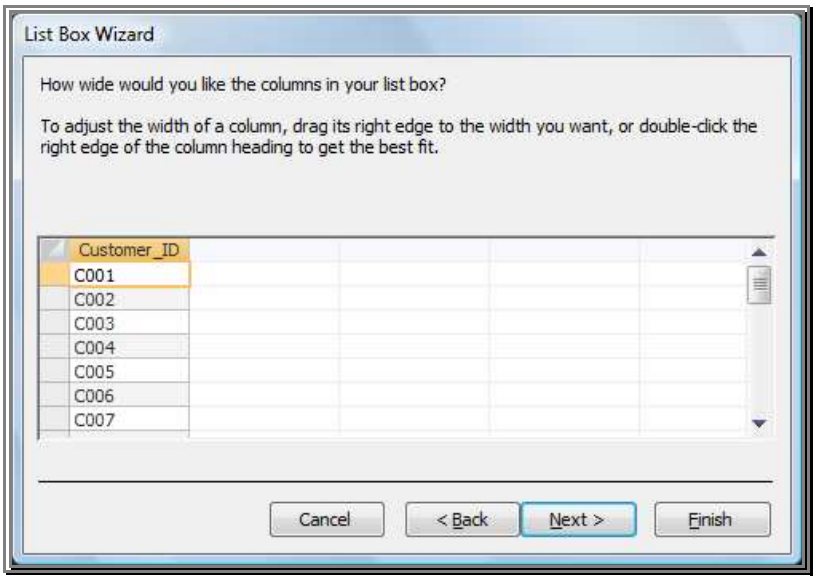
Visual summary: Unit 6 objectives

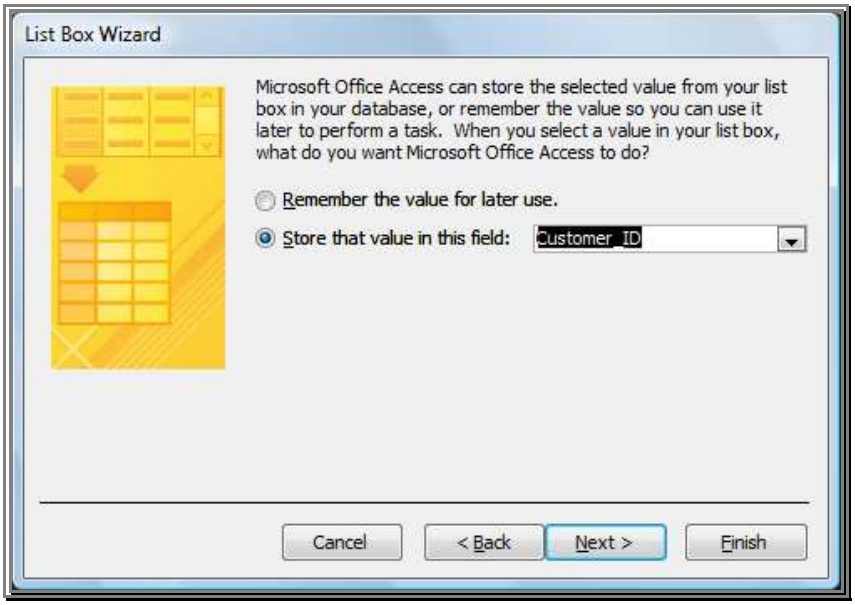
Adding combo boxes

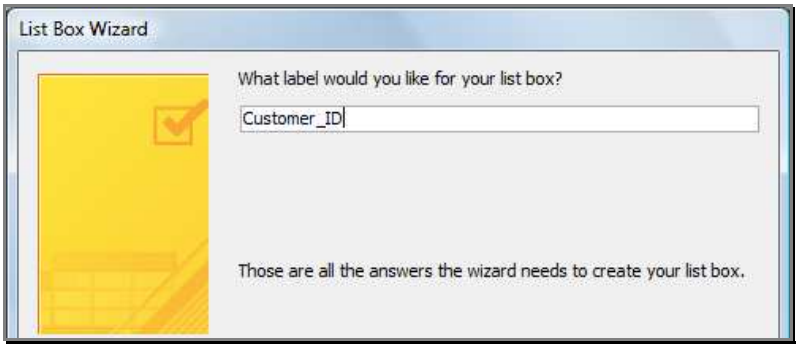




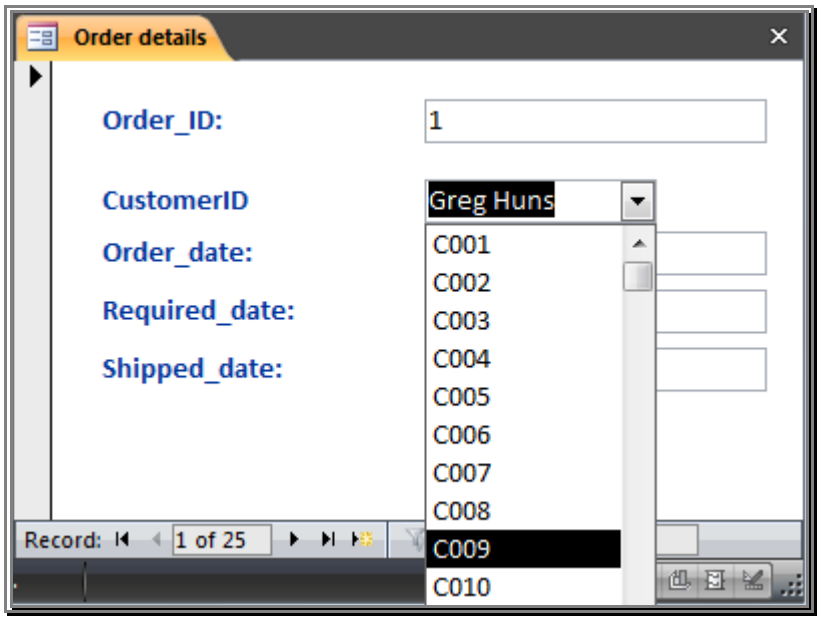
Visual summary: Unit 6 objectives







Visual summary: Unit 6 objectives



Modifying the properties of a combo box

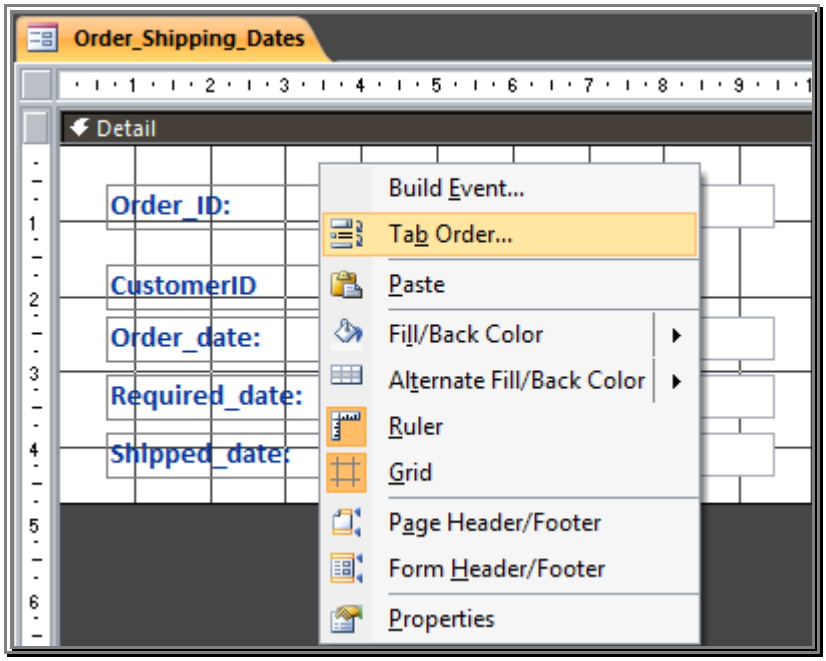
In design view right-click on control and select Properties.

Adding unbound controls

Visual summary: Unit 6 objectives

Tab Order

This is the order in which controls receive focus as the user presses the tab key



Unit 6 Practice Activity

1. Open **Forms.accdb**.
2. Modify the **Sales_by_retailer** form by adding the following to the Header section, as shown the example below:

   A label control with 'Outlander Spices' as the caption.

   An image control using the **Spice_picture** graphic.

   A rectangle around the label and image controls.

3. Change the tab order of the controls in the Detail section to Sales, Retailer_code and Retailer_name.
4. Update the form and switch to the form view
5. Close the form.
6. Close the database.

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Using advanced report features

Unit 7 objectives

- Customise headers and footers, and set properties to group data and modify a report's appearance
- Use functions to add calculated values in a report
- Embed a subreport in a main report

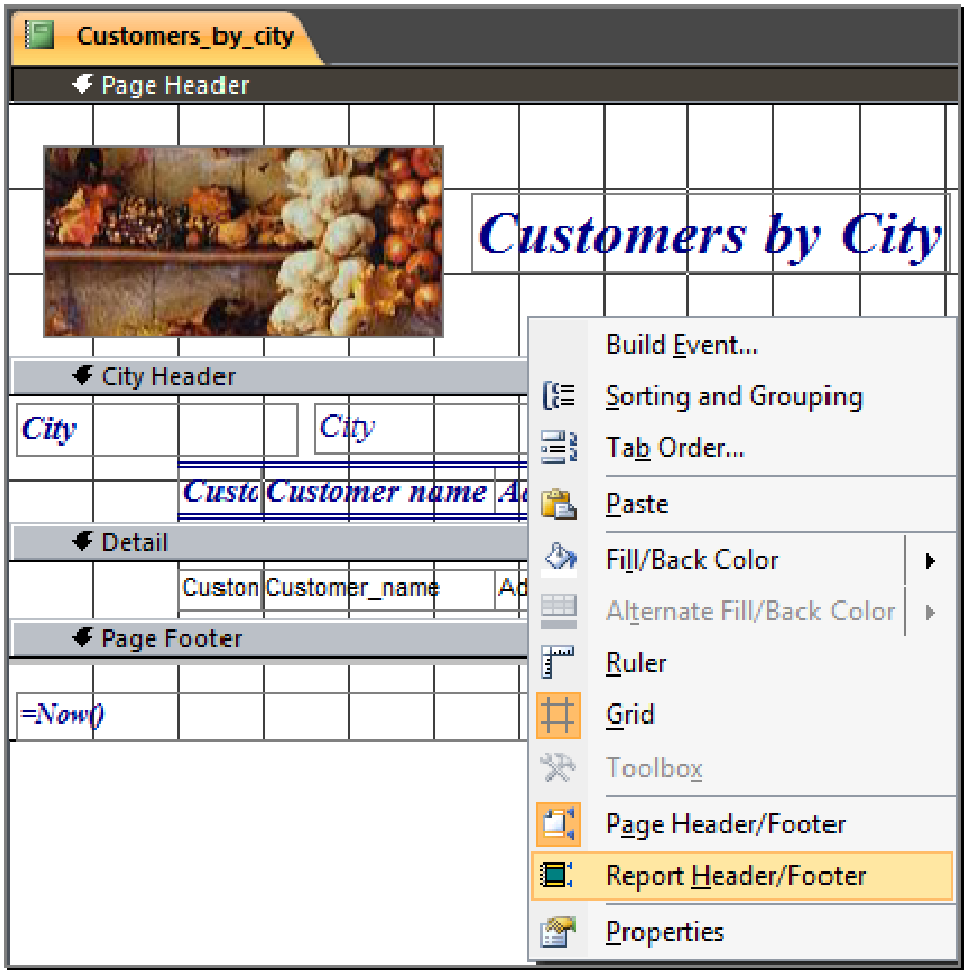
Your notes: Unit 7

Your notes: Unit 7

Visual summary: Unit 7 objectives

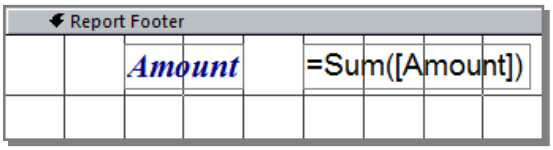
Creating Customised Headers and Footers

Report Header



Visual summary: Unit 7 objectives

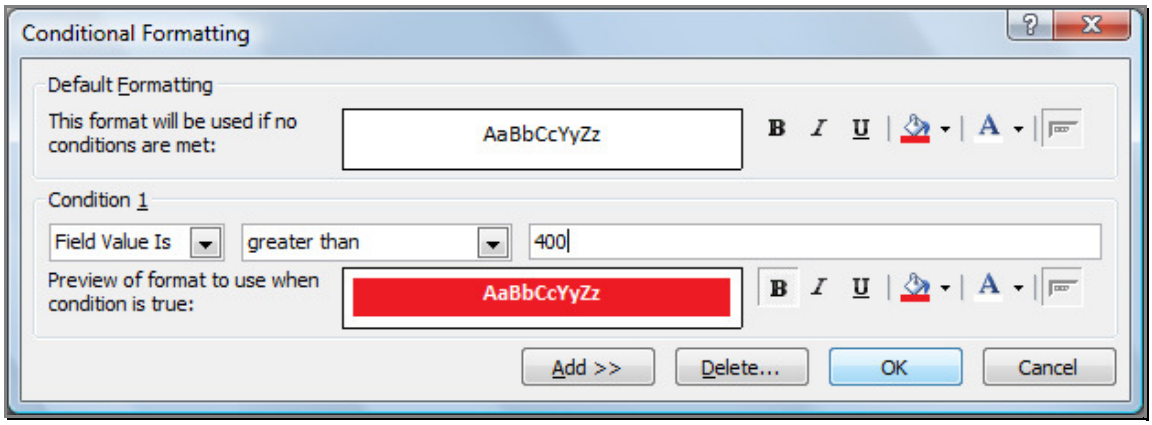
Report Footer



Chinese Star Anise (Whole)	19	$125.00
Chives	20	$300.00
Cilantro Flakes	12	$400.00
Cilantro Flakes	16	$800.00
Cilantro Flakes	22	$400.00
Amount		**$7,115.00**

Conditional Formatting

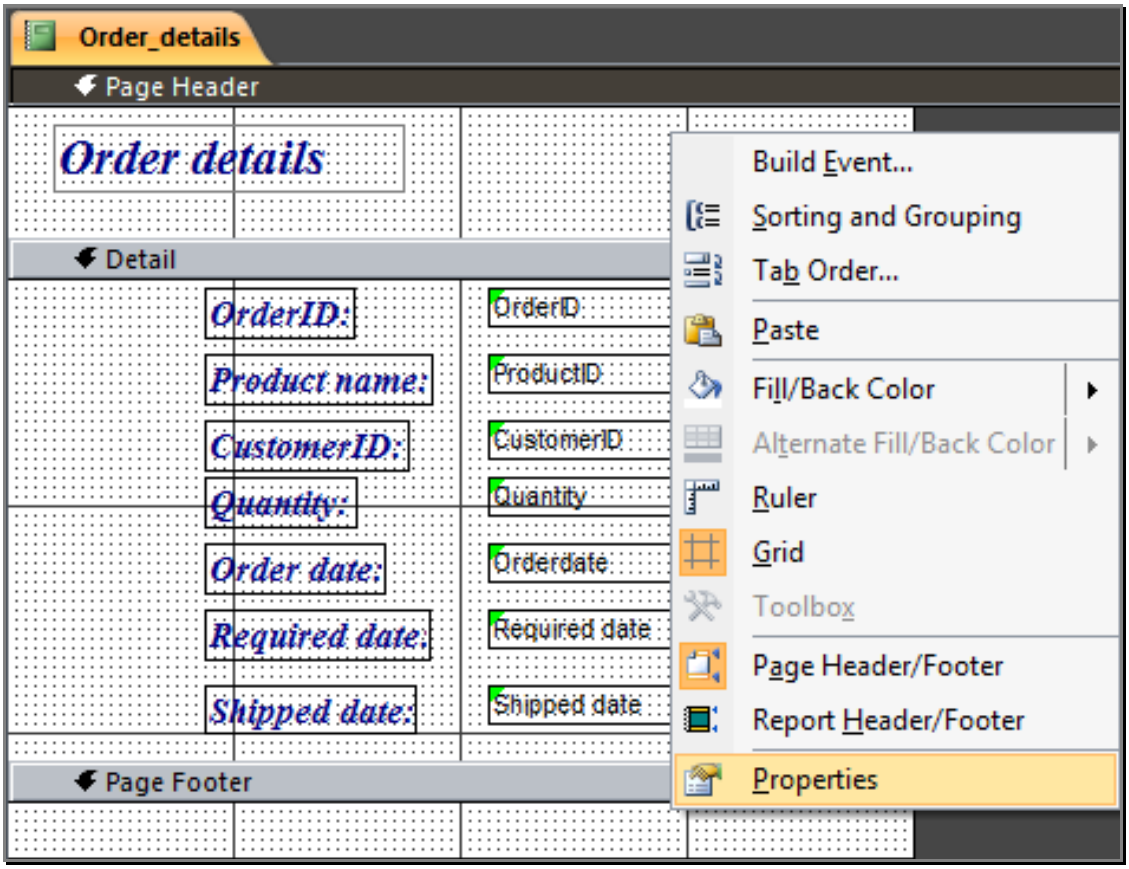
Attention can be drawn to specific data in a report by using conditional formatting. This feature only applies formatting to the value of a field if a specified criterion is met.

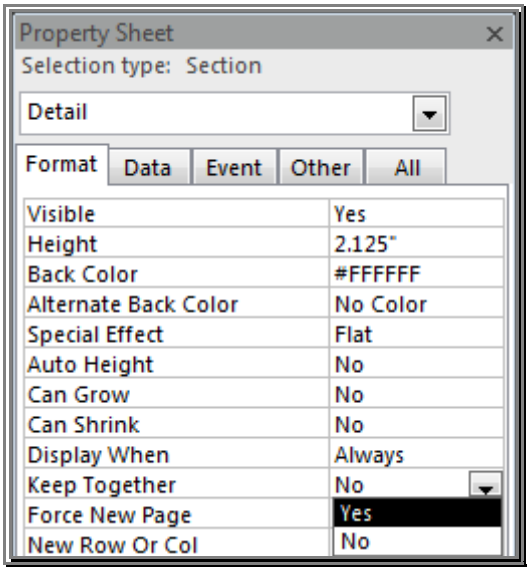


Visual summary: Unit 7 objectives

The keep together property

This can be used to ensure that a complete section of a report is always printed on the same page.

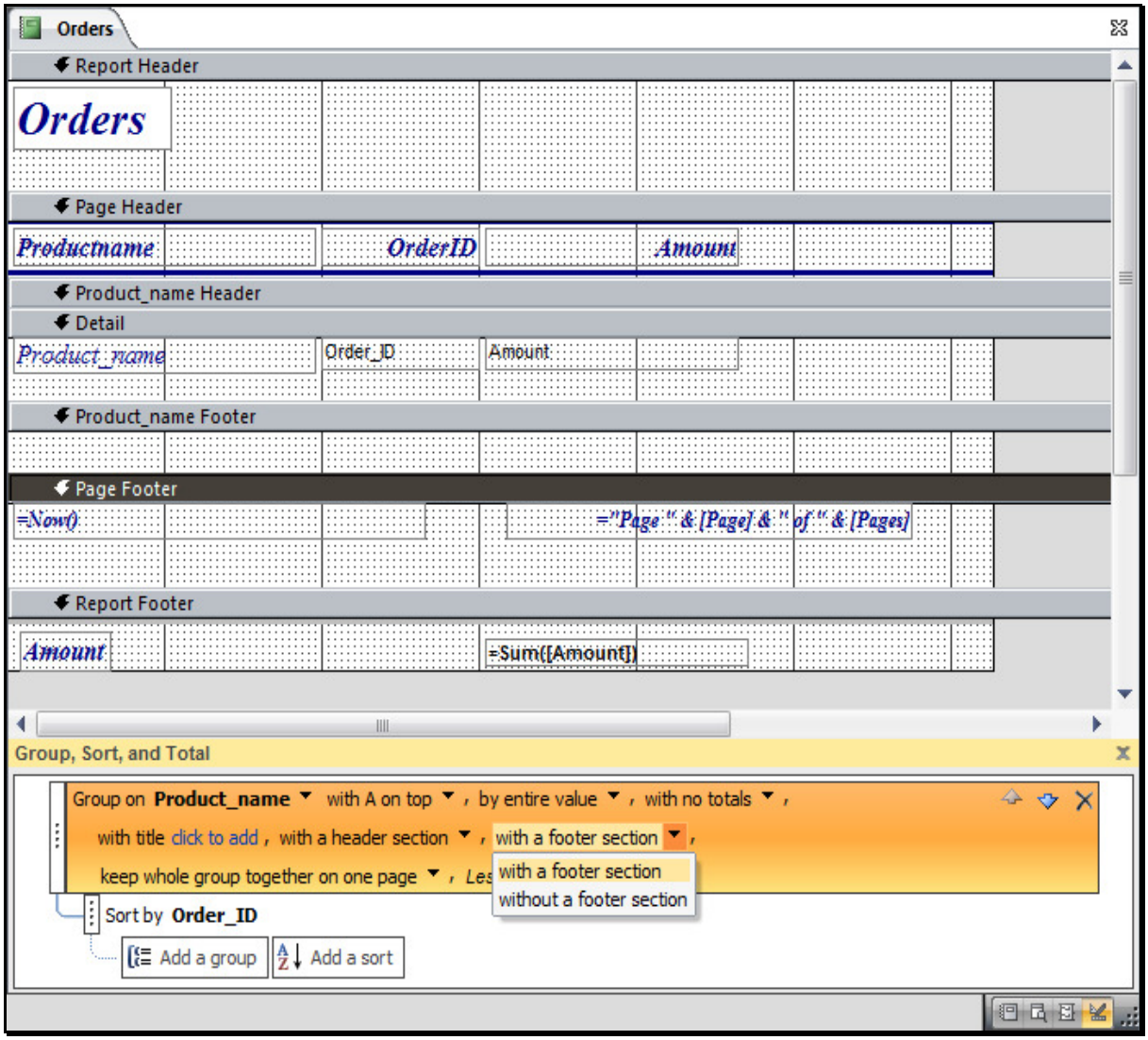




Visual summary: Unit 7 objectives

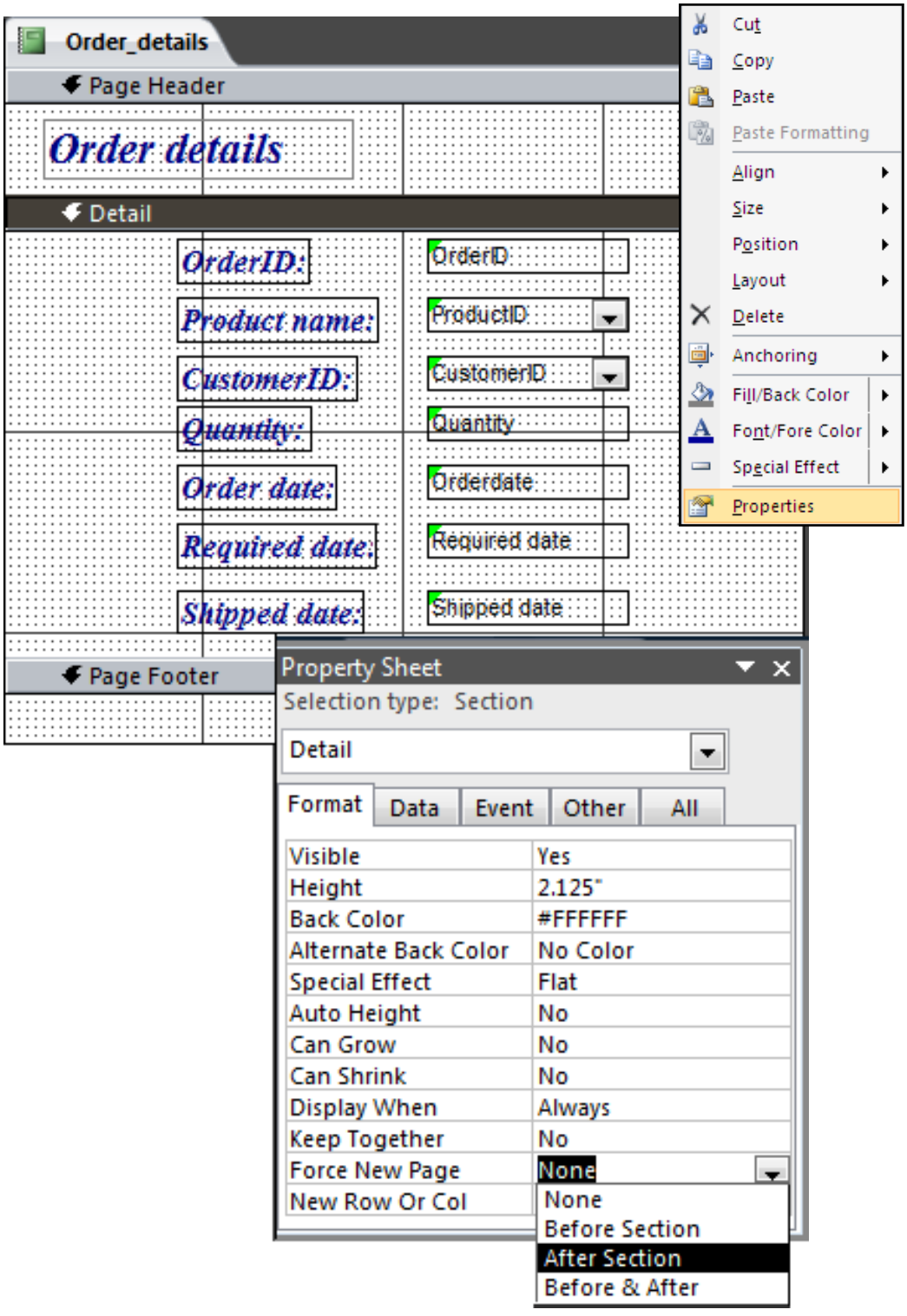
Group Footers

When reports are grouped based on a given field you can use the group footer section to add information particular to that group, such as the group total for example.



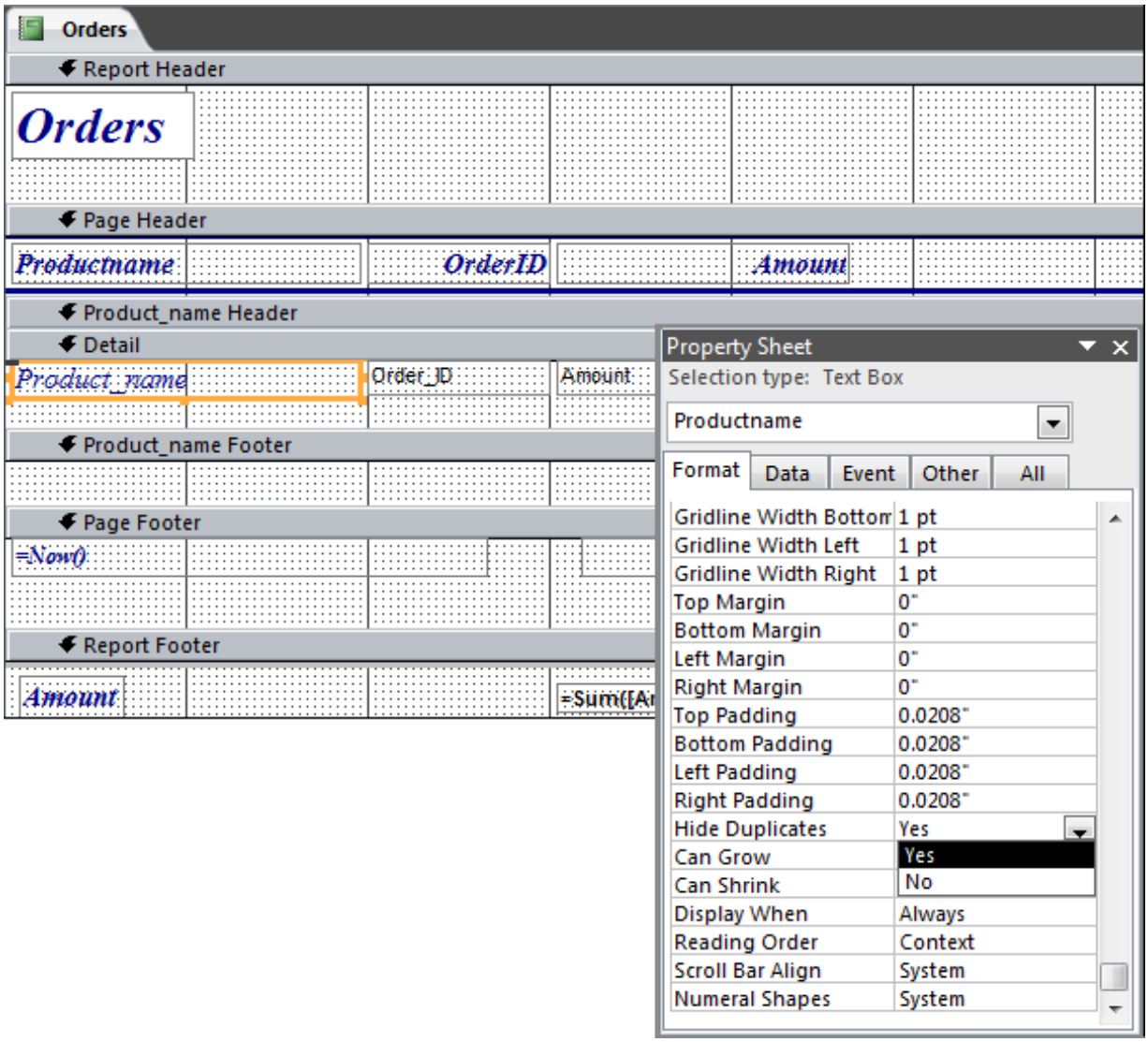
Visual summary: Unit 7 objectives

Forcing a new page



Visual summary: Unit 7 objectives

The hide duplicate property



Visual summary: Unit 7 objectives

Adding calculated fields

DateDiff function

DateDiff(“interval”, [date1],[date2])

For interval – **y** for difference between years.

m for difference between months.

d for difference between days.

IIF function

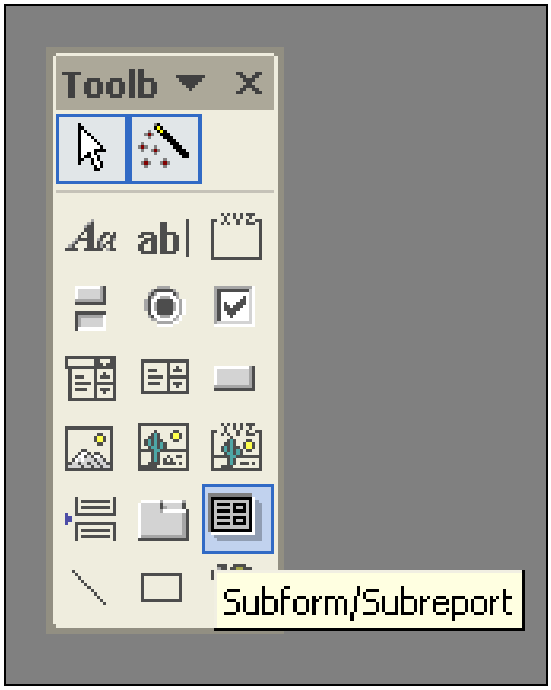
IIf(condition, value if true, value if false)

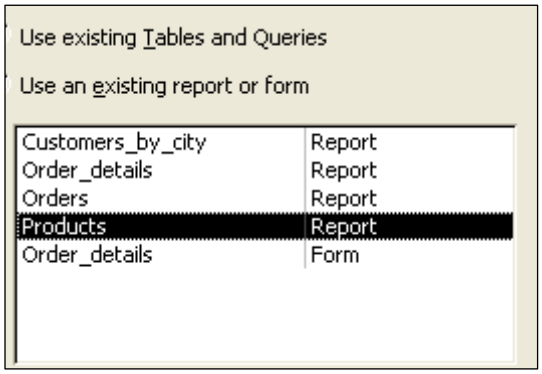
Visual summary: Unit 7 objectives

Working with SubReports

You can use a SubReport to display data from two reports.

Embedding a SubReport





Unit 7 Practice Activity

1. Open **Advanced_reports.mdb**.
2. Display the total quantity sold for each product in the Transaction_ details report by adding a group footer based on Product_ID.
3. Display the data in a different format whenever the Qty_sold is greater than 200 by adding conditional formatting to the Qty_sold field.
4. Update the report.
5. Switch to Print Preview.
6. Close the Report.
7. In the Transaction_dates report, add a text box control to display the difference between Order_date and Required_date.
8. Update the report.
9. Switch to the Print Preview to view the report.
10. Close the report.
11. Close the database.

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