PART I

Preparing for OCP Exam 3: Build Internet Applications I
CHAPTER 1

Introduction to Oracle Forms 6i
In this chapter, you will cover the following areas of Oracle Forms 6i:

- Overview of Oracle Forms 6i
- Introduction to Oracle Forms 6i tools
- Customizing your Oracle Forms 6i session

This unit covers materials that are tested in OCP Exam 3, Build Internet Applications I. The first section of this chapter gives a high-level overview of Oracle Forms 6i's features, along with the benefits of using it. The next section provides a first look at the components that make up the Oracle Forms 6i package. The final section describes how you can tune the Oracle Forms 6i application so it more closely matches the way you like to work.

**Overview of the Oracle Forms 6i Package**

In this section, you will cover the following points about the Oracle Forms 6i package:

- Features and benefits of using Oracle Forms 6i
- Component groups in Oracle Forms 6i

Oracle Forms 6i is comprised of several powerful tools enabling developers to create robust, highly scalable applications more quickly than would be possible using a programming language such as C, Visual Basic, or Java. With it, developers can use tools (known as Builders in Oracle Forms 6i) to create the different parts of an application, such as forms, charts, queries, procedures, and database objects.

**Features and Benefits of Using Oracle Forms 6i**

Oracle Forms 6i is a sophisticated and, some might say, complicated program. That is true of any application designed to do as many things as Oracle Forms 6i does. Learning it well takes time, but that investment will be rewarded with a broad array of powerful, timesaving capabilities. Some of the benefits include enhanced productivity, the ability to design scalable applications, adherence to Oracle's standard of openness between applications, creation of reusable applications, Dynamic Visualization, and Web deployment of applications to take advantage of advances in Internet/Web technology.
Productivity
For individual developers, Oracle Forms 6i speeds application design by employing object orientation, rapid application design (RAD) techniques, a unified client-server architecture, and online computer-based training modules. It allows components to be reused and to be grouped into classes whose characteristics can be inherited by subclasses. You can use wizards to create application components quickly and easily. (Wizards are special interfaces that prompt you to specify values for certain components and then configure objects according to parameters you defined.) If you use Oracle's Designer 6i CASE tool, you can have Oracle Forms 6i base an application on a Designer 6i model. In addition, forms created in Oracle Forms 6i can interface with programs written in other languages (C, for instance) using the Open API. The Open API can also be used to create or modify form modules.

Scalability
Because Oracle Forms 6i is designed to accommodate a multitiered architecture, it has many features that help an application scale up to handle large quantities of data. On the database server side, it provides array data manipulation, such as array inserts and deletes. This feature can dramatically improve application performance by automatically sending inserts, updates, and deletes to the server in a batch without having to write complex optimization code. In addition, Oracle Forms 6i can base forms on data returned from server-based stored procedures, and, when a user updates data, an Oracle Forms 6i application can recompute subtotals on the client computer without having to run another server query. All of these features reduce network traffic, thereby increasing the number of users a given server can accommodate with reasonable performance. Oracle Forms 6i provides a simple drag-and-drop interface to specify whether an object runs on the client or the server.

Openness
Oracle Forms 6i provides a rich set of features for interacting with other applications. It accommodates OCX/ActiveX controls, Object Linking and Embedding (OLE), and Dynamic Data Exchange (DDE). In addition to its native Oracle database, Oracle Forms 6i can work with data stored in SQL Server, Sybase, Informix, Rdb, and DB/2, as well as any database accessible via ODBC or the Oracle Gateway. It can even work with data from multiple databases simultaneously.

In addition, numerous third-party companies have created interfaces between their products and Oracle Forms 6i. Available from members of the Open Tools Initiative, these interfaces allow Oracle Forms 6i to interact with CASE and modeling tools, configuration management (version control) tools, workflow engines, and transaction-processing (TP) monitors, among many others.
Usability
Oracle Forms 6i provides a variety of features enabling you to create applications that are extremely easy to use. You can build intuitive drag-and-drop user interfaces; incorporate image and sound files that are stored either within the database or as individual files; call dynamic link library (.dll) files to take advantage of platform-specific features within your applications; and incorporate animations, tooltips, and pop-up menus.

Visualization
With a sophisticated feature called Dynamic Visualization, Oracle Forms 6i enables you to create applications in which data and the graphics depicting the data can interact. This allows you to create features such as run-time chart editing, seamless Web reporting, graphical drill-down from overview to line-item detail, visual selection of data based on a graphical display, and conditional formatting of the display based on the content of the data within it.

Web Deployment
Oracle Forms 6i provides features enabling you to deploy your application on the Internet or an intranet with a minimum of effort. Data entry forms, graphics, and online reports can all use a Web browser as the “client” portion of the multitier model. This feature is built using Java, bringing with it the many benefits of platform independence. Using a Java-enabled browser, your application can run in any environment. This eliminates the need to learn a new language to create applications for different environments.

Exercises

1. Name six important features of Oracle Forms 6i. Why are they important?
2. What form of server data manipulation is available in Oracle Forms 6i? What is the advantage of using it?
3. What is the benefit of using Java for database applications?

Component Groups in Oracle Forms 6i
In situations where an application needs to be deployed in more than one language (written language, not computer language), the Translation Builder enables you to map text strings from one language to another. It then applies prior translation decisions to later versions of the application, thereby making subsequent translations easy to do.
Components for Development
The major front-end development components of Oracle Forms 6i are Forms and Graphics. These components provide the front-end capabilities of an application: inserting and querying data, and displaying information in graphical formats. Object management is accomplished using other Oracle Forms 6i components that allow manipulation of code and objects at the client and server level. Oracle Forms 6i supports three-tier architecture: the database server, an application server, and the client computer.

Oracle Forms 6i offers special features for back-end server development, as well as for Web deployment. For back-end development, Oracle Forms 6i offers the Query Builder, Procedure Builder, and Schema Builder. These tools are designed to speed up the nuts-and-bolts work needed to put the essential infrastructure of an application into place. Oracle Forms 6i handles Web transactions and publishing through its Web components as well. The Oracle Forms 6i Server allows applications to be accessed through any browser on the Web. The product’s Graphics components also facilitate publishing data and reports on the Web.

Exercise
1. What is the purpose of the Translation Builder?

Introduction to Oracle Forms 6i Builder Tools
In this section, you will cover the following points about Oracle Forms 6i Builder tools:

- Builder tools for project management
- Builder tools for front-end development
- Builder tools for back-end development

When you install Oracle Forms 6i, you have the option to install some or all the components. The following tools are the major components in the Oracle Forms 6i package: Form Builder, Graphics Builder, Procedure Builder, Query Builder, Schema Builder, and Translation Builder. The various Builders in Oracle Forms 6i can be grouped into the categories of project management, front-end application management, and back-end application management. These components work together in a hierarchy that is depicted in Figure 1-1.
Builder Tools for Project Management

For project management Oracle Forms 6i offers the Translation Builder. The Translation Builder provides the means for developers to translate an application’s text into other languages and to store those translations in a repository to be used automatically when future versions of the application are translated. The Translation Editor performs the actual translation and manages the translation strings so future translations can be accomplished more quickly. Figure 1-2 displays an example screen from Translation Builder to aid your understanding.

Exercise

1. What are the benefits of using the Translation Builder?

Builder Tools for Front-End Development

To help you build your application’s front-end interface, Oracle Forms 6i provides the Form Builder and Graphics Builder tools. The Form Builder simplifies the creation of data-entry screens (also known as forms). Forms are the applications that connect to a database, retrieve information requested by a user, present it in a layout specified by the form’s designer, and allow the user to modify or add information. Form Builder enables you to build forms quickly and easily, working with a set of wizards to step you through various tasks. Figure 1-3 shows a sample screen from the Form Builder tool.

The Graphics Builder allows you to create interactive graphical displays of the data in a database. These graphics can then be embedded in forms and reports.
Graphics Builder provides a complete set of drawing and editing tools, along with a Chart Wizard to simplify the process of using the tools. Graphics created with Graphics Builder can be designed to change, based on user interaction at run time. The program also allows you to import and export a wide range of image formats. Figure 1-4 displays the Graphics Builder main screen.

Exercises

1. What is a database’s “front end”?
2. What Builder(s) would be used to create a data-entry screen? Add a pie chart to it?

Builder Tools for Back-End Development

Back-end server development is a task covered by Oracle Forms 6i as well. Developing PL/SQL stored procedures, functions, and packages are not tasks that should be handled using flat files and SQL*Plus alone, as any seasoned developer who’s struggled through it the hard way can attest. Instead, Oracle Forms 6i uses Procedure Builder to work on PL/SQL code for either client-side or server-side execution. It incorporates a broad set of features to aid in creating, testing, and debugging PL/SQL code in program units, libraries, and triggers. Figure 1-5 displays an example screen from Procedure Builder.

Schema Builder is a useful tool that allows you to define the tables, views, snapshots, synonyms, constraints, and relationships that will make up your
database. It lets you visualize a database design, including the tables, columns, data types, and relationships, and then create the database objects to realize that design. This tool is useful to both developers and DBAs, in that it manages all aspects of Oracle database object creation and then displays all those components with ease. Figure 1-6 displays an example screen from Schema Builder.

One final aspect of back-end server development in Oracle Forms 6i is the creation of SQL statements. Building sophisticated forms and graphics can require writing complex SQL programs behind the scenes. Query Builder facilitates writing SQL code by providing a visual interface to the database objects being linked. Query Builder constructs SQL Data Manipulation Language (DML) queries that modify data in the database. Using this tool, you can design an efficient query based on its performance in several scenarios. Figure 1-7 displays a sample screen from the Query Builder tool.
FIGURE 1-4.  Graphics Builder main screen

FIGURE 1-5.  Procedure Builder example screen
Exercises

1. Identify and describe the components in the three broad divisions of the Oracle Forms 6i Builder set.

2. Which Oracle Forms 6i Builder can be used to add columns to an existing table? Put a new button on an existing form? Create a database trigger? Track common libraries and menus in forms?
Chapter Summary

This chapter provided an overview of the Oracle Forms 6i components. It began by introducing the features and benefits you can enjoy by using Oracle Forms 6i. These features include productivity resulting from an object-oriented rapid application design (RAD) environment. Your productivity also benefits from reusable components; a unified, multitiered architecture; component classes whose characteristics can be inherited by subclasses; and wizards to quickly guide you through many common tasks.

The next feature is the scalability that comes from being able to easily specify whether objects execute on the client or the server, as well as bandwidth-saving features such as array data manipulation for performing batch inserts, updates, and deletes without writing code. Scalability is also enhanced by the ability to base
forms on server-run stored procedures, as well as the ability to recalculate aggregate values on the client without having to requery the server.

Another benefit of Oracle Forms 6i is the openness resulting from support for OXC/ActiveX controls, Object Linking and Embedding (OLE), and Dynamic Data Exchange (DDE) to interact with other programs. Adding to the openness of Oracle Forms 6i is its ability to work with data in many other databases, and its ability to interact with programs that provide CASE and modeling functions, configuration management (version control), and transaction-processing (TP) monitoring, written by companies in the Open Tools Initiative, whose products provide CASE and modeling functions, configuration management (version control), and transaction-processing (TP) monitoring.

The next benefit is the high degree of usability you can build into your Oracle Forms 6i applications. You can incorporate pop-up menus, tooltips, and animations to make your applications easier to use. You can build easy-to-understand drag-and-drop user interfaces, and you can have your applications include image and sound files, with the files being stored either within the database or as separate files. If your project prioritizes performance over portability, you can employ .dll files to access platform-specific features within your applications.

The next benefit is visualization, which enables you to create such handy features as run-time chart editing, graphical drill-down from overview to line-item detail, conditional formatting of a display based on its content, and visual selection of data based on a graphic display. Finally, Oracle Forms 6i provides Web deployment features enabling you to create Web-browser-based applications with minimal effort. Without having to learn Java, your applications can run in any environment in which a browser is available, including the Network Computing Architecture.

Next, you learned about the two groups of Oracle Forms 6i components: management components and development components. The management components consist of the Translation Builder. Translation Builder keeps track of text strings within your application that you translate from one language to another, and, when you have a future revision of that application to translate, Translation Builder automatically translates any strings that match those translated before. The development components include the Form Builder, Graphics Builder, Procedure Builder, Schema Builder, and Query Builder.

The last section covered Oracle Forms 6i Builders in more detail. This section divided the development components of Oracle Forms 6i into two subgroups: front-end development (items the user sees and interacts with) and back-end development (behind-the-scenes objects). Oracle Forms 6i expedites front-end development with its Form Builder and Graphics Builder. For the back end, Oracle Forms 6i helps you get work done quickly by offering the Procedure Builder, Schema Builder, and Query Builder.
Two-Minute Drill

- Oracle Forms 6i is a collection of several programs enabling developers to quickly produce database applications. Oracle Forms 6i enables developers to quickly produce database applications.

- In addition to increased productivity, Oracle Forms 6i also offers developers a high degree of scalability, openness, usability, visualization, and ease of Web deployment.

- The productivity of Oracle Forms 6i benefits comes from its object orientation, multitier architecture, and use of rapid application design (RAD) techniques. Oracle Forms 6i allows classing and subclassing of components; provides wizards to simplify common tasks; uses the Open API to interface with programs written in other languages; and can interface directly with Oracle’s Designer 6i CASE tool, as well as with version-control systems and other applications.

- The scalability features of Oracle Forms 6i include the ability to identify whether an object runs on the client or the server simply by dragging and dropping it into the appropriate location within the interface. Oracle Forms 6i further promotes scalability with numerous features to reduce network traffic, such as array data manipulation, the ability to base forms on stored procedures running on the server, and the ability to recalculate aggregate values on the client without having to requery the server.

- Oracle Forms 6i provides a high degree of openness by making it easy to interact with non-Oracle databases, as well as with other applications. Several major database platforms are supported, as well as any database accessible via ODBC or the Oracle Gateway. To interact with other applications, you can employ OCX/ActiveX controls, OLE, and DDE.

- To promote usability within your applications, Oracle Forms 6i lets you include pop-up menus, tooltips, and animations in your interfaces; incorporate drag-and-drop functions; include image and sound files stored either as separate files or as objects within your database; and make calls to .dll files if you need to employ platform-specific features.

- The Dynamic Visualization feature of Oracle Forms 6i lets you include graphics in your applications and have the graphics interact with the data beneath them. This enables you to deploy features like graphical drill-down from overview to line-item detail; run-time chart editing; visual selection of data based on a graphic display; and conditional formatting of a display based on its data.
Oracle Forms 6i enables you to produce forms and reports that run within any standard Web browser without having to learn another language or install a different run-time client for each client environment.

Oracle Forms 6i programs can be divided into two main categories: management components and development components.

Its development components include function-specific tools to create specific portions of your project. For front-end development, it offers the Form Builder and Graphics Builder. For back-end development, it provides the Procedure Builder, Schema Builder, and Query Builder.

You can set preferences within most of the Oracle Forms 6i Builders to tailor their appearance and operation to suit your work style.

Chapter Questions

1. Which of the following are major features of Oracle Forms 6i? (Choose six.)
   A. Graphical depiction of business processes
   B. Ease of Web deployment
   C. Centralized control over user access levels
   D. Productivity
   E. Openness
   F. Wide acceptance by international standards committees
   G. Usability
   H. Radio buttons
   I. Scalability
   J. Visualization

2. What form of batch data manipulation is available in Oracle Forms 6i?
   A. Bidirectional data links
   B. ODBC
   C. Array data manipulation
3. What is the primary advantage of using the client data manipulation type referred to in question 2?
   A. Minimal coding
   B. Reduced network traffic
   C. Web deployment
   D. Faster PL/SQL procedures

4. What is the primary benefit of using Java in database applications?
   A. More complete database functionality
   B. Can deploy on numerous platforms easily
   C. Cool addition to résumé
   D. Faster PL/SQL procedures

5. What is the purpose of the Translation Builder?
   A. To automatically translate your application into other languages
   B. To simplify conversion of data from one database format to another
   C. To ensure that forms are easy to understand
   D. To store earlier translations performed manually and applies them to subsequent translations

6. Which statement most accurately describes what Oracle Forms 6i does if it finds a parameter with different settings in the Global Registry and the User Registry?
   A. Prompts user to ask which setting to use
   B. Resets User Registry setting to match that in the Global Registry
   C. Uses the setting from the Global Registry
   D. Uses the setting from the User Registry
   E. Stops with an error message

7. Which of the following are among the management components of Oracle Forms 6i?
   A. Form Builder
   B. Procedure Builder
8. Which of the following are not among the front-end components of Oracle Forms 6i? (Choose two.)
   
   A. Form Builder
   B. Procedure Builder
   C. Graphics Builder
   D. Schema Builder
   E. Translation Builder

9. Which of the following are among the back-end development components of Oracle Forms 6i? (Choose three.)
   
   A. Form Builder
   B. Procedure Builder
   C. Graphics Builder
   D. Query Builder
   E. Schema Builder
   F. Translation Builder

10. What Builders would be used to create an online report containing a pie chart?
    
    A. Form Builder
    B. Procedure Builder
    C. Graphics Builder
    D. Query Builder
    E. Schema Builder
    F. Translation Builder

11. Which of the following features enable Oracle Forms 6i applications to interact with various manufacturers’ databases? (Choose two.)
    
    A. ODBC
    B. OCX/ActiveX
12. Which of the following features enable Oracle Forms 6i applications to interact with other programs? (Choose three.)
   A. ODBC
   B. OCX/ActiveX
   C. OLE
   D. Oracle Gateway
   E. DDE

13. Which of the following Oracle Forms 6i features promote creating easy-to-use applications?
   A. Pop-up menus
   B. Tooltips
   C. Animations
   D. Drag-and-drop

14. What does the Dynamic Visualization feature in Oracle Forms 6i provide?
   A. Graphical drill-down from overview to line-item detail
   B. Run-time chart editing
   C. Visual selection of data based on a graphic display
   D. Conditional formatting of a display based on its data

15. Which Oracle Forms 6i builder enables you to add a column to an existing table?
   A. Form Builder
   B. Graphics Builder
   C. Procedure Builder
   D. Schema Builder
   E. Query Builder
16. Which Oracle Forms 6i Builder enables you to view data in an existing table?

A. Form Builder  
B. Graphics Builder  
C. Procedure Builder  
D. Schema Builder  
E. Query Builder

17. Which Oracle Forms 6i Builder enables you to automate repetitive tasks?

A. Form Builder  
B. Graphics Builder  
C. Procedure Builder  
D. Schema Builder  
E. Query Builder
Answers to Chapter Questions

1. B, D, E, G, I, J. Ease of Web deployment, Productivity, Openness, Usability, Scalability, Visualization

**Explanation** Graphical depiction of business processes is a feature of Oracle Designer 6i, not Oracle Forms 6i. Centralized control over user access levels comes from the Oracle server Security Manager. The level of acceptance by international standards committees is not relevant, since you distribute Oracle Forms 6i applications in executable format, or design them to be used in Web browsers. And whereas radio buttons are certainly available as features within an Oracle Forms 6i form, it cannot be considered a major feature.

2. C. Array data manipulation

**Explanation** Bidirectional data links are not inherently batch-oriented. ODBC capabilities were present in earlier version of Oracle Forms 6i.

3. B. Reduced network traffic

**Explanation** By allowing you to specify that inserts, updates, and deletes should occur in batches rather than one record at a time, array data manipulation reduces the number of transactions necessary to affect large numbers of records, thereby reducing network traffic, which generally improves an application’s performance.

4. B. Can deploy on numerous platforms easily

**Explanation** Platform independence is Java’s main claim to fame.

5. D. Stores earlier translations performed manually and applies them to subsequent translations

**Explanation** The Translation Builder does not automatically translate your application. It stores the translations you create manually when converting your application’s front end from one language to another. It then remembers and re-applies those translations automatically during subsequent translations. It does not convert database data or try to determine how easy your forms are to use.

6. D. Uses the setting from the User Registry

**Explanation** By definition, the Global Registry contains default settings that can be overridden by individual developers. When a setting is overridden, the overriding setting is stored in the individual’s User Registry.
7. E. Translation Builder

**Explanation**  The Translation Builder gives umbrella-like control over the language of text within modules created using the other Builders.


**Explanation**  The Oracle Forms 6i tools designed to create front-end components—components the user interacts with directly—are the Form Builder and the Graphics Builder.

9. B, D, E. Procedure Builder, Query Builder, and Schema Builder

**Explanation**  The Oracle Forms 6i tools designed to create back-end components—components the user does not interact with directly—are the Procedure Builder, the Query Builder, and the Schema Builder.

10. A, C. Form Builder, Graphics Builder

**Explanation**  An online report is essentially a form designed to display output. The Form Builder is going to be involved. The Graphics Builder is included as well, because the form is going to contain a pie chart.

11. A, D. ODBC, Oracle Gateway

**Explanation**  Using the Open Database Connectivity (ODBC) protocol or the Oracle Gateway, you can build applications to use databases from many different manufacturers.


**Explanation**  All three of these features are designed to link code or objects created by other programs into Oracle Forms 6i applications.


**Explanation**  All of these features promote creating applications that are easy to use.

14. A, B, C, D. Graphical drill-down from overview to line-item detail, Runtime chart editing, Visual selection of data based on a graphic display, Conditional formatting of a display based on its data

**Explanation**  The ability to use graphics elements to control program operation offers all of the benefits listed.
15. D. Schema Builder

**Explanation** The Schema Builder’s purpose is providing control over the structure of tables and related objects.

16. A, E. Form Builder, Query Builder

**Explanation** Forms Builder displays data when you run a form, and Query Builder displays data each time you tell it to execute a query.

17. C. Procedure Builder

**Explanation** Automating repetitive tasks falls into the realm of programming, and Procedure Builder helps you write PL/SQL programs.