Cel szkolenia:

This **Oracle Database: Program with PL/SQL** training starts with an introduction to PL/SQL and then explores the benefits of this powerful programming language. Through hands-on instruction from expert Oracle instructors, you’ll learn to develop stored procedures, functions, packages and more.

**Learn To:**

- Conditionally control code flow (loops, control structures).
- 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 anonymous PL/SQL blocks, functions and procedures.
- Declare PL/SQL Variables.

**Plan szkolenia:**

- 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
  - 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
  - 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
  - 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
  - Create, Call, and Remove a Stored Function
- Identify the advantages of using Stored Functions
- Identify the steps to create a stored function
- Invoke User-Defined Functions in SQL Statements
- Restrictions when calling Functions
- Control side effects when calling Functions
- View Functions Information
- How to debug Functions and Procedures?

- Packages
  - Listing the advantages of Packages
  - Describe Packages
  - What are the components of a Package?
  - Develop a Package
  - How to enable visibility of a Package’s Components?
  - Create the Package Specification and Body using the SQL CREATE Statement and SQL Developer
  - Invoke the Package Constructs
  - View the PL/SQL Source Code using the Data Dictionary

- Deploying Packages
  - Overloading Subprograms in PL/SQL
  - Use the STANDARD Package
  - Use Forward Declarations to solve Illegal Procedure Reference
  - Implement Package Functions in SQL and Restrictions
  - Persistent State of Packages
  - Persistent State of a Package Cursor
  - Control side effects of PL/SQL Subprograms
  - Invoke PL/SQL Tables of Records in Packages

- Implement Oracle-Supplied Packages in Application Development
  - What are Oracle-Supplied Packages?
  - Examples of some of the Oracle-Supplied Packages
  - How does the DBMS_OUTPUT Package work?
  - Use the UTL_FILE Package to Interact with Operating System Files
  - Invoke the UTL_MAIL Package
  - Write UTL_MAIL Subprograms

- Dynamic SQL
  - The Execution Flow of SQL
  - What is Dynamic SQL?
- Declare Cursor Variables
- Dynamically Executing a PL/SQL Block
- Configure Native Dynamic SQL to Compile PL/SQL Code
- How to invoke DBMS_SQL Package?
- Implement DBMS_SQL with a Parameterized DML Statement
- Dynamic SQL Functional Completeness

- Design Considerations for PL/SQL Code
  - Standardize Constants and Exceptions
  - Understand Local Subprograms
  - Write Autonomous Transactions
  - Implement the NOCOPY Compiler Hint
  - Invoke the PARALLEL_ENABLE Hint
  - The Cross-Session PL/SQL Function Result Cache
  - The DETERMINISTIC Clause with Functions
  - Usage of Bulk Binding to Improve Performance

- Triggers
  - Describe Triggers
  - Identify the Trigger Event Types and Body
  - Business Application Scenarios for Implementing Triggers
  - Create DML Triggers using the CREATE TRIGGER Statement and SQL Developer
  - Identify the Trigger Event Types, Body, and Firing (Timing)
  - Differences between Statement Level Triggers and Row Level Triggers
  - Create Instead of and Disabled Triggers
  - How to Manage, Test and Remove Triggers?

- Creating Compound, DDL, and Event Database Triggers
  - What are Compound Triggers?
  - Identify the Timing-Point Sections of a Table Compound Trigger
  - Understand the Compound Trigger Structure for Tables and Views
  - Implement a Compound Trigger to Resolve the Mutating Table Error
  - Comparison of Database Triggers to Stored Procedures
  - Create Triggers on DDL Statements
  - Create Database-Event and System-Events Triggers
  - System Privileges Required to Manage Triggers

- PL/SQL Compiler
  - What is the PL/SQL Compiler?
  - Describe the Initialization Parameters for PL/SQL Compilation
list the new PL/SQL Compile Time Warnings

Overview of PL/SQL Compile Time Warnings for Subprograms

List the benefits of Compiler Warnings

List the PL/SQL Compile Time Warning Messages Categories

Setting the Warning Messages Levels: Using SQL Developer, PLSQL_WARNINGS Initialization

Parameter, and the DBMS_WARNING Package Subprograms

View Compiler Warnings: Using SQL Developer, SQL*Plus, or the Data Dictionary Views

Manage Dependencies

Overview of Schema Object Dependencies

Query Direct Object Dependencies using the USER_DEPENDENCIES View

Query an Object’s Status

Invalidation of Dependent Objects

Display the Direct and Indirect Dependencies

Fine-Grained Dependency Management in Oracle Database 12c

Understand Remote Dependencies

Recompile a PL/SQL Program Unit

Wymagania:

Recommended Related Training Courses:

- Using Java - for PL/SQL and Database Developers
- Oracle Database: SQL Tuning for Developers

Poziom trudności

Certyfikaty:

Uczestnicy szkoleń otrzymają zaświadczenia o ukończeniu kursu sygnowane przez firmę Oracle.

Prowadzący:

Autoryzowany wykładowca Oracle.