Szkolenie: Oracle
Oracle Database: SQL and PL/SQL Fundamentals

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<th>MATERIAŁY SZKOLENIOWE</th>
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Lokalizacje

Kraków - ul. Tatarska 5, II piętro, godz. 9:00 - 16:00
Warszawa - ul. Bielska 17, godz. 9:00 - 16:00

Cel szkolenia:

This **Oracle Database: SQL and PL/SQL Fundamentals** training delivers the fundamentals of SQL and PL/SQL along with the benefits of the programming languages using Oracle Database technology. You'll explore the concepts of relational databases.

**Learn To:**

- Write queries against single and multiple tables, manipulate data in tables and create database objects.
- Use single row functions to customize output.
- Invoke conversion functions and conditional expressions.
- Use group functions to report aggregated data.
- Create PL/SQL blocks of application code that can be shared by multiple forms, reports and data management applications.
- Develop anonymous PL/SQL blocks, stored procedures and functions.
- Declare identifiers and trap exceptions.
- Use DML statements to manage data.
- Use DDL statements to manage database objects.
- Declare PL/SQL Variables.
- Conditionally control code flow (loops, control structures).
- Describe stored procedures and functions.
- Retrieve row and column data from tables.
Plan szkolenia:

- **Introduction**
  - Overview of Oracle Database 12c and related products
  - Overview of relational database management concepts and terminologies
  - Introduction to SQL and its development environments
  - The HR schema and the tables used in this course
  - Oracle Database documentation and additional resources

- **Retrieve Data using the SQL SELECT Statement**
  - List the capabilities of SQL SELECT statements
  - Generate a report of data from the output of a basic SELECT statement
  - Use arithmetic expressions and NULL values in the SELECT statement
  - Invoke Column aliases
  - Concatenation operator, literal character strings, alternative quote operator, and the DISTINCT keyword
  - Display the table structure using the DESCRIBE command

- **Restricted and Sorted Data**
  - Write queries with a WHERE clause to limit the output retrieved
  - Describe the comparison operators and logical operators
  - Describe the rules of precedence for comparison and logical operators
  - Usage of character string literals in the WHERE clause
  - Write queries with an ORDER BY clause
  - Sort the output in descending and ascending order
  - Substitution Variables

- **Usage of Single-Row Functions to Customize Output**
  - List the differences between single row and multiple row functions
  - Manipulate strings using character functions
  - Manipulate numbers with the ROUND, TRUNC, and MOD functions
  - Perform arithmetic with date data
  - Manipulate dates with the DATE functions

- **Conversion Functions and Conditional Expressions**
  - Describe implicit and explicit data type conversion
  - Describe the TO_CHAR, TO_NUMBER, and TO_DATE conversion functions
  - Nesting multiple functions
  - Apply the NVL, NULLIF, and COALESCE functions to data
  - Usage of conditional IF THEN ELSE logic in a SELECT statement
Aggregated Data Using the Group Functions
- Usage of the aggregation functions in SELECT statements to produce meaningful reports
- Describe the AVG, SUM, MIN, and MAX function
- How to handle Null Values in a group function?
- Divide the data in groups by using the GROUP BY clause
- Exclude groups of date by using the HAVING clause

Display Data From Multiple Tables
- Write SELECT statements to access data from more than one table
- Join Tables Using SQL:1999 Syntax
- View data that does not meet a join condition by using outer joins
- Join a table to itself by using a self join
- Create Cross Joins

Usage of Subqueries to Solve Queries
- Use a Subquery to Solve a Problem
- Single-Row Subqueries
- Group Functions in a Subquery
- Multiple-Row Subqueries
- Use the ANY and ALL Operator in Multiple-Row Subqueries
- Use the EXISTS Operator

SET Operators
- Describe the SET operators
- Use a SET operator to combine multiple queries into a single query
- Describe the UNION, UNION ALL, INTERSECT, and MINUS Operators
- Use the ORDER BY Clause in Set Operations

Data Manipulation
- Add New Rows to a Table
- Change the Data in a Table
- Use the DELETE and TRUNCATE Statements
- How to save and discard changes with the COMMIT and ROLLBACK statements
- Implement Read Consistency
- Describe the FOR UPDATE Clause

DDL Statements to Create and Manage Tables
- Categorize Database Objects
- Create Tables
- Describe the data types
- Understand Constraints
Create a table using a subquery
How to alter a table?
How to drop a table?

Other Schema Objects
- Create, modify, and retrieve data from a view
- Perform Data manipulation language (DML) operations on a view
- How to drop a view?
- Create, use, and modify a sequence
- Create and drop indexes
- Create and drop synonyms

Introduction to PL/SQL
- PL/SQL Overview
- List the benefits of PL/SQL Subprograms
- Overview of the Types of PL/SQL blocks
- Create a Simple Anonymous Block
- Generate the Output from a PL/SQL Block

PL/SQL Identifiers
- List the different Types of Identifiers in a PL/SQL subprogram
- Usage of the Declarative Section to Define Identifiers
- Use of variables to store data
- Scalar Data Types
- %TYPE Attribute
- Bind Variables
- Sequences in PL/SQL Expressions

Write Executable Statements
- Basic PL/SQL Block Syntax Guidelines
- How to comment code?
- SQL Functions in PL/SQL
- Data Type Conversion
- Nested Blocks
- Operators in PL/SQL

Interaction with the Oracle Server
- SELECT Statements in PL/SQL to Retrieve data
- Data Manipulation in the Server Using PL/SQL
- The SQL Cursor concept
- Learn to use SQL Cursor Attributes to Obtain Feedback on DML
How to save and discard transactions?

Control Structures
- Conditional processing Using IF Statements
- Conditional processing Using CASE Statements
- Simple Loop Statement
- While Loop Statement
- For Loop Statement
- The Continue Statement

Usage of Composite Data Types
- PL/SQL Records
- The %ROWTYPE Attribute
- Insert and Update with PL/SQL Records
- Associative Arrays (INDEX BY Tables)
- INDEX BY Table Methods
- INDEX BY Table of Records

Explicit Cursors
- Understand Explicit Cursors
- Declare the Cursor
- How to open the Cursor?
- Fetching data from the Cursor
- How to close the Cursor?
- Cursor FOR loop
- Explicit Cursor Attributes
- FOR UPDATE Clause and WHERE CURRENT Clause

Exception Handling
- What are 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 and Functions
- What are Stored Procedures and Functions?
- Differentiate between anonymous blocks and subprograms
- Create a Simple Procedure
- Create a Simple Procedure with IN parameter
- Create a Simple Function
- Execute a Simple Procedure
- Execute a Simple Function

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.