

# Oracle APEX Developer Professional ELS

Data Management

DURATION

**4 Days**

MODULES

**45 Lectures**

COURSE CODE

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## Course Overview

Learn about: Creating application pages Creating Report in Oracle APEX Creating Forms in Oracle APEX Customizing Interactive Grid Creating Application Page Controls Adding Process and Validation

## What You Will Learn

- SECTION I: Introduction to Oracle APEX

### Module 1: Getting Started with Oracle APEX

- Topics
- Low Code Application Development
- Objectives
- Application Development in the Enterprise
- What is a Low Code Application Platform?
- What is Low Code?
- Why use Low Code?
- Summary
- Learning Objectives
- Understand low-code concepts
- Recognize the value of low-code platforms in enterprise application development

### Module 2: Introduction to Oracle APEX

- Topics
- Objectives
- What is Oracle APEX?
- Low Code = Oracle APEX
- Native Low Code Platform of Oracle Database
- Distinguishing Characteristics
- Who can use Oracle APEX?

- Summary
- Learning Objectives
- Identify Oracle APEX features and capabilities
- Understand the target users and audience for APEX

### Module 3: Availability and Architecture

- Topics
- Objectives
- Rapid Development, Customization, and Delivery
- Oracle APEX Availability
- Oracle Autonomous Database
- APEX + Autonomous Database Integration
- APEX Application Development Service
- Oracle APEX Architecture
- Deploy Wherever Oracle Database Runs
- Summary
- Learning Objectives
- Understand APEX deployment architecture
- Learn integration with Autonomous Database

### Module 4: Oracle APEX Use Cases

- Topics
- Objectives
- Transforming Spreadsheets to Web Apps
- Rapid Application Development
- Modernizing Oracle Forms Applications
- Extending Enterprise Systems
- Mission Critical Enterprise Systems
- Summary
- Learning Objectives
- Identify typical APEX use cases
- Recognize the benefits of using APEX for enterprise applications

### Module 5: Provisioning an APEX Workspace

- Topics
- Objectives
- Getting Started with Oracle APEX
- Sign up for Always Free APEX Service
- Creating an APEX Service Instance
- Provisioning an Oracle APEX Workspace
- Sign up for a Free Workspace on apex.oracle.com
- Summary
- Learning Objectives
- Provision and access an APEX workspace

- Understand different workspace options

## Module 6: Product Components

- Topics
- Objectives
- APEX Workspace Home Page
- App Builder
- SQL Workshop
- Team Development
- Gallery
- Summary
- Learning Objectives
- Understand the key components of APEX workspace

Learn navigation and functionality of App Builder, SQL Workshop, and Team Development

## Module 7: Installing a Sample Application

- Topics
- Objectives
- Oracle APEX GitHub Repository
- Installing a Sample App
- Summary
- Learning Objectives
- Deploy a sample application from APEX GitHub repository
- Understand how sample apps demonstrate APEX functionality
- SECTION II: Working with SQL Workshop

## Module 8: SQL Workshop Basics

- Topics
- Objectives
- What is SQL Workshop?
- Accessing SQL Workshop Components
- Managing Database Objects with Object Browser
- Creating a Database Object
- Demo
- Summary
- Learning Objectives
- Navigate SQL Workshop components
- Create and manage database objects

## Module 9: SQL Commands and Scripts

- Topics
- Objectives
- Executing SQL Commands
- Using Query Builder

- Creating and Running SQL Scripts
- Using Oracle APEX Utilities
- Summary
- Learning Objectives
- Execute SQL commands and scripts efficiently
- Utilize APEX SQL utilities

## Module 10: Working with Sample Datasets

- Topics
- Objectives
- Loading and Unloading Data using Data Workshop
- Using Sample Datasets
- Summary
- Learning Objectives
- Load, manage, and use sample datasets for application development

## Module 11: Generate SQL by Using Quick SQL

- Topics
- Objectives
- What is Quick SQL?
- Accessing Quick SQL
- Loading and Viewing Quick SQL Samples
- Summary
- Learning Objectives
- Generate SQL quickly using Quick SQL tool
- Understand use cases for Quick SQL

## Module 12: Data Generator and SQL Developer Web

- Topics
- Objectives
- What is Data Generator?
- Creating a Blueprint from Existing Tables
- Creating a Blueprint from Scratch
- Demo
- Accessing SQL Developer Web from APEX
- Demo
- Summary
- Learning Objectives
- Generate test data with Data Generator
- Use SQL Developer Web for development
- SECTION III: Creating a Database Application

## Module 13: App Builder Concepts

- Topics

- Objectives
- Application Overview
- Application Pages
- How APEX Engine Renders and Processes Pages
- Application UI
- Session State Management and Session ID
- URL Syntax
- Summary
- Learning Objectives
- Understand APEX page architecture and session management
- Learn how APEX processes pages

## Module 14: Creating Applications

- Topics
- Objectives
- App Builder and Create App Wizard Overview
- Accessing App Builder and Application Home Page
- Creating New Applications
- Creating Applications from Existing Tables
- Creating Applications from a File
- Summary
- Learning Objectives
- Build APEX applications from tables or files
- Navigate App Builder effectively
- SECTION IV: Working with Pages and Regions

## Module 15: Creating Pages and Page Components

- Topics
- Objectives
- Application Page Components Overview
- Page Modes
- Creating and Editing Pages
- Summary
- Learning Objectives
- Create and configure application pages
- Understand page components and their properties

## Module 16: Managing Pages and Page Designer

- Topics
- Objectives
- Navigating Page Definition
- Page Designer Overview: Toolbar, Left Pane, Central Pane, Property Editor
- Using the Code Editor
- Creating Regions and Adding Components from Gallery

- Summary
- Learning Objectives
- Use Page Designer for application page development
- Add regions and components effectively

## Module 17: Dynamic Content and Global Page

- Topics
- Objectives
- Dynamic Content Region: Features and Demo
- Global Page: Creation and Demo
- Summary
- Learning Objectives
- Implement dynamic content regions
- Utilize global page for consistent components

## Module 18: Runtime Developer Toolbar

- Topics
- Objectives
- Debug Mode and f?p Syntax
- Editing Pages
- Summary
- Learning Objectives
- Use runtime toolbar for debugging and testing

## Module 19: Locking and Unlocking Pages

- Topics
- Objectives
- Determine if a page is locked
- Lock and unlock pages
- Demo
- Summary
- Learning Objectives
- Control page access during development
- SECTION V: Developing Reports

## Module 20: Creating Reports

- Topics
- Objectives
- Report Types and Capabilities
- Creating Reports using Create Application Wizard
- Creating Reports using Create Page Wizard
- Creating Reports in Page Designer
- Summary
- Learning Objectives

- Create different types of reports in APEX

## Module 21: Interactive Reports and Grids

- Topics
- Objectives
- Creating Interactive Reports and Grids
- Creating Classic Reports
- Faceted Search, Cards, and Smart Filters
- Using Content Row
- Summary
- Learning Objectives
- Build interactive reports and grids
- Implement faceted search, cards, and smart filters

## Module 22: Managing Interactive Reports

- Topics
- Objectives
- Customizing Interactive Reports (End User & Developer)
- Sorting, Filtering, Highlighting, Pivoting, Aggregation
- Downloading, Printing, and Saving Reports
- Summary
- Learning Objectives
- Customize and manage interactive reports for users and developers

## Module 23: Managing Interactive Grids

- Topics
- Objectives
- Customizing Grids as Developer and End User
- Editable Grids, SQL Source Modifications
- Pagination, Master-Detail Grids
- Actions Menu, Column Filter, Highlighting, Saving, and Refreshing
- Summary
- Learning Objectives
- Build and customize interactive grids for applications
- SECTION VI: Creating Application Page Controls

## Module 24: Page Items and Application Items

- Topics
- Objectives
- Understanding Items
- Creating Page Items
- Different Types of Page Items
- Quick Pick Selections
- Summary

- Learning Objectives
- Create and manage page and application items

## Module 25: Lists of Values (LOVs)

- Topics
- Objectives
- Types of LOVs
- Creating Static and Dynamic LOVs
- Cascading LOVs
- Summary
- Learning Objectives
- Implement LOVs for user input and selection

## Module 26: Buttons and Additional Page Items

- Topics
- Objectives
- Creating Buttons and Demo
- Image Upload, Combobox, Select One/Many
- Summary
- Learning Objectives
- Add interactive controls and additional page items
- SECTION VII: Computations, Processes, and Validations

## Module 27: Page Rendering and Page Processing

- Topics
- Objectives
- Understanding Page Rendering and Processing
- Examples
- Summary
- Learning Objectives
- Understand APEX page rendering and processing flow

## Module 28: Computations

- Topics
- Objectives
- Understanding and Creating Page Computations
- Summary
- Learning Objectives
- Implement computations for dynamic page content

## Module 29: Page Processes

- Topics
- Objectives

- Creating Page Processes: On Submit, On Load
- Invoke API for REST Data Sources
- Background Page Processing
- Monitoring Background Processes
- Summary
- Learning Objectives
- Create page processes for business logic execution

## Module 30: Validations and Branches

- Topics
- Objectives
- Creating Validations: SQL, PL/SQL, Regex, Row Validation
- Branching Concepts
- Summary
- Learning Objectives
- Validate user input and manage page branching
- SECTION VIII: Dynamic Actions

## Module 31: Dynamic Actions Basics

- Topics
- Objectives
- Understanding Dynamic Actions
- Creating Dynamic Actions
- Events and Implementation
- Debugging
- Summary
- Learning Objectives
- Use dynamic actions to add client-side interactivity

## Module 32: Using Dynamic Actions

- Topics
- Enabling/Disabling Items
- Setting Item Values
- Filtering and Refreshing Reports
- Debouncing and Throttling
- Demos and Examples
- Summary
- Learning Objectives
- Implement advanced dynamic actions for user interactivity

This organizes the entire APEX curriculum into 32 structured modules, moving from introductory concepts → SQL → app creation → pages & regions → reports → grids → page controls → computations, processes, validations → dynamic actions.

- SECTION IX: Advanced Page Components and Interactive Features

## Module 33: Managing Cards, Faceted Search, and Smart Filters

- Topics
- Creating and Customizing Faceted Search
- What is a Faceted Search?
- Creating a Faceted Search
- Demo: Creating a Faceted Search
- Customizing Faceted Search Region
- Adding a New Facet
- Editing Facet Attributes
- Summary
- Creating and Customizing a Cards Page
- Creating a Cards Page
- Demo: Creating a Cards Page
- Editing Cards Attributes
- Using Actions to Link from a Cards Page
- Summary
- Creating and Customizing Smart Filters
- Creating a Smart Filters Page using Create App Wizard
- Creating a Smart Filter
- Demo: Creating a Smart Filter
- Adding a New Filter
- Editing Filter Attributes
- Summary
- Customizing Classic Reports
- Updating Appearance Attributes
- Editing Pagination
- XML/CSV Export Support
- Controlling Column Breaks
- Altering Column Layout
- Creating Column Link
- Adding Download Link
- Demo & Summary
- Learning Objectives
- Create and customize faceted searches, cards, and smart filters
- Enhance user experience with interactive regions and reports

## Module 34: Creating and Using Forms

- Topics
- Understanding Forms in Oracle APEX
- Different Form Types
- Creating Forms via Create Page Wizard / Application Wizard
- Linking Reports to Forms
- Editing Forms and Page Item Order
- Summary

- Creating Editable Interactive Grid
- Creating Interactive Grid via Form
- Different Ways of Creating an Interactive Grid
- Summary
- Creating Master-Detail Forms
- Side-by-Side Master-Detail
- Stacked Master-Detail
- Two-Page Drill-Down Master-Detail
- Summary
- Understanding BLOB Support in Forms
- Uploading Files
- Downloading Files
- Displaying Images using Display Image Item
- Demo & Summary
- Learning Objectives
- Create forms and interactive grids for data entry
- Support file and image uploads using BLOBs
- Implement master-detail relationships in forms
- SECTION X: Navigation and User Interface

## Module 35: Implementing Navigation in Your Application

- Topics
- Creating and Using Lists
- Shared Components
- Static and Dynamic Lists
- Adding Lists to Pages
- Summary
- Creating and Using Breadcrumbs
- Creating Breadcrumbs and Adding Entries
- Adding Breadcrumb Region to Page
- Summary
- Creating Navigation Menu & Navigation Bar List
- Accessing Navigation Components
- Creating Menu/Bar List Entries
- Demo & Summary
- Adding Search to an Application
- Creating Application Searches
- Search Configurations and Pages
- Demo & Summary
- Learning Objectives
- Implement menus, breadcrumbs, and search in applications
- Configure navigation elements for enhanced UX

## Module 36: Using Themes, Theme Styles, and Templates

- Topics

- Understanding Themes
- Universal Theme Overview & Key Features
- Accessing Themes Page
- Demo & Summary
- Understanding Theme Styles & Theme Roller
- Creating Theme Styles
- Enabling User Selection
- Demo & Summary
- Using Theme Roller & Redwood Light Theme Style
- Exporting/Importing Theme Styles
- Demo & Summary
- Understanding Templates & Template Options
- Creating Templates
- Using Live Template Options
- Demo & Summary
- Template Components & Universal Theme Components
- Multiple vs Single vs Region Only
- Server-Side Template Directives
- Enabling Row Selection
- Demo & Summary
- Managing Themes & Custom CSS
- Subscriptions
- Creating & Editing Themes
- Using Custom CSS
- Demo & Summary
- Learning Objectives
- Customize themes, styles, templates, and CSS
- Apply Universal Theme features and Theme Roller
- SECTION XI: Extending Application Capabilities

## Module 37: Plug-ins and Automations

- Topics
- Understanding Plug-ins
- Importing and Using Plug-ins
- Viewing Plug-in Repository
- Demo & Summary
- Create, Edit, and Manage Automations
- Key Features of Automations
- Creating an Automation & Adding Actions
- Edit Automation Actions & Settings
- Viewing and Purging Automation Log
- Demo & Summary
- Learning Objectives
- Extend applications using plug-ins
- Automate processes using Oracle APEX Automations

## Module 38: Sending Emails

- Topics
- Sending Emails - I
- Configure SMTP Credentials
- Sending Emails via SQL Workshop
- Enabling Network Services
- Understanding APEX\_MAIL
- Demo & Summary
- Sending Emails - II
- Defining Email Templates
- Creating Send Email Process (SQL / PL/SQL)
- Summary
- Learning Objectives
- Send emails from APEX applications
- Configure SMTP and email templates
- SECTION XII: Managing Application Data

## Module 39: Data Load and Collections

- Topics
- Understanding Data Load Definition
- Key Features & Capabilities
- Summary
- Creating Apps with Data Loading Capability
- Creating Data Load Definition & Page
- Log Errors to DML Error Log
- Demo & Summary
- Understanding Collections
- Creating Reports Based on Collections
- Adding Members to a Collection
- Summary
- Learning Objectives
- Load, validate, and manage data within APEX applications
- Use collections to store temporary datasets

## Module 40: REST Enabled SQL References and Web Credentials

- Topics
- Managing REST Enabled SQL References
- Creating, Editing, and Specifying REST SQL References
- Demo & Summary
- Create and Manage Web Credentials
- Authentication Types
- Using Database Credential with Web Credentials
- Demo & Summary
- Creating and Managing REST Data Sources

- Data Synchronization
- Creating Faceted Search Using REST Data Source
- Demo & Summary
- Learning Objectives
- Connect APEX applications to REST services
- Manage authentication and web credentials
- SECTION XIII: Implementing Security

## Module 41: Authentication and Authorization

- Topics
- Understanding Security and Authentication
- Preconfigured & Custom Authentication Schemes
- Copying Authentication Schemes
- Summary
- Authorization Schemes
- Creating Authorization Schemes
- Attaching to Application, Page, or Component
- Viewing Reports
- Summary
- Creating and Using Access Control Administration Page
- Configuring Access Control
- Summary
- Learning Objectives
- Secure APEX applications using authentication and authorization
- Manage user access effectively
- SECTION XIV: Advanced Application Pages

## Module 42: Charts, Calendars, Trees, and Maps

- Topics
- Creating and Customizing Charts
- Area, Bar, Line, Pie, Range Charts
- Enabling Auto Refresh
- Editing Attributes
- Summary
- Creating and Using Calendars
- Drag & Drop Data, Editing Attributes
- Summary
- Creating and Using Trees
- Summary
- Creating and Using Maps
- Adding Layers, Faceted Search Integration
- Summary
- Learning Objectives
- Visualize data using charts, calendars, trees, and maps
- Integrate faceted search with maps

- SECTION XV: Migrating Application Development Between Environments

## Module 43: Working Copy and Application Migration

- Topics
- Working Copy
- Creating Working Copy
- Comparing, Refreshing, Merging, Deleting
- Summary
- Exporting Applications Between Environments
- Installation Scripts, Data Packages
- Exporting as ZIP
- Summary
- Migrating Database Objects and Data
- Demo & Summary
- One-click Remote Application Deployment
- Configuring Target Environment
- Steps for Remote Deployment
- Demo & Summary
- Learning Objectives
- Migrate applications, database objects, and data across environments
- Use working copies and one-click remote deployment
- SECTION XVI: Building Mobile-Friendly Applications

## Module 44: Progressive Web Apps (PWA)

- Topics
- Understanding PWA
- Requirements
- Enabling PWA Functionality
- Installing Application on Desktop / Mobile
- Demo & Summary
- Enhancements
- Screenshots & Description Management
- Web Share, Meta Tags, GeoLocation
- Demo & Summary
- Persistent Authentication & Push Notifications
- Understanding & Managing Persistent Auth
- Push Notifications
- Demo & Summary
- Learning Objectives
- Build mobile-friendly applications using PWA
- Implement push notifications and persistent authentication
- SECTION XVII: Business Process Automation

## Module 45: Implementing Workflow

- Topics

- Creating and Understanding Workflows
- Workflow Components & Visual Designer
- Roles and Demo
- Summary
- Workflow Activities
- Types, Connections, Error/Timeout Handling, Branching
- Wait Activity
- Summary
- Human Tasks
- Task Definitions, Participants, States, Retention, Runtime Views
- Summary
- Working with Workflows
- Workflow Versions, Console, Dashboard, Embeddable Diagrams
- Activity States & Transitions
- Workflow Operations
- Summary
- Workflow Administration
- Console, Details, Dashboard, Embeddable Diagrams
- Summary
- Debugging Workflows
- Viewing Instance ID in Debug Messages
- Summary
- Learning Objectives
- Automate business processes using workflows and human tasks
- Administer and debug workflows in APEX applications

This organizes Lessons 11–21 into 13 progressive modules (33–45), moving from cards, reports, forms → navigation & UI → app extension & automation → data management → security → visualization → migration → PWA → workflow.