Oracle Application Development Framework 11g Essentials – Exam Guide

The Oracle Application Development Framework 11g Essentials Exam Guide is designed to provide students with the training information that can help them pass the Oracle Application Development Framework 11g Essentials Exam (1Z0-554). The exam targets intermediate-level implementation team members. Up-to-date training and field experience are recommended.

The exam objectives are defined by learner or practitioner level of knowledge.

Learner-level: questions require the candidate to recall information to derive the correct answer
Practitioner-level: questions require the candidate to derive the correct answer from knowledge gained through practical experience

Alternative training options are identified for each topic. Note: both training and practical experience may be required to attain sufficient skills for a particular exam topic. Also, some of the training recommended can cover multiple exam topics.

The exam covers 31 topics:

Topic 1: Introduction to Fusion and ADF

Objectives

<table>
<thead>
<tr>
<th>Describe Fusion Architecture</th>
<th>Learner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain how ADF fits into the Fusion architecture</td>
<td>Learner</td>
</tr>
<tr>
<td>Describe the ADF technology stack (MVC)</td>
<td>Learner</td>
</tr>
<tr>
<td>Identify sources of additional information about ADF and ADF Business Components</td>
<td>Learner</td>
</tr>
</tbody>
</table>

Training Options

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I

Topic 2: Getting Started with JDeveloper

Objectives

| Describe benefits that JDeveloper provides for application development | Learner |
| Utilize common IDE mechanisms when developing and testing components | Practitioner |
Set IDE preferences based on user requirements
Initiate the creation of empty applications, projects, and connections in JDeveloper

Training Options

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I
- Online Tutorials
  - Introduction to the JDeveloper IDE

**Topic 3:** Building a Data Model with ADF Business Components

**Objectives**

Describe the role of ADF Business Components in building a business service

Level: Learner

- Explain the architecture of ADF BC
  Level: Learner

- Identify the types of components that cooperate to provide the business service implementation
  Level: Learner

- Explain how ADF BC components are used in a Web Application
  Level: Learner

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I
- Online Tutorials
  - Develop Business Services with ADF Business Components

**Topic 4:** Querying and Persisting Data

**Objectives**

Describe the characteristics of an ADF BC view object

Level: Learner

- Create a view object that can be used for performing a query in a Web application
  Level: Practitioner

- Define a SQL statement on which to base a query for a view object
  Level: Practitioner

- Explain how entity objects relate to database tables
  Level: Learner
Describe the persistence mechanism of entity objects  
Use the Create Entity Object wizard to generate entity objects from database tables  
Create associations between entity objects to represent business relationships  
Create updatable view objects based on entity objects  
Link view objects to one another in a master-detail hierarchy  
Refactor objects in an application  

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I
- Online Tutorials
  - Develop Business Services with ADF Business Components

Topic 5: Exposing Data to Clients

Objectives  
Explain the role of application modules  
Describe the characteristics of application modules  
Use the Create Application Module wizard to define the data model for an application module  
Explain how application modules can manage business components transactions  
Explain how application modules can manage application state  
Explain the role of the ADF Model  

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I
- Online Tutorials
  - Develop Business Services with ADF Business Components

Topic 6: Declaratively Customizing Data Services
Objectives

- Declaratively change data behaviour
- Declaratively modify the default behavior of view objects, entity objects, and application modules
- Define a view accessor for a list of values (LOV)
- Define a list of values (LOV) for an attribute

Level

- Learner
- Practitioner

Training Options

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I
- Online Tutorials
  - Examining ADF Business Components New Features

Topic 7: Programmatically Customizing Data Services

Objectives

- Generate Java classes for business components to modify default behavior programmatically
- Override class methods to change or augment default behavior
- Modify the WHERE clause of a view object at run time
- Explain the benefits of adding service methods at the application module level (rather than at the view level)
- Create a test client for testing your custom code
- Modify a view object's client code to add a new employee to the employees view object

Level

- Practitioner
- Practitioner
- Practitioner
- Learner
- Practitioner

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I
- Online Tutorials
  - Develop Business Services with ADF Business Components
Topic 8: Validating User Input

Objectives

Describe the types of validation available for ADF applications
Evaluate which validation options are appropriate for different validations
Add declarative validation for an entity object
Identify the other non-declarative validation options and when they might be used
Describe the benefits of using domains for validation

Level
Learner
Practitioner
Practitioner
Learner

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I

Topic 9: Troubleshooting ADF BC Applications

Objectives

Identify the JDeveloper tools for logging and diagnostics
Use Java code auditing tools
Make use of FileMon and Junit to debug an application
Use the JDeveloper profiler
Use the JDeveloper debugger
Identify sources of Help

Level
Learner
Practitioner
Practitioner
Practitioner
Learner

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I

Topic 10: Understanding UI Technologies

Objectives

Describe the use of Web browsers and HTML

Level
Learner
Explain how Java has come into widespread use as a language for developing Web applications. Describe the function of Servlets and JSPs. Define JavaServer Faces. Explain the JSF component architecture. Explain some JSF component types included in the standard implementation. Describe the purpose of backing beans. Describe the JSF life cycle. Explain how ADF Faces augments the JSF life cycle.

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I
- Online Tutorials
  - Build a Simple JSF Application

Topic 11: Binding UI Components to Data

Objectives

Create an empty JSF page
Use three different ways to add ADF Faces UI components to a page
Describe the types of data-bound components that can be added to a JSF page
Describe the structure of an EL (Expression Language) expression

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I
- Online Tutorials
  - Developing Ajax-Based User Interfaces with JSF: An Introduction to ADF Faces Rich Client Components

Topic 12: Planning the User Interface
Objectives

Describe the Model-View-Controller design pattern
Differentiate between bounded and unbounded task flows
Create task flows to define control flow in an application
Specify control flow rules
Define global navigation
Use routers to declaratively route control flow to activities based on an EL expression
Define the role of managed beans in task flows
Explain the types of validation available in the user interface

Level
Learner
Practitioner
Practitioner
Practitioner
Practitioner
Practitioner
Learner
Learner

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I
- Online Tutorials
  - Working with Bounded Task Flows, Regions and Routers in JDeveloper 11g

Topic 13: Adding Functionality to Pages

Objectives

Internationalize the user interface so that the application can be used in multiple locales
Use component facets to specify subordinate elements such as toolbars, headers and footers
Implement a list of values (LOV) to enable users to select a value from a list
Add a calendar component to an input date field to make it easy for users to select a date
Use the table component to display structured data as a formatted table
Employ the tree component to display hierarchical data
Add icons and images to an application with ADF Faces output components
Create Search forms using the ADF query component
Use ADF Data Visualization components

Level
Practitioner
Practitioner
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to add charts, graphs, map etc to your JSF pages

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I
- Online Tutorials
  - Introduction to ADF Data Visualization Components - Graphs, Gauge, Maps, Pivot Table and Gantt

Topic 14: Implementing Navigation on Pages

Objectives
- Implement command buttons and links
- Create menus - Menu bar
- Create menus - Popup
- Create menus - Context
- Use a navigation page
- Use breadcrumbs
- Create trains

Level
- Practitioner
- Practitioner
- Practitioner
- Practitioner
- Practitioner
- Practitioner

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I
- Online Tutorials
  - Create JSF Page Navigation

Topic 15: Achieving the Required Layout

Objectives
- Build complex page layouts with layout components
- Explain the role of ADF Faces skins
- Use dynamic page layout

Level
- Practitioner
- Learner
- Practitioner

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I
Online Tutorials
- Developing RIA Applications with Oracle ADF

Topic 16: Ensuring Reusability

Objectives
- Identify the benefits of reusing components
- Create a resource catalog to enable sharing of resources within and across teams and applications
- Create ADF libraries to share components within and across teams and applications
- Create a task flow template for reuse across different bounded task flows
- Create a page template for reuse across the JSF pages in an application to enable a consistent look and feel
- Create a declarative component for reuse in different pages of an application
- Create a page fragment to use in multiple pages of the application
- Employ a bounded task flow as a region in a JSF page

Level
- Learner
- Practitioner

Training Options:
- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I

Topic 17: Passing Values between UI Elements

Objectives
- Evaluate whether the data model contains opportunities to reduce the need for passing values between pages
- Use a managed bean to pass values between JSF pages
- Store values in memory-scoped attributes to hold and pass information between pages and life cycle phases
- Use parameters to pass information to different parts of the application

Level
- Practitioner

Training Options:
Topic 18: Responding to Application Events

Objectives

- Configure managed beans to contain code to respond to events
- Explain the different types of events
- Use phase listeners to listen for and respond to events
- Explain the role of an event listener
- Use action listeners
- Describe the sequence in which events and listeners are executed
- Describe the features of JDeveloper that support ADF Faces enhanced event handling
- Identify the server events fired by ADF Faces components
- Use the contextual events framework to co-ordinate regions on a JSF page

Level

- Practitioner
- Learner

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF I

Topic 19: Implementing Transactional Capabilities

Objectives

- Explain ADF BC transaction handling
- Enable an ADF bounded task flow to run as a transaction
- Manage transaction exceptions on ADF bounded or unbounded task flows
- Define the response to the browser's Back button (for an ADF task flow that was already exited)
- Implement Save for Later functionality

Level

- Learner
- Practitioner
Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF II
- Online Tutorials
  - Working with Bounded Task Flows, Regions and Routers in JDeveloper 11g

Topic 20: Implementing Security in ADF BC Applications

Objectives

| Explain the need to secure applications | Level | Learner |
| Describe security aspects of an ADF BC application | Level | Learner |
| Add ADF Security Authentication to an application | Level | Practitioner |
| Add ADF Security Authorization to an application | Level | Practitioner |
| Use two approaches for granting users access to resources | Level | Learner |
| Prevent unauthorised access to the ADF BC Model | Level | Learner |
| Explain the types of application authentication at run time | Level | Learner |
| Use Expression Language to extend the default security capabilities of the framework | Level | Practitioner |

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF II

Topic 21: Explore the Project Structure and Core File Architecture

Objectives

| Define File Structure of a Project | Level | Learner |
| Examine how Metadata files are used to specify parameters, methods, and return values to a data control | Level | Practitioner |
| Define ADF Data Control and Databinding Files | Level | Learner |
| Explore the ADF Faces and Web Configuration Files to know where to place the files | Level | Learner |
flows, pages and code are created
Define Hierarchical Relationship of the
XML Metadata files in a Web Application Learner

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF II
- Online Tutorials
  - Introduction to the JDeveloper IDE

Topic 22: Extend the ADF Business Components Framework

Objectives

<table>
<thead>
<tr>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examine some general considerations when using ADF Business Components Practitioner</td>
</tr>
<tr>
<td>Extend the ADF Business Components (ADF BC) Framework to customize your application Practitioner</td>
</tr>
<tr>
<td>Override the standard way data is committed to the database using a PL/SQL procedure Practitioner</td>
</tr>
<tr>
<td>Design ADF Business components to avoid database constraint Practitioner</td>
</tr>
</tbody>
</table>

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF II

Topic 23: Use ADF Business Components for Validation, Calculations and List of Values

Objectives

<table>
<thead>
<tr>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build Cascading List of Values Practitioner</td>
</tr>
<tr>
<td>Enhance the Application with Calculations and Validation Practitioner</td>
</tr>
<tr>
<td>Create Validation for Foreign Keys Practitioner</td>
</tr>
<tr>
<td>Employ Groovy Expressions in Validations Practitioner</td>
</tr>
</tbody>
</table>

Training Options:

- Instructor Led Training (delivered by Oracle University)
Topic 24: **Use Inheritance in the Business Domain Layer**

**Objectives**
- Reuse existing Business Component designs by extending components
- Implement Supertype/Subtype designs using Entity Objects
- Create View Objects to access more than one table

**Level**
- Learner
- Practitioner

**Training Options:**
- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF II

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Topic 25: **ADF as a part of a Service Oriented Architecture**

**Objectives**
- Expose ADF Business Components as SDO for use in a SOA Process (BPEL)
- Create Rich User Interfaces that access data from a composite application
- Create events for ADF Business Components to trigger Enterprise Service Bus
- Use Service Data Objects to access heterogeneous data in a uniform way

**Level**
- Learner
- Practitioner

**Training Options:**
- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF II
- Online Tutorials
  - Deploying a JDeveloper SOA Application to Oracle WebLogic Server 11g
  - Design an SOA Composite Application

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Topic 26: **Implement Data Binding Controls**
Objectives

Define and Recognize ADF Model binding types
Define ADF Model executables and how to use them
Customize data-bound components within the page definition file to support application requirements
Use Expression Language to connect page items to model components
Determine how model components get transformed into Data Control Palette items

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF II

Topic 27: Practical Data Binding in Action

Objectives

Describe how data binding and the JavaServer Faces (JSF) page life cycle interact
Define listeners and custom controllers to augment the ADFm life cycle
Explain how the Application Development Framework (ADF) life cycle works

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF II

Topic 28: Work with Managed Beans and JavaServer Faces

Objectives

Define key JavaServer Faces (JSF) terms
Describe the JSF Architecture with Application Development Framework (ADF)
Differentiate between Managed and
Backing Beans
In a JSF page, create and reference a Managed Bean to perform a custom method
Set and use Managed Properties to store and retrieve user login information
Use context object classes to access application messages, work with the Servlet API or ADF specific functionality

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF II
- Online Tutorials
  - Bind a JSF Page to a Managed Bean

Topic 29: ADF Faces Advanced Features

Objectives
- Examine AJAX and ADF
- Employ Partial Page Rendering (PPR) on a JSF Page
- Enhance a page by creating input and output items using ADF Components
- Use page, panel and splitter components to design and build a JSF page
- Develop UI shell templates to incorporate company standard behaviours, look and feel
- Display numerical data using Data Visualization components and Active Data Services

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF II

Topic 30: Integrate with WebCenter

Objectives
- Allow end users to perform runtime
customization to their application pages
Integrate ADF pages with Content Management systems to access file systems
Add Web Center Services, like social networking and collaboration, to JSF/ADF pages
Add reusable Portlets that provide dynamic view of data, into a JSF/ADF page

Practitioner

Practitioner

Learner

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF II

Topic 31: Customize the Application Look and Feel with Skins

Objectives
- Use Firebug and Mozilla Developer Toolbar to build skins
- Explain how skin selectors work
- Build instance specific skins
- Develop a managed bean to change skin at runtime

Level
- Learner
- Practitioner

Training Options:

- Instructor Led Training (delivered by Oracle University)
  - Oracle Fusion Middleware 11g: Build Applications with ADF Accelerated
  - Oracle Fusion Middleware 11g: Build Applications with ADF II