

Course Outline

Oracle Database: Introduction to SQL NEW



Duration: 5 days (30 hours)

Learning Objectives:

- Identify the major structural components of the Oracle Database 12c
- Create reports of aggregated data
- Write SELECT statements that include queries
- Retrieve row and column data from tables
- Run data manipulation statements (DML) in Oracle Database 12c
- Create tables to store data
- Utilize views to display data
- Control database access to specific objects
- Manage schema objects
- Display data from multiple tables using the ANSI SQL 99 JOIN syntax
- Manage objects with data dictionary views
- Write multiple-column sub-queries
- Employ SQL functions to retrieve customized data
- Use scalar and correlated sub-queries
- Create reports of sorted and restricted data

Target Audience

- Forms Developer
- Data Warehouse Administrator
- Developer
- System Analysts
- Business Analysts
- Application Developers
- PL/SQL Developer

Prerequisites:

- Familiarity with data processing concepts and techniques
- Data processing

Topics Covered:

- Introduction to Oracle Database
 - List the features of Oracle Database 12c
 - Discuss the basic design, theoretical, and physical aspects of a relational database
 - Categorize the different types of SQL statements

- Describe the data set used by the course
 - Log on to the database using SQL Developer environment
 - Save queries to files and use script files in SQL Developer
- 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
 - Select All Columns
 - Select Specific Columns
 - Use Column Heading Defaults
 - Use Arithmetic Operators
 - Understand Operator Precedence
 - Learn the DESCRIBE command to display the table structure
- Learn to Restrict and Sort Data
- Write queries that contain a WHERE clause to limit the output retrieved
 - List the comparison operators and logical operators that are used in a WHERE clause
 - Describe the rules of precedence for comparison and logical operators
 - Use character string literals in the WHERE clause
 - Write queries that contain an ORDER BY clause to sort the output of a SELECT statement
 - Sort output in descending and ascending order
- Usage of Single-Row Functions to Customize Output
- Describe the differences between single row and multiple row functions
 - Manipulate strings with character function in the SELECT and WHERE clauses
 - Manipulate numbers with the ROUND, TRUNC, and MOD functions
 - Perform arithmetic with date data
 - Manipulate dates with the DATE functions
- Invoke Conversion Functions and Conditional Expressions
- Describe implicit and explicit data type conversion
 - Use the TO_CHAR, TO_NUMBER, and TO_DATE conversion functions
 - Nest multiple functions
 - Apply the NVL, NULLIF, and COALESCE functions to data
 - Use conditional IF THEN ELSE logic in a SELECT statement
- Aggregate Data Using the Group Functions
- Use the aggregation functions to produce meaningful reports
 - Divide the retrieved data in groups by using the GROUP BY clause
 - Exclude groups of data by using the HAVING clause
- Display Data From Multiple Tables Using Joins
- Write SELECT statements to access data from more than one table
 - View data that generally does not meet a join condition by using outer joins
 - Join a table to itself by using a self join
- Use Sub-queries to Solve Queries
- Describe the types of problem that sub-queries can solve
 - Define sub-queries
 - List the types of sub-queries
 - Write single-row and multiple-row sub-queries
- The SET Operators
- Describe the SET operators
 - Use a SET operator to combine multiple queries into a single query
 - Control the order of rows returned

- Data Manipulation Statements
 - Describe each DML statement
 - Insert rows into a table
 - Change rows in a table by the UPDATE statement
 - Delete rows from a table with the DELETE statement
 - Save and discard changes with the COMMIT and ROLLBACK statements
 - Explain read consistency
- Use of DDL Statements to Create and Manage Tables
 - Categorize the main database objects
 - Review the table structure
 - List the data types available for columns
 - Create a simple table
 - Decipher how constraints can be created at table creation
 - Describe how schema objects work
- Other Schema Objects
 - Create a simple and complex view
 - Retrieve data from views
 - Create, maintain, and use sequences
 - Create and maintain indexes
 - Create private and public synonyms
- Control User Access
 - Differentiate system privileges from object privileges
 - Create Users
 - Grant System Privileges
 - Create and Grant Privileges to a Role
 - Change Your Password
 - Grant Object Privileges
 - How to pass on privileges?
 - Revoke Object Privileges
- Management of Schema Objects
 - Add, Modify, and Drop a Column
 - Add, Drop, and Defer a Constraint
 - How to enable and Disable a Constraint?
 - Create and Remove Indexes
 - Create a Function-Based Index
 - Perform Flashback Operations
 - Create an External Table by Using ORACLE_LOADER and by Using ORACLE_DATAPUMP
 - Query External Tables
- Manage Objects with Data Dictionary Views
 - Explain the data dictionary
 - Use the Dictionary Views
 - USER_OBJECTS and ALL_OBJECTS Views
 - Table and Column Information
 - Query the dictionary views for constraint information
 - Query the dictionary views for view, sequence, index and synonym information
 - Add a comment to a table
 - Query the dictionary views for comment information
- Manipulate Large Data Sets
 - Use Subqueries to Manipulate Data
 - Retrieve Data Using a Subquery as Source
 - Insert Using a Subquery as a Target

- Usage of the WITH CHECK OPTION Keyword on DML Statements
 - List the types of Multitable INSERT Statements
 - Use Multitable INSERT Statements
 - Merge rows in a table
 - Track Changes in Data over a period of time
- Data Management in different Time Zones
- Time Zones
 - CURRENT_DATE, CURRENT_TIMESTAMP, and LOCALTIMESTAMP
 - Compare Date and Time in a Session's Time Zone
 - DBTIMEZONE and SESSIONTIMEZONE
 - Difference between DATE and TIMESTAMP
 - INTERVAL Data Types
 - Use EXTRACT, TZ_OFFSET and FROM_TZ
 - Invoke TO_TIMESTAMP, TO_YMINTERVAL and TO_DSINTERVAL
- Retrieve Data Using Sub-queries
- Multiple-Column Subqueries
 - Pairwise and Nonpairwise Comparison
 - Scalar Subquery Expressions
 - Solve problems with Correlated Subqueries
 - Update and Delete Rows Using Correlated Subqueries
 - The EXISTS and NOT EXISTS operators
 - Invoke the WITH clause
 - The Recursive WITH clause
- Regular Expression Support
- Use the Regular Expressions Functions and Conditions in SQL
 - Use Meta Characters with Regular Expressions
 - Perform a Basic Search using the REGEXP_LIKE function
 - Find patterns using the REGEXP_INSTR function
 - Extract Substrings using the REGEXP_SUBSTR function
 - Replace Patterns Using the REGEXP_REPLACE function
 - Usage of Sub-Expressions with Regular Expression Support
 - Implement the REGEXP_COUNT function

LEBANON

Beirut, Sodeco Square
+961 1 611 111
info@formatech.com.lb

U.A.E

Dubai, Knowledge Village
+971 43695391
info@formatech.ae