Database Programming with PL/SQL – Course Description

Overview

This course introduces students to PL/SQL, Oracle’s procedural extension language for SQL and the Oracle relational database. Participants explore the differences between SQL and PL/SQL. They also examine the characteristics of PL/SQL and how it is used to extend and automate SQL to administer the Oracle database. This course culminates with a project that challenges students to program, implement, and demonstrate a database solution for a business or organization.

Available Curriculum Languages:

- English

Duration

- Recommended total course time: 180 hours*
- Professional education credit hours for educators who complete Oracle Academy training: 60

* Course time includes instruction, self-study/homework, practices, projects, and assessment

Target Audiences

Educators

- College/university faculty who teach computer programming or a related subject
- Secondary school teachers who teach computer programming

Students

- Students who wish to learn the techniques and tools to automate database application tasks
- Students who possess basic mathematical, logical, and analytical problem-solving skills
- Novice programmers, as well as those at advanced levels, to learning the PL/SQL programming language to an advanced level

Prerequisites

Required

- Previous experience with at least one programming language

Suggested

- Previous Experience with a database application
- Oracle Academy Course – Database Design and Database Programming with SQL

Suggested Next Courses

- Getting Started with Java Using Alice
- Creating Java Programs with Greenfoot
- Java Fundamentals
- Java Programming
Lesson-by-Lesson Topics

Fundamentals
- Introduction to PL/SQL
- Benefits of PL/SQL
- Creating PL/SQL Blocks

Defining Variables and Datatypes
- Using Variables in PL/SQL
- Recognizing PL/SQL Lexical Units
- Recognizing Data Types
- Using Scalar Data Types
- Writing PL/SQL Executable Statements
- Nested Blocks and Variable Scope
- Good Programming Practices

Using SQL in PL/SQL
- Review of SQL DML
- Retrieving Data in PL/SQL
- Manipulating Data in PL/SQL
- Using Transaction Control Statements

Program Structures to Control Execution Flow
- Conditional Control: IF Statements
- Conditional Control: CASE Statements
- Iterative Control: Basic Loops
- Iterative Control: WHILE and FOR Loops
- Iterative Control: Nested Loops

Using Composite Datatypes
- User-Defined Records
- Indexing Tables of Records

Using Cursors and Parameters
- Introduction to Explicit Cursors
- Using Explicit Cursor Attributes
- Cursor FOR Loops
- Cursors with Parameters
- Using Cursors for UPDATE
- Using Multiple Cursors

Exception Handling
- Handling Exceptions
- Trapping Oracle Server Exceptions
- Trapping User-Defined Exceptions
- Recognizing the Scope of Exceptions

Using and Managing Procedures
- Creating Procedures
- Using Parameters in Procedures
- Passing Parameters

Using and Managing Functions
- Creating Functions
- Using Functions in SQL Statements
- Review of the Data Dictionary
- Managing Procedures and Functions
- Review of Object Privileges
• Using Invoker's Rights and Autonomous Transactions

Using and Managing Packages
• Creating Packages
• Managing Package Concepts
• Advanced Package Concepts

Getting the Best out of Packages
• Persistent State of Package Variables
• Using Oracle-Supplied Packages

Improving PL/SQL Performance
• Using Dynamic SQL
• Improving PL/SQL Performance

Using and Managing Triggers
• Introduction To Triggers
• Creating DML Triggers, Part I
• Creating DML Triggers, Part II
• Creating DDL and Database Event Triggers
• Managing Triggers

Recognizing and Managing Dependencies
• Introduction to Dependencies
• Understanding Remote Dependencies

Using the PL/SQL Compiler
• Using PL/SQL Initialization Parameters
• Displaying Compiler Warning Messages
• Using Conditional Compilation
• Hiding Your Source Code

To search and register for events scheduled in your area, visit the Academy events calendar.