Oracle Database Programmer (code: LC-ORACLE)

Ask for details
Phone +44 203 608 6289
info@alx.academy

Overview

Do you work with large amounts of data on a daily basis? Or maybe you have had contact with a programming language before? If you have a scientific mind and want to become a database programmer - this bootcamp is for you. You will have 10 days of intensive learning from scratch! The course will be led by our instructor – a programmer and database administrator with many years of experience and excellent didactic preparation. The course is 100% practice-oriented which means no boring lectures.

The programme of the first four days of the intensive course includes, among other things, the full range of requirements for the 1Z0-071 Oracle Database SQL exam, which after passing allows you to obtain the Oracle Database SQL Certified Associate certificate. The Oracle Database Administration block, on the other hand, mostly covers topics required for the 1Z0-062 Oracle database 12c Administration exam. Passing this exam in conjunction with the 1Z0-071 Oracle Database SQL exam allows you to obtain the Oracle Database 12c Administrator Certified Associate certificate.

Duration

80h

Agenda

Oracle databases and the SQL language

1. Introduction to databases:
   — basic concepts related to databases
   — relational data model
   — transactional databases.
2. A few words about Oracle:
   — DBMS architecture,
   — versions and licenses,
   — available tools,
   — environment configuration for work.
3. Create simple SQL queries:
   — displaying data retrieved from the database,
   — sorting and limiting the number of returned rows,
   — using alternative column names - aliases,
   — basic mathematical operations and combining strings,
   — data filtering,
   — substitution of variables during query execution,
   — NULL value and its handling in the database,
   — elimination of repetitive rows - DISTINCT clause.
4. Extended data selection:
   — logical operators for conjunction and negation of conditions,
   — comparison operators (>, >=, =, <, <=, <>, !=),
   — range operator (BETWEEN),
   — membership operator (IN),
   — pattern operator (LIKE).
5. Scalar functions
   — operations related to dates and time,

- character type operations,
- numeric functions
- conditional functions, logical operators (CASE, DECODE, COALESCE, NVL, NVL2),
- implicit type conversion,
- functions related to type conversion: TO_CHAR, TO_DATE, TO_NUMBER,
- use of functions in all places of the query

6. Data aggregation
   - grouping functions,
   - filtering rows after aggregation.
7. Set operations
   - UNION, UNION ALL, MINUS, INTERSECT operators,
   - checking the order of the rows returned by operations on sets.
8. Joining data sets:
   - available join criteria, equijoin, theta-join, natural joins
   - Oracle and ANSI SQL syntax
   - cross joins,
   - external joins,
   - self joins,
   - anti joins.
9. Nested queries (subqueries)
   - scope of subqueries,
   - scalar subqueries,
   - multi-line subqueries,
   - correlated and uncorrelated subqueries.
10. DML (Data Manipulation Language) commands and transactions
    - inserting rows,
    - deleting data from the database,
    - changing data in the database,
    - the scope of constraints when performing DML operations
11. Transaction management
    - transaction validation, rollback, savepoints,
    - Locks on concurrent execution of operations,
    - deadlocks,
    - UNDO space principles and FLASHBACK operations.
12. DDL (Data Definition Language) commands
    - Creating, deleting and modifying tables, column types,
    - constraints, primary and foreign keys,
    - creating simple and complex views,
    - schemas in the database,
    - other database objects: indexes, synonyms (public and private), sequences.
13. Database design
    - Basic information about standardisation,
    - normalization vs. efficiency
    - selecting appropriate data types
    - good practices of creating and naming objects

Programming in Oracle

1. Introduction to PL/SQL programming:
   - lexical units and conventions,
   - anonymous blocks and programs,
   - Executable block and declaration block,
   - running anonymous blocks and programs.
2. Defining and handling variables:

— declaring and changing the values of variables,
— use of standard data types in variables,
— %TYPE and %ROWTYPE attributes,
— working with compound types, custom compound types,
— Records, tables and record tables,
— constants.

3. Structured programming:
   — control statements: conditions, loops.
4. INTO clause
   — use of SQL functions,
   — exception handling, typical built-in exceptions,
   — creating your own exceptions,
   — labels, visibility of names, nested blocks.
5. Cursors:
   — implicit and explicit cursors,
   — cursors with parameters,
   — row blocking (FOR UPDATE clause),
   — WHERE CURRENT OF clause.
6. Program development:
   — stored procedures,
   — creating functions with their use in SQL,
   — parameters in programs,
   — ways to call programs.
7. Packages:
   — package construction and dependencies,
   — running packages,
   — polymorphism in packages (overloading),
   — embedded packages.
8. Triggers:
   — DML triggers at the command and line level,
   — DML triggers on views,
   — DDL command triggers,
   — triggers on system events.
9. Dynamic SQL:
   — the need to use dynamic SQL, contraindications,
   — native dynamic SQL,
   — DBMS_SQL package.

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Administration of Oracle database:

1. Introduction to databases:
   — basic concepts related to databases
   — relational data model
   — transactional databases
   — Oracle versions and licenses
   — database tools
   — database versus data instance
   — basic administrator tasks
2. Configuring the network environment:
   — Oracle engine operation logic in a network environment
   — static and dynamic listener
   — registering a database in the system
   — oracle Net Configuration Assistant
   — database link
3. Physical and logical structure of the database:
   — logical breakdown and relationship with physical data structure

- contents of database blocks
- creation of tablespace
- system tablespaces

4. Transaction management:
   - validation, rollback of transactions, savepoints
   - locks on concurrent execution of operations
   - deadlocks
   - UNDO space principle and FLASHBACK operations
5. ORACLE file architecture:
   - creation and management of control files
   - server parameter files – binary and text
   - redo log files
   - archived redo log files
   - backup files
   - use of message log – alert log
   - trace files
   - password files
6. Database instance architecture and management:
   - database parameters
   - parameter initialization types
   - ADR
   - instance memory structures
   - memory management using AMM and ASMM
   - background processes
   - database dictionaries and system views
7. Launching and shutting down an instance:
   - launch modes
   - shutdown modes
   - checking the database status
   - database services
8. User and rights management:
   - user rights
   - inheritance of objects and system privileges
   - built-in roles and creating your own roles
   - administrator accounts
   - management of users and roles in container databases
   - database profiles

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Target audience and prerequisites

For people who have had contact with programming in other languages and want to develop in the direction of databases. For people who have experience with databases as analysts and want to develop in the direction of designing and programming in databases

Ability to think analytically / basic programming skills in any language or SQL basics and knowledge of MS Excel, MS Access

Certificates

Course participants receive completion certificates signed by ALX.

Locations

- Warsaw (English) – Jasna 14/16A
- Online (English) – your home, office or wherever you want

— any other location (London, UK, EU) on request

Price

1140 EUR

The price includes:

— course materials,
— snacks, coffee, tea and soft drinks,
— course completion certificate,
— one-time consultation with the instructor after course completion.

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