

Oracle Database: SQL Fundamentals

Length: 2 days

Summary: This course introduces participants to the fundamentals of SQL using Oracle Database 11g database technology. In this course participants learn the concepts of relational databases and the powerful SQL programming language. This course provides the essential SQL skills that allow developers to write queries against single and multiple tables, manipulate data in tables, and create database objects.

The participants also learn to use single row functions to customize output, use conversion functions and conditional expressions. In addition, the usage of group functions to report aggregated data is also dealt with. Demonstrations and hands-on practice reinforce the fundamental concepts.

In this course, participants use Oracle SQL Developer as the main tool and SQL*Plus is available as an optional tool.

This is appropriate for a 10g and 11g audience. There are minor changes between 10g and 11g features in SQL.

Learn to:

- Create reports of sorted and restricted data.
- Retrieve row and column data from tables with the SELECT statement.
- Display data from multiple tables.
- Use DML statements to manage data.
- Use DDL statements to manage database objects.
- Prerequisites:
- Required Prerequisites:
- Familiarity with data processing concepts and techniques

Course Objectives:

- Retrieve data from tables.
- Create reports of sorted and restricted data.
- Employ SQL functions to generate customized data.
- Display data from multiple tables using the ANSI SQL 99 JOIN syntax.
- Create reports of aggregated data.
- Use the SET operators to create subsets of data.
- Run data manipulation statements (DML) to update data in the Oracle Database 11g.
- Identify the major structural components of the Oracle Database 11g.
- Run data definition language (DDL) statements to create schema objects

COURSE CONTENT

1. Overview of Oracle Database 11g and related products
2. Overview of relational database management concepts and terminologies
3. Introduction to SQL and its development environments
4. The HR schema and the tables used in this course
5. Oracle Database documentation and additional resources

6. Retrieve Data Using the SQL SELECT Statement
7. List the capabilities of SQL SELECT statements.
8. Generate a report of data from the output of a basic SELECT statement
9. Usage of arithmetic expressions and NULL values
10. Implement Column aliases
11. Describe the concatenation operator, literal character strings, alternative quote operator, and the DISTINCT keyword
12. Display the table structure using the DESCRIBE command
13. Restrict and Sort Data
14. Write queries with a WHERE clause to limit the output retrieved
15. Use the comparison operators and logical operators
16. Identify the rules of precedence for comparison and logical operators
17. Usage of character string literals in the WHERE clause
18. Write queries with an ORDER BY clause
19. Sort output in descending and ascending order
20. Substitution Variables
21. Use Single-Row Functions to Customize Output
22. Differentiate between single row and multiple row functions
23. Manipulate strings using character functions
24. Manipulate numbers with the ROUND, TRUNC and MOD functions
25. Perform arithmetic with date data
26. Manipulate dates with the date functions
27. Conversion Functions and Conditional Expressions
28. Describe implicit and explicit data type conversion
29. Describe TO_CHAR, TO_NUMBER, and TO_DATE conversion functions
30. Nesting multiple functions
31. Apply the NVL, NULLIF, and COALESCE functions to data
32. Use conditional IF THEN ELSE logic in a SELECT statement
33. Aggregated Data Using the Group Functions
34. How aggregation functions help to produce meaningful reports?
35. Use the AVG, SUM, MIN, and MAX function
36. How to handle Null Values in a group function?
37. Divide the data in groups by using the GROUP BY clause
38. Exclude groups of data by using the HAVING clause
39. Display Data From Multiple Tables Using Joins
40. Write SELECT statements to access data from more than one table
41. Join Tables Using SQL:1999 Syntax
42. View data that does not meet a join condition by using outer joins
43. Join a table by using a self join
44. Create Cross Joins
45. Use Sub-queries to Solve Queries
46. Use a Subquery to Solve a Problem
47. Execute Single-Row Sub-queries
48. Deploy Group Functions in a Sub-query
49. Multiple-Row Subqueries
50. Use the ANY and ALL Operator in Multiple-Row Sub-queries
51. Use EXISTS Operator
52. SET Operators
53. What are SET operators?
54. Use a SET operator to combine multiple queries into a single query
55. Use UNION, UNION ALL, INTERSECT, and MINUS Operator
56. Use the ORDER BY Clause in Set Operations
57. Data Manipulation
58. Add New Rows to a Table
59. Change the Data in a Table
60. Use DELETE and TRUNCATE Statements

61. Save and discard changes with the COMMIT and ROLLBACK statements
62. Implement Read Consistency
63. Describe the FOR UPDATE Clause
64. Use DDL Statements to Create and Manage Tables
65. Categorize Database Objects
66. Create Tables using the CREATE TABLE Statement
67. Identify the data types
68. Describe Constraints
69. Create a table using a subquery
70. How to alter a table?
71. Drop a table
72. Other Schema Objects
73. Create, modify, and retrieve data from a view
74. Perform Data manipulation language (DML) operations on a view
75. Drop a view
76. Create, use, and modify a sequence
77. Create and maintain indexes
78. Create and drop synonyms