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Oracle Database 12c: Program with PL/SQL

Learn To

- ✓ Conditionally control code flow (loops, control structures).
- ✓ Create stored procedures and functions.
- ✓ Use PL/SQL packages to group and contain related constructs.
- ✓ Create triggers to solve business challenges.
- ✓ Use some of the Oracle supplied PL/SQL packages to generate screen output and file output.
- ✓ Create custom packages for applications.
- ✓ Write Dynamic SQL code for applications.

Objectives

- Use conditional compilation to customize the functionality in a PL/SQL application without removing any source code
- Design PL/SQL packages to group related constructs
- Create overloaded package subprograms for more flexibility
- Design PL/SQL anonymous blocks that execute efficiently
- Use the Oracle supplied PL/SQL packages to generate screen output, file output and mail output
- Write dynamic SQL for more coding flexibility



- Describe the features and syntax of PL/SQL
- Create and debug stored procedures and functions
- Use PL/SQL programming constructs and conditionally control code flow (loops, control structures, and explicit cursors)
- Manage dependencies between PL/SQL subprograms
- Handle runtime errors
- Create triggers to solve business challenges

Topics

- ❖ Introduction
 - Course Objectives
 - Course Agenda
 - Describe the Human Resources (HR) Schema
 - PL/SQL development environments available in this course
 - Introduction to SQL Developer
- ❖ Introduction to PL/SQL
 - Overview of PL/SQL
 - Identify the benefits of PL/SQL Subprograms
 - Overview of the types of PL/SQL blocks
 - Create a Simple Anonymous Block
 - How to generate output from a PL/SQL Block?
- ❖ Declare PL/SQL Identifiers
 - List the different Types of Identifiers in a PL/SQL subprogram



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- Usage of the Declarative Section to Define Identifiers
- Use variables to store data
- Identify Scalar Data Types
- The %TYPE Attribute
- What are Bind Variables?
- Sequences in PL/SQL Expressions
- ❖ Write Executable Statements
 - Describe Basic PL/SQL Block Syntax Guidelines
 - Learn to Comment the Code
 - Deployment of SQL Functions in PL/SQL
 - How to convert Data Types?
 - Describe Nested Blocks
 - Identify the Operators in PL/SQL
- ❖ Interaction with the Oracle Server
 - Invoke SELECT Statements in PL/SQL
 - Retrieve Data in PL/SQL
 - SQL Cursor concept
 - Avoid Errors by using Naming Conventions when using Retrieval and DML Statements
 - Data Manipulation in the Server using PL/SQL
 - Understand the SQL Cursor concept
 - Use SQL Cursor Attributes to Obtain Feedback on DML
 - Save and Discard Transactions
- ❖ Control Structures
 - Conditional processing using IF Statements

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- Conditional processing using CASE Statements
- Describe simple Loop Statement
- Describe While Loop Statement
- Describe For Loop Statement
- Use the Continue Statement
- ❖ Composite Data Types
 - Use PL/SQL Records
 - The %ROWTYPE Attribute
 - Insert and Update with PL/SQL Records
 - INDEX BY Tables
 - Examine INDEX BY Table Methods
 - Use INDEX BY Table of Records
- ❖ Explicit Cursors
 - What are Explicit Cursors?
 - Declare the Cursor
 - Open the Cursor
 - Fetch data from the Cursor
 - Close the Cursor
 - Cursor FOR loop
 - The %NOTFOUND and %ROWCOUNT Attributes
 - Describe the FOR UPDATE Clause and WHERE CURRENT Clause
- ❖ Exception Handling
 - Understand Exceptions
 - Handle Exceptions with PL/SQL
 - Trap Predefined Oracle Server Errors
 - Trap Non-Predefined Oracle Server Errors



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- Trap User-Defined Exceptions
- Propagate Exceptions
- RAISE_APPLICATION_ERROR Procedure
- ❖ Stored Procedures
 - Create a Modularized and Layered Subprogram Design
 - Modularize Development With PL/SQL Blocks
 - Understand the PL/SQL Execution Environment
 - List the benefits of using PL/SQL Subprograms
 - List the differences between Anonymous Blocks and Subprograms
 - Create, Call, and Remove Stored Procedures
 - Implement Procedures Parameters and Parameters Modes
 - View Procedure Information
- ❖ Stored Functions and Debugging Subprograms
- ❖ Packages
- ❖ Deploying Packages
- ❖ Implement Oracle-Supplied Packages in Application Development
- ❖ Dynamic SQL
- ❖ Design Considerations for PL/SQL Code
- ❖ Triggers
 - ❖ Creating Compound, DDL, and Event Database Triggers
- ❖ PL/SQL Compiler
- ❖ Manage Dependencies