

Advanced Oracle APEX Training (5 Days)

Course Overview

This Advanced Oracle APEX Training course is designed to equip your team or individual members with mastering Oracle's Application Express, a robust platform for developing web applications. This course will deepen your understanding of complex APEX functionalities, facilitating efficient and secure application development for your enterprise or personal initiatives.

Start your journey with **Understanding Session State**, where we cover what session state is and its importance in maintaining user interactions across web applications. You'll get insights into persisted versus in-memory session states through practical illustrations, enhancing your ability to manage user sessions effectively.

The next section focuses on **Data Loading**. Through hands-on exercises, you'll create applications, define data load definitions, and learn to handle errors. By loading new employees from CSV files and transforming data on import, you'll enhance your data management skills. The section also covers working with collections, the Invoke API process, packages, and creating comprehensive Data Load Wizards using the intuitive Universal Theme Color Classes.

In **Advanced Security**, we explore essential security practices for robust application protection. Learn about custom authentication and authorization, password validation, session state protection, and SQL injection prevention. You'll also engage in exercises to apply these security features, such as implementing LDAP and Virtual Private Database (VPD), ensuring your applications are secure against common vulnerabilities.

Enhance your application's user experience with the **Navigation** module, where you'll manage shared navigation components and build dynamic navigation menus through exercises. The course also covers the APEX_PAGE.GET_URL function to streamline your app's navigation efficiency.

Elevate your data presentation skills in the **Charts** lesson, where you'll learn about different chart types through exercises. Create dynamic bar charts and pie charts, and understand how to dynamically change chart settings to represent data visually compellingly.

The **Interactive Grids** section enables you to improve data display and interaction within your applications. By adding and saving interactive grids within the Data Load Wizard, you'll facilitate better data manipulation and user interaction.

Build visually appealing applications with **Themes and Templates**. This part focuses on best practices for creating and utilizing templates, ensuring consistent and professional-looking applications.

The **Build a Plug-in** module introduces you to APEX plug-ins, enabling you to create and implement custom functionalities. Through exercises, you'll develop plug-ins that extend the capabilities of your applications.

With **Advanced Dynamic Actions**, learn to execute complex client-side and server-side actions. You'll practice these skills by implementing text autocomplete features and client-server interaction exercises, enhancing your application's interactivity.

The **Working with Files** lesson imparts skills to manage files within APEX. You'll add profile pictures and use CSS files, broadening your application's functionality and design versatility. Explore document generation in **APEX Office Print**, where you'll configure APEX for AOP, insert AOP template tags, and create Word and Excel documents, providing users with dynamic document generation capabilities.

Deepen your understanding of web integration with the **RESTful Services** module. Learn to create and publish RESTful services, make API requests, and set up REST data sources, empowering you to build applications with modern web service capabilities.

Manage application changes efficiently with **Application Change Management**. Through exercises, you'll work with application copies, understand the merging processes, and compare changes, ensuring streamlined development workflows.

Finally, refine your troubleshooting skills in the **Troubleshooting and Debugging** section. By enabling debugging, logging, and using the apex_debug_messages view, you'll learn to efficiently identify and solve application issues, ensuring smooth operations.

By the end of this course, your team or individual members will be adept at using advanced Oracle APEX functionalities to build robust, high-performance web applications, paving the way for more sophisticated projects and improved application management.

Course Benefits

- Master advanced features and functionalities of Oracle Application Express (APEX).
- Gain expertise in session state management and data loading techniques.
- Learn to implement robust security measures including custom authentication and authorization.
- Enhance user experience with advanced navigation, dynamic actions, and interactive elements.
- Develop skills in creating and using APEX plug-ins and RESTful services.
- Understand best practices for troubleshooting, debugging, and application change management.
- Acquire practical experience through hands-on exercises and real-world scenarios.
- Learn to use APEX Office Print for generating professional reports and documents.
- Improve data presentation with advanced charting and interactive grids.
- Explore themes and templates to create consistent and visually appealing applications.

Course Outline

Understanding Session State

- What is Session State?
- Persisted vs. In-Memory Session State
- Session State Illustrated

Data Loading

- Creating Our Application (Exercise)
- Shared Components: Lists of Values (Exercise)
- The HR Schema: Employees
- Data Load Definition
- Creating the Data Load Definition (Exercise)
- Loading New Employees from a CSV (Exercise)
- Transforming Data on Import
- Error Handling Options
- Working with Collections
- The Invoke API Process
- Working with Packages
- Introduction to Wizards (Exercise)
- Creating a Data Load Wizard: The Data Load (Exercise)
- Creating a Data Load Wizard: The Package (Exercise)
- Creating a Data Load Wizard: The Template (Exercise)

- Creating a Data Load Wizard: File Upload Form (Exercise)
- Font Awesome and Universal Theme Color Classes
- Creating a Data Load Wizard: Data Validation (Exercise)
- Creating a Data Load Wizard: Data Loading (Exercise)

Advanced Security

- Custom Authentication and Authorization
- Allowing Employees to Log In (Exercise)
- Form Processing
- Change Password Page (Exercise)
- Setting Up Strong Password Validation (Exercise)
- Adding Password Validation (Exercise)
- Password Reset Strategies
- Forcing a Password Reset (Exercise)
- Checking Password Expiry on Every Page Load
- Implementing LDAP
- Using Virtual Private Database (VPD)
- Session State Protection
- Preventing SQL Injection
- Preventing Cross-Site Scripting (Exercise)
- Changing the ADMIN Password for the Internal Workspace
- Custom Authorization (Exercise)

Navigation

- Shared Components: Navigation and Search
- Add Page to Navigation Bar List (Exercise)
- The APEX_PAGE.GET_URL Function
- Creating and Understanding Dynamic Lists
- Navigating Department Employees (Exercise)
- Navigation Menu Settings
- Breadcrumbs and Drill Downs (Exercise)
- Breadcrumbs and Drill Downs: Continued (Exercise)

Charts

- Chart Types
- Creating a Page with a Bar Chart (Exercise)
- Dynamically Changing Chart Settings (Exercise)
- Creating a Pie Chart (Exercise)

Interactive Grids

- Improving the Data Load Wizard (Exercise)
- Data Load Wizard: Adding the Interactive Grid (Exercise)
- Data Load Wizard: Saving the Grid (Exercise)

Themes and Templates

- Themes and Templates
- Creating a New Theme (Exercise)
- Best Practice: Create Templates for Applications

Build a Plug-in

- Overview of APEX Plug-ins
- Creating and Using a Plug-in (Exercise)

Advanced Dynamic Actions

- Dynamic Actions with True and False Actions
- Dynamic Actions that Execute Client-Side Code (Exercise)
- Dynamic Actions that Execute Server-Side Code (Exercise)
- Text with Autocomplete (Exercise)

Working with Files

- Working With Files in APEX
- Adding a Profile Picture (Exercise)
- Using CSS Files in APEX (Exercise)

APEX Office Print

- APEX Office Print Overview
- Configuring APEX for AOP (Exercise)
- AOP Template Tags
- The Template Files (Exercise)
- Creating Word and Excel Files (Exercise)

RESTful Services

- REST Data Sources
- Making API Requests
- HTTP Request Methods
- Publishing RESTful Services
- Creating a RESTful Data Service (Exercise)
- The emp_post_example Resource Template
- Creating a RESTful PUT Data Service (Exercise)
- Creating a REST Data Source (Exercise)

- Creating an Interactive Report from the REST Data Source (Exercise)

Application Change Management

- Working Copies
- Create a Working Copy (Exercise)
- Editing a Working Copy (Exercise)
- Comparing Working Copy to Main Application (Exercise)
- Merging Changes from Working Copy into Main Application (Exercise)
- Refreshing a Working Copy with Changes from Main (Exercise)

Troubleshooting and Debugging

- Best Practice: Logging and Debugging
- Enabling Debugging
- The apex_debug_messages View
- Writing Messages to the Debug Log
- Debugging PL/SQL with APEX_DEBUG (Exercise)
- Viewing Error Information (Exercise)