Chapter 5:
Introduction to Forms Builder

Guide to Oracle 10g

Lesson B Objectives

After completing this lesson, you should be able to:

- Create a data block form that is based on a database view

- Modify form properties to improve form appearance and function

- Create a master-detail form that contains multiple data blocks

- Format form text items using format masks

Creating a Form Based on a Database View

- A **database view** looks and acts like a **database table** but is based on a query.

- View can contain **a subset of a table's fields**, or it can contain fields from **multiple tables**.

- **Database administrators** often use views to enforce security in databases, or to make it easier to retrieve related data that is in multiple tables.

Creating a Form Based on a Database View
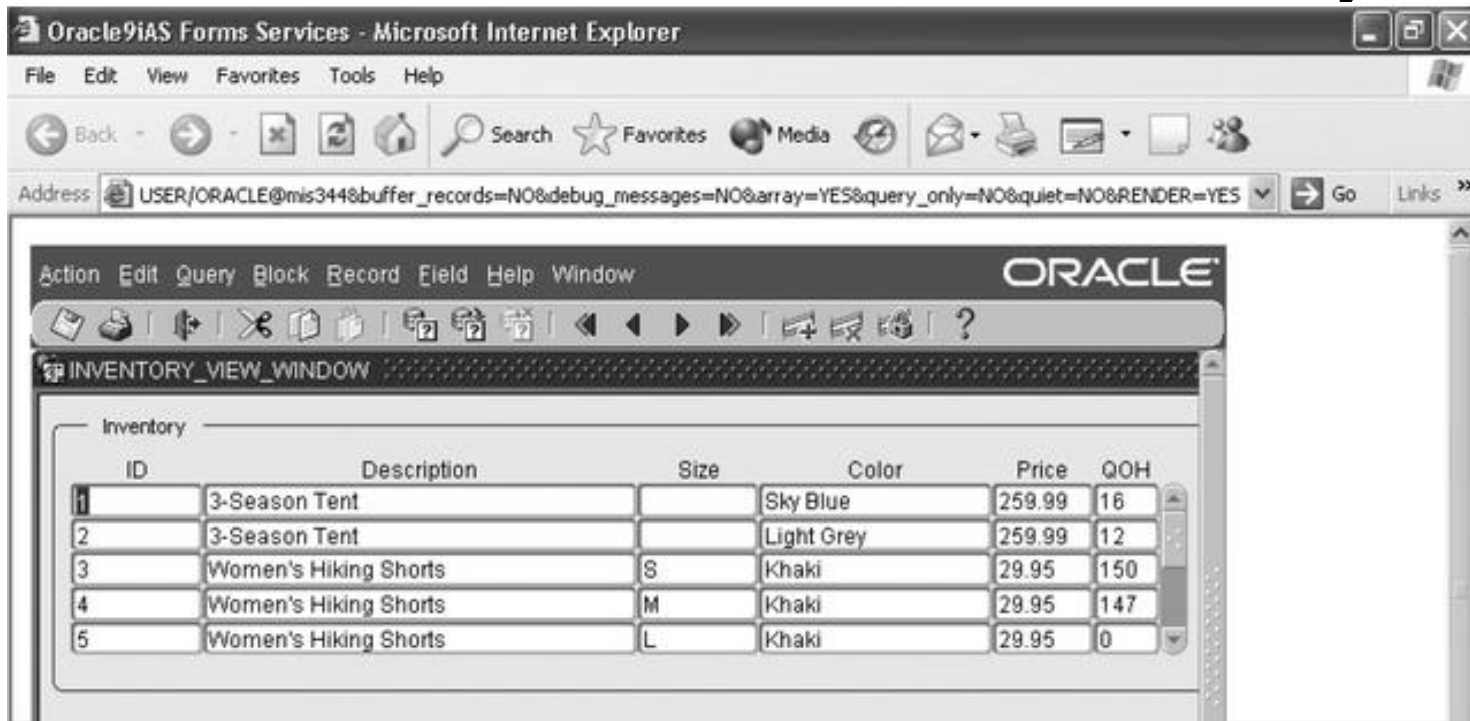
- Similar to form based on table but read-only

Figure 5-20 Form that displays data from a view

Creating a Form Based on a Database View

To create the view in SQL *Plus:

1. Start SQL*Plus, log onto the database, and type the following command to create the view:

CREATE OR REPLACE VIEW inventory_view AS
SELECT inv_id, item_desc, inv_size, color, inv_price, inv_qoh
FROM inventory, item
WHERE inventory.item_id = item.item_id;

2. Press Enter to execute the query. The message "View created" appears. Close SQL*Plus.

Now you create a form that uses INVENTORY_VIEW as its data source and displays five records at a time. You select the view from your list of database objects when you create the data block.

To create a form based on a view:

1. Start the OC4J Instance, and minimize the window, then start Forms Builder.   The Object Navigator opens, and displays a new form module. Make sure that the form module is selected, then click the **Data Block Wizard button** on the toolbar to create a new data block. When the Data Block Wizard Welcome page appears, click **Next**.

3. When the Table page appears, click **Browse**, and then log onto the database, if necessary. Make sure that the *Current User* check box is checked. Clear the **Tables** check box, and then check the Views check box so that only your database views appear. Select **INVENTORY_VIEW**, and then click **OK**.

4. Select all of the view columns to be included in the data block, make sure that the **Enforce data integrity check box** is cleared, and then click **Next**.

5. Accept INVENTORY_VIEW as the Data Block Name, and click **Next**.

6. Make sure the *Create the data block, then call the Layout Wizard* option button is selected, and then click **Finish**. The Layout Wizard Welcome page appears.

The form layout should display five records and include scroll bars. Now you create the layout using the Layout Wizard.

To create the form layout:

1. On the Layout Wizard Welcome page, click Next.

2. On the Canvas page, accept the (New Canvas) and Content default selections, and then click Next.

3. On the Data Block page, select all of the block items for display in the layout, and then click Next.

4. Modify the item prompts and field widths as follows, and then click Next

NAME	PROMPT	WIDTH
INV_ID	ID	54
ITEM_DESC	Description	177
INV_SIZE	Size	50
COLOR	Color	95
INV_PRICE	Price	41
INV_QOH	QOH	27

5. Select the Tabular layout style option button, and then click Next.

6. Type Inventory in the *Frame Title* field, change the *Records Displayed* field value to 5, leave the *Distance Between Records* field value as 0, and check the Display Scrollbar check box. Click Next, and then click Finish.

Now you save the form and change the form's window, canvas, and frame names in the Object Navigator. Then you run and test the form.

To save the form, change the form item names, and run the form:

1. In the Object Navigator, save the form as 5BInventoryView.fmb in the Chapter5\Tutorials folder on your Solution Disk.

2. Change the form module name to INVENTORY_VIEW_FORM, the form window name to INVENTORY_VIEW_WINDOW, and the form canvas name to INVENTORY_VIEW_CANVAS.

3. Click the Run Form button to run the form. When the form opens in the browser window, click the Enter Query button, and then click the Execute Query button to retrieve all of the view records into the form. The form looks like Figure 5-20 (in our textbook, page 299). (Your form might look slightly different, depending on your display settings.)

4. Close the browser window.

5. Close the form in Forms Builder. If a dialog box opens asking if you want to save the form, click Yes.

Recall that when you create a data block using a view, you can only examine the data.   You cannot modify the data by inserting new records or updating or deleting existing records.

Modifying Form Properties

- Form applications should be attractive, easy to use, and configurable. you need to modify some of the properties of data block forms you create using the Data Block and Layout Wizard to meet these standards.

- For example, the data block form based on the Northwoods University COURSE table shown in Figure 5-21 requires some formatting modifications.

Figure 5-21   Data block form that requires formatting modifications

Modifying Form Properties

- Modify properties of data block forms by using data block and layout wizard

- Property Palette
  - Displays list of properties and values
  - Right-click object to launch
  - Toolbar
  - Context bar
  - Property node

- Different form object types have different properties. For example, a text item has different properties than a window or a canvas.

Property Palette

- In the **Object Navigator**, open the Windows node, select one of the windows, **right-click**, and then click **Property Palette.** The Property Palette for the window opens, as shown in Figure 5-22.

- You can also open the **Property Palette** for most objects by double-clicking the **object icon** in the Object Navigator window, or by selecting the **object**, clicking **Tools** on the menu bar, and then clicking **Property Palette.**

- Change window title from functional title.
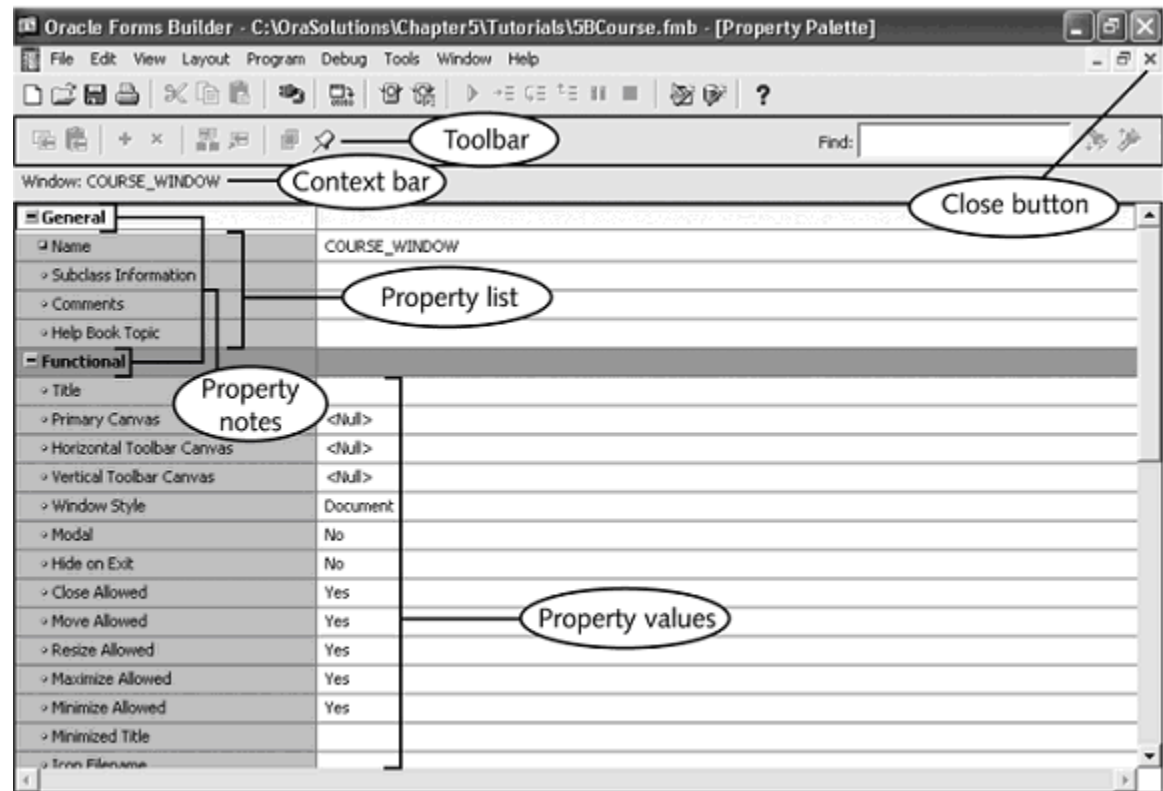
Figure 5-22   Window Property Palette

Modifying Frame Properties

- Recall that a frame encloses a data block's items.

- When you create a form layout in the Layout "Wizard, you specify the frame title and the distance between the records.

- Usually, the text items appear stacked on top of each other in a single column.

- In the form, the frame is a wider size and displays two columns of text items. You can resize the frame and change the frame properties.

- First, you examine the frame properties in the frame Property Palette.

To examine the frame Property Palette:

1. Open the Layout Editor by clicking Tools on the menu bar, and then clicking Layout Editor.

2. Select the Courses frame, right-click, and then click Property Palette.   The frame Property Palette opens, as shown in Figure 5-23.

Configure many of the frame properties, such as the frame data block, the frame title, the frame layout style, the number of records the frame displays, and the space between the records, when you created the form layout using the Layout Wizard.

- An important frame property is the *Update Layout* property, which specifies how the frame behaves.

- The Update Layout property value is Automatically, which means that when you resize or move the frame. Forms Builder automatically moves and repositions the items within the frame.

- The frame displays the items in the order they appear in the Data Blocks list in the Object Navigator.

- If the frame is resized to where it is not long enough to accommodate all of the items in a single vertical column, then the items appear in multiple columns.

- Other possible *Update Layout* property values are Manually, which enables you to resize the frame and then position the items manually, and Locked, which behaves the same as Manually, except that the item positions do not update when you change the layout properties using the Layout Wizard in reentrant mode.
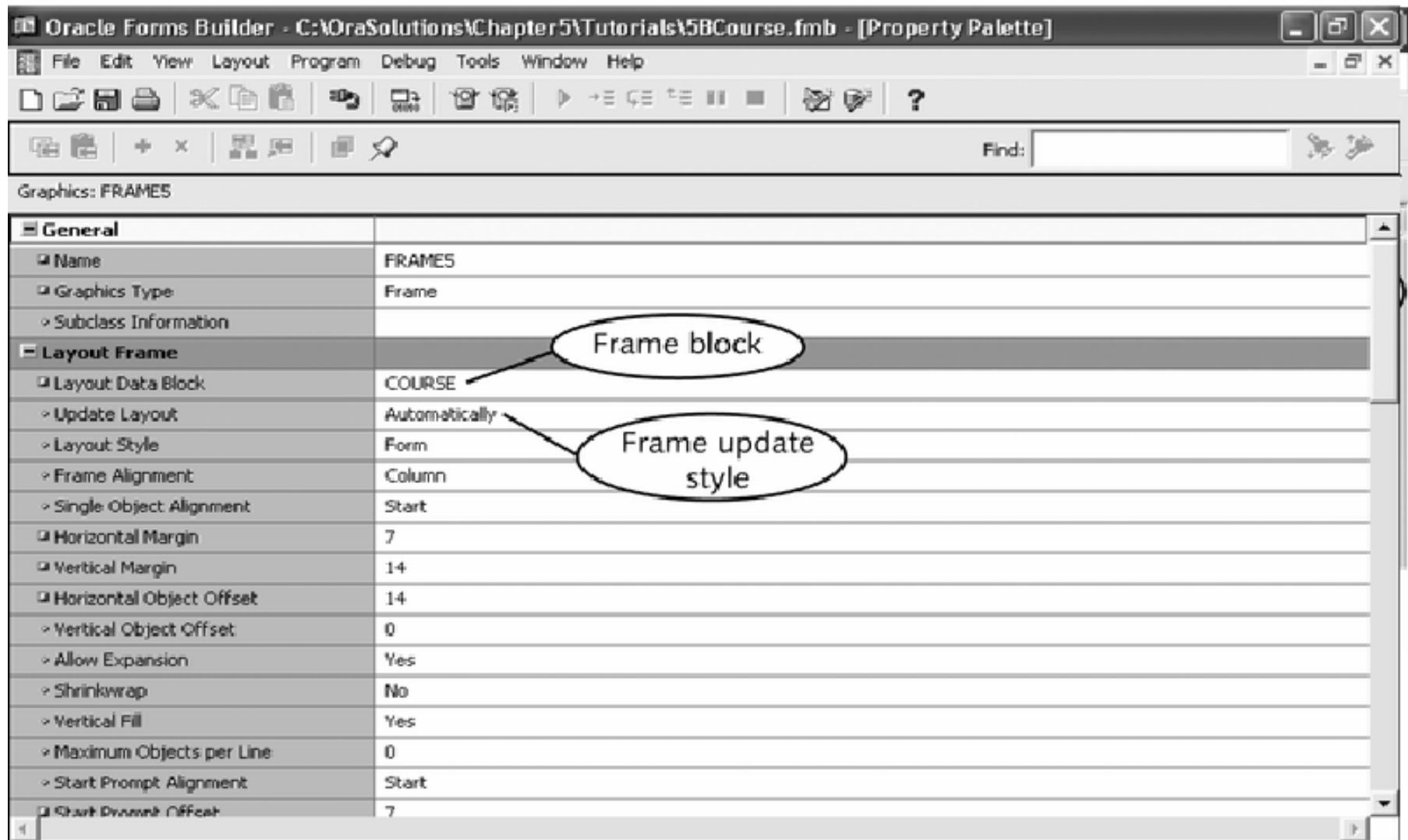
Figure 5-23 Frame Property Palette

- When you are developing simple data block forms, you usually leave the Update Layout property value as Automatically, so you do not have to position and align the form items manually.

To resize and reposition the form frame:

1. Close the frame Property Palette.

2. Make sure that the frame is selected, and then drag the lower right selection handle down and toward the left edge of the screen display to make the frame narrower and longer, as shown in Figure 5-24 .

3. After you have resized the frame, select the frame again if necessary, and then drag the frame to reposition it in the centre of the canvas, as shown in Figure 5-24.   Note that the frame items appear aligned in a single column and stacked on top of one another.
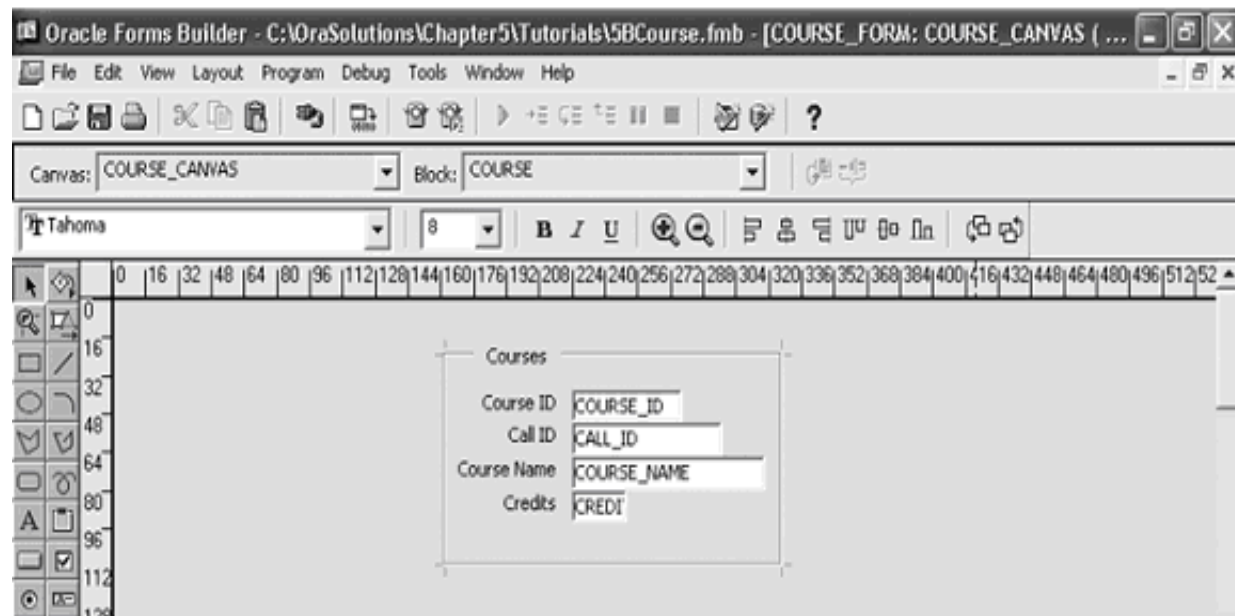

Figure 5-24   Modifying the frame size

Modifying Frame Properties

- When using Layout Wizard in reentrant mode
  - Manual formatting lost

Modifying Text Item Properties Using the Property Palette

The text item Property Palette enables you to control the appearance of the data value that appears in a text item. Table 5-1 summarizes some of the important text item appearance properties.

Property Node	Property Name	Description
Physical	Visible	Determines whether the item appears when the form is running
Color	Foreground Color, Background Color, Fill Pattern	Specifies the text color, background color, and fill pattern
Font	Font Name, Font Size, Font Weight, Font Style, Font Spacing	Specifies the appearance of the text item's font
Prompt	Prompt, Prompt Display Style, Prompt Justification, Prompt Alignment	Specifies the text and appearance of the item's prompt (label)

Table 5-1 Text item appearance properties

Modifying Text Item Properties Using the Property Palette

- Use a Property Palette in intersection mode to modify one or more properties of a group of objects so that all objects in the group have the same value or values.

- To open a Property Palette in intersection mode, you select multiple form objects as an object group, and then open the Property Palette.

- When you open a Property Palette in intersection mode, the context bar displays the text "*Multiple selection.*" When all group objects have the same value for a property, the common property value appears. When the objects have different values, the property value appears as "****" in the intersection Property Palette, and the property node appears as a question mark (?).

Oracle Forms Builder - C:\OraSolutions\Chapter5\Tutorials\5BCourse.fmb - [Property Palette]

File   Edit   View   Layout   Program   Debug   Tools   Window   Help

Find:

Multiple selection

Indicates is in intersection mode

General	
? Name	*****
◻ Item Type	Text Item
∘ Subclass Information	
∘ Comments	
∘ Help Book Topic	

Objects have different values

Functional	
∘ Enabled	Yes
∘ Justification	Start
∘ Implementation Class	
∘ Multi-Line	No
∘ Wrap Style	Word
∘ Case Restriction	Mixed
∘ Conceal Data	No
∘ Keep Cursor Position	No
∘ Automatic Skip	No
∘ Popup Menu	<Null>

Objects have the same value

Navigation	
∘ Keyboard Navigable	Yes
∘ Previous Navigation Item	<Null>

Modifying Text Item Properties Using the Property Palette

- Text item properties
  - Control how users enter data values
  - How form displays data values
- Hint: appears in the form message line when the insertion point is in the text items.
- ToolTip: appears beside the mouse pointer when the user moves the mouse pointer over the text item.

Text Item Data Value Properties

Property Node	Property Name	Possible Values	Description
Functional	Multi-Line	Yes or No	Specifies whether the text item allows multiple-line input
Functional	Case Restriction	Yes or No	Converts entered value to uppercase or lowercase letters
Functional	Enabled	Yes or No	Specifies whether the user can navigate to the item using the Tab key or mouse pointer
Functional	Conceal Data	Yes or No	Specifies that characters entered in the field are hidden and replaced by " * "
Data	Data Type	Oracle or PL/SQL data types	Specifies the text item data type
Data	Initial Value	Value or variable	Specifies a default value that is inserted into the text item each time the user creates a new record
Data	Maximum Length	Integer value	Specifies the maximum number of characters that the user can enter into the text item
Data	Required	Yes or No	When set to Yes, specifies that the user must enter a value in the text item in order to save a new record
Data	Format Mask	Specific format mask	Specifies the format mask of the item value

Table 5-2   Text item data value properties

A format mask is the same as a format model. Recall that a format model specifies how an application formats a data item, such as a displaying a date value using the format MM/DD/YYYY, or displaying a number value as currency.

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Text Item Database Properties

Text items also have properties that specify how an item interacts with the database. Table 5-3 summarizes these properties, which appear under the Database property node.

Property Name	Possible Values	Description
Primary Key	Yes or No	Specifies that the item corresponds to a database table's primary key
Query Only	Yes or No	Specifies that the item can appear in the form, but cannot be used for an insert or update operation
Query Allowed	Yes or No	Determines whether or not the user can perform queries using this item
Query Length	Integer value	Specifies the maximum length allowed in the text item for a restricted query search condition; a value of 0 means there is no length limit
Insert Allowed, Update Allowed, Delete Allowed	Yes or No	Determines whether the user can manipulate the item value when inserting, updating, or deleting a record

Table 5-3   Text item database properties

The form automatically sets these properties to default values that allow the user to insert, update, delete, and view database records. A developer changes these values only when the form needs to restrict user operations.

- The Help text item properties add information that makes the form easier to use as the user navigates among form text items.

- Two different types of information: hints and ToolTips.

- A hint appears in the form message line when the insertion point is in the text item.

- A ToolTip appears beside the mouse pointer when the user moves the mouse pointer over the text item. Table 5-4 summarizes the text item hint and ToolTip properties in the Help property node.

Property Name	Possible Values	Description
Hint	Hint text	Specifies the text that appears in the message line when the insertion point is in the text item
Display Hint Automatically	Yes or No	Specifies whether the hint appears automatically when the user places the insertion point in the text item, or whether the hint appears only when the insertion point is in the text item and the user presses the F1 function key or selects the Help command on the menu bar
ToolTip	ToolTip text	Specifies the text that appears in the ToolTip

Creating a Data Block Form That Displays Data from Multiple Tables

- Can create data block forms that display data from multiple database tables which have master-detail relationships

- Master-detail relationship: one database record has multiple related records through foreign key relationships

- Use data block wizard to create master block (for master table) first

- Data Block Wizard

  – Create master block: which is the block that displays the master records.

  – Create detail block: which is the block that displays the detail records.

Layout of Faculty Advisor Form

Figure 5-50 Layout of Faculty Advisor form

Creating a Data Block Form that Displays Data from Multiple Tables

- Create detail blocks next and specify relationship on master-detail tab
  - Use auto-join to allow Forms Builder to decide on join condition
  - Use manual join to specify join fields
- Code is added to link form blocks together so that when new master is selected, new detail appears

Creating the Detail Data Block

- The Master-Detail page allows you to specify master-detail relationships among data blocks.

- Auto-join feature of Data Block Wizard create the relationship.

- Create link manually
  - Click Create Relationship
  - Explicitly select related items

- Join Condition field syntax:
  - *detail_block.join_item = master_block.join_item*
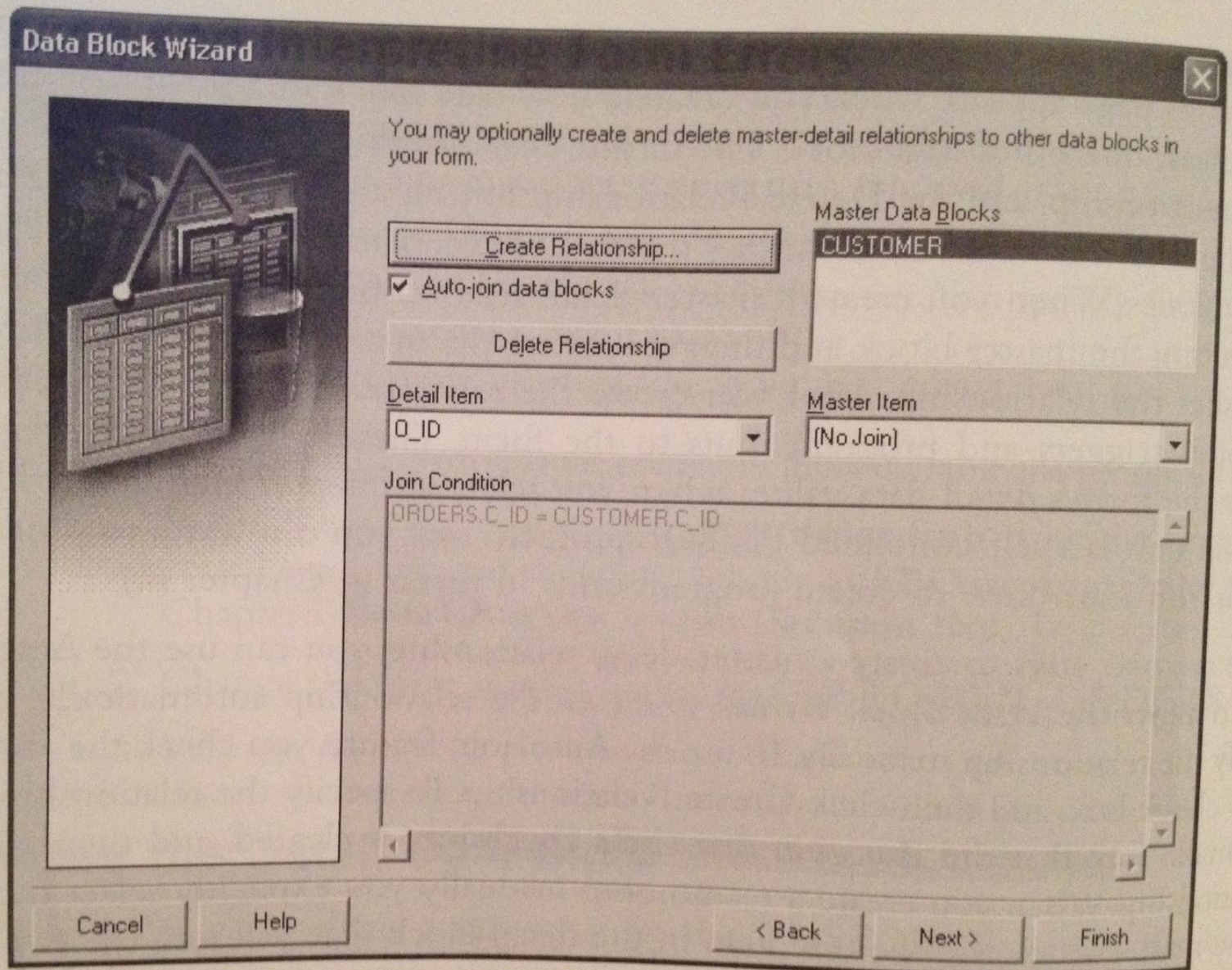
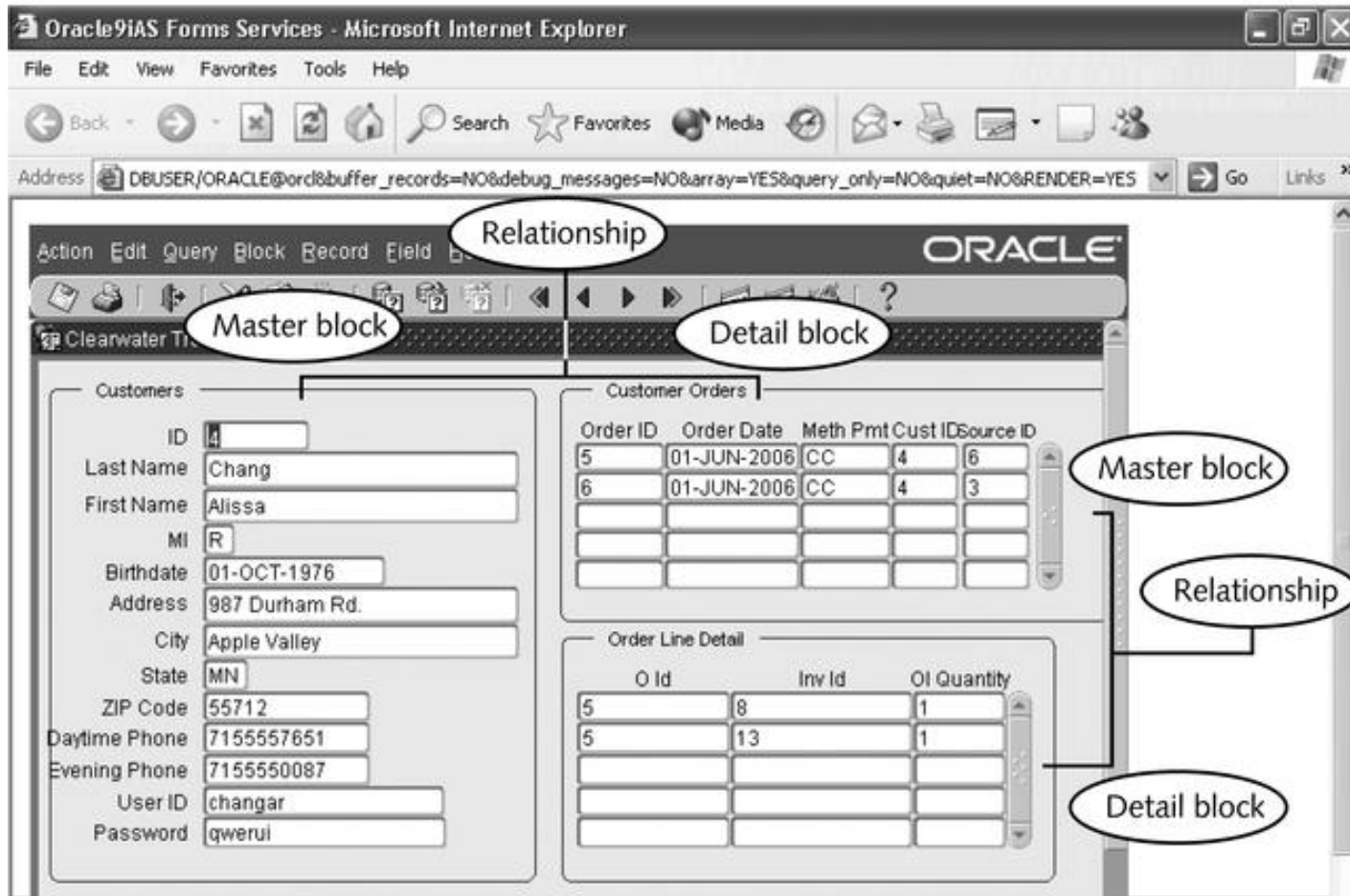**Figure 5-27** Data Block Wizard Master-Detail page

Multiple Master-Detail Blocks

Figure 5-28 Customer Order form with multiple master-detail relationships

Running the Master-detail Form

- Put insertion point in master block before executing query

- Add, update, delete, and query database records in master-detail form

  - Just as in single-table form

  - Only insert, update, delete, or query records in block currently selected and displaying insertion point

Adding Another Detail Data Block to the Form

- Data block can be master block in multiple master-detail relationships

- Data block can also be detail block in one master-detail relationship

  - And master block in second master-detail relationship

- Use Data Block Wizard:

  - To create new data block that contains new information

Data Block Wizard
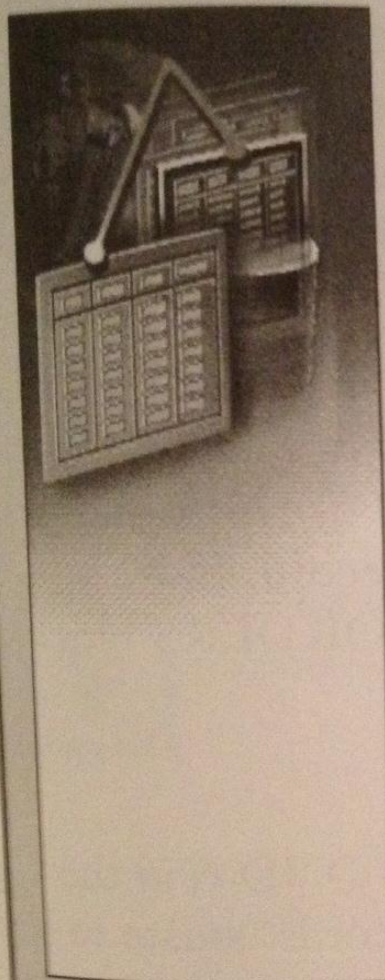
You may optionally create and delete master-detail relationships to other data blocks in your form.

Master Data Blocks

Create Relationship...

☐ Auto-join data blocks

ORDERS

Delete Relationship

Detail Item

O_ID

Master Item

O_ID

Join Condition

ORDER_LINE.O_ID = ORDERS.O_ID

Cancel   Help   < Back   Next >   Finish

Figure 5-29 Specifying a second master-detail relationship

Using Format Masks to Format Character Strings

- Format mask
  - Same as format model
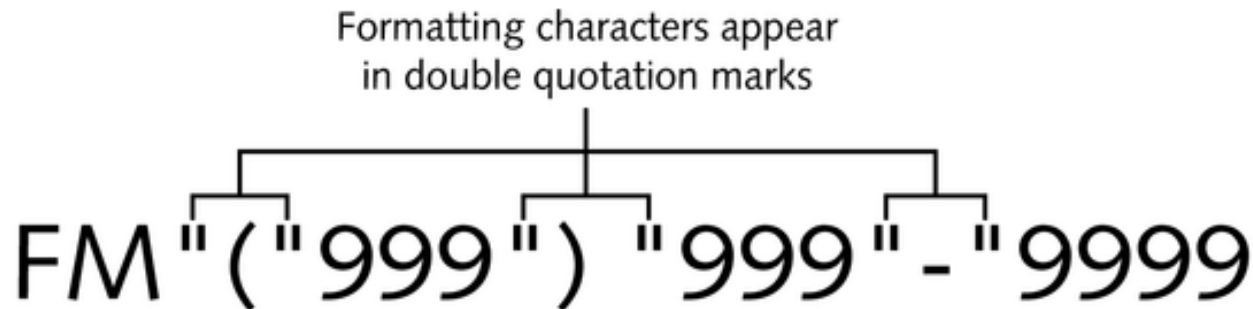 - Set using Property Palette
  - Proceed with "FM"

Formatting characters appear
in double quotation marks

FM"("999")" "999"-"9999

Figure 5-30 Creating a format mask that embeds formatting characters in a character string

Lesson B Summary

- Create data block from view

- Modify properties using Property Palette
  - Text item properties

- Master-detail relationship
  - Create master block first
  - Specify relationship automatically or manually