

## Oracle Database 11g: Introduction to SQL Release 2

**Duração:** 5 Dias

### Objetivos do Curso

In this course students learn the concepts of relational databases. 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. Students learn to control privileges at the object and system level.

This course covers creating indexes and constraints, and altering existing schema objects. Students also learn how to create and query external tables. Students learn to use the advanced features of SQL in order to query and manipulate data within the database, use the dictionary views to retrieve metadata and create reports about their schema objects. Students also learn some of the date-time functions available in the Oracle Database. This course discusses how to use the regular expression support in SQL.

This course is a combination of Oracle Database 11g: SQL Fundamentals I and Oracle Database 11g: SQL Fundamentals II courses.

In this course, students use Oracle SQL Developer as the main development tool. SQL\*Plus is available as an optional development tool.

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

Learn To: Create reports of sorted and restricted data  
Run data manipulation statements (DML) to update data  
Control database access to specific objects  
Manage schema objects  
Manage objects with data dictionary views  
Retrieve row and column data from tables

### Público

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

### Pré-requisitos

*Pré-requisitos Obrigatórios*

Familiarity with data processing concepts and techniques

Data processing

### Objetivos do Curso

Employ SQL functions to generate and retrieve customized data  
Display data from multiple tables using the ANSI SQL 99 JOIN syntax  
Identify the major structural components of the Oracle Database 11g  
Create reports of aggregated data  
Write SELECT statements that include queries

Retrieve row and column data from tables with the SELECT statement  
Run data manipulation statements (DML) to update data in the Oracle Database 11g  
Create tables to store data  
Utilize views to display and retrieve data  
Control database access to specific objects  
Manage schema objects  
Manage objects with data dictionary views  
Write multiple-column sub-queries  
Use scalar and correlated sub-queries  
Use the regular expression support in SQL  
Create reports of sorted and restricted data

## **Tópicos do Curso**

### **Introducing Oracle Database 11g**

List the features of Oracle Database 11g  
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 onto the database using the SQL Developer environment  
Save queries to files and use script files in SQL Developer

### **Retrieving 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

### **Restricting and Sorting 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 sort the output of a SELECT statement  
Sort output in descending and ascending order

### **Using 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

### **Using 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

### **Reporting Aggregated Data Using the Group Functions**

Use the aggregation functions in SELECT statements to produce meaningful reports  
Create queries that divide the data in groups by using the GROUP BY clause  
Create queries that exclude groups of data by using the HAVING clause

### **Displaying 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 by using a self join

### **Using 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

### **Using 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 when using the SET operators

### **Manipulating Data**

Describe each DML statement  
Insert rows into a table with the INSERT statement  
Use the UPDATE statement to change rows in a table  
Delete rows from a table with the DELETE statement  
Save and discard changes with the COMMIT and ROLLBACK statements  
Explain read consistency

### **Using 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

### **Creating 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

### **Controlling User Access**

Differentiate system privileges from object privileges  
Creating Users  
Granting System Privileges  
Creating and Granting Privileges to a Role

- Changing Your Password
- Granting Object Privileges
- Passing On Your Privileges
- Revoking Object Privileges

### **Managing Schema Objects**

- Adding, Modifying and Dropping a Column
- Adding, Dropping and Deferring a Constraint
- Enabling and Disabling a Constraint
- Creating and Removing Indexes
- Creating a Function-Based Index
- Performing Flashback Operations
- Creating an External Table by Using ORACLE\_LOADER and by Using ORACLE\_DATAPUMP
- Querying External Tables

### **Managing Objects with Data Dictionary Views**

- Explain the data dictionary
- Using the Dictionary Views
- USER\_OBJECTS and ALL\_OBJECTS Views
- Table and Column Information
- Querying the dictionary views for constraint information
- Querying the dictionary views for view, sequence, index and synonym information
- Adding a comment to a table
- Querying the dictionary views for comment information

### **Manipulating Large Data Sets**

- Using Subqueries to Manipulate Data
- Retrieving Data Using a Subquery as Source
- Inserting Using a Subquery as a Target
- Using the WITH CHECK OPTION Keyword on DML Statements
- Types of Multitable INSERT Statements
- Using Multitable INSERT Statements
- Merging rows in a table
- Tracking Changes in Data over a period of time

### **Managing Data in Different Time Zones**

- Time Zones
- CURRENT\_DATE, CURRENT\_TIMESTAMP, and LOCALTIMESTAMP
- Comparing Date and Time in a Session's Time Zone
- DBTIMEZONE and SESSIONTIMEZONE
- Difference between DATE and TIMESTAMP
- INTERVAL Data Types
- Using EXTRACT, TZ\_OFFSET and FROM\_TZ
- Using TO\_TIMESTAMP, TO\_YMINTERVAL and TO\_DSINTERVAL

### **Retrieving Data Using Sub-queries**

- Multiple-Column Subqueries
- Pairwise and Nonpairwise Comparison
- Using Scalar Subquery Expressions
- Solving problems with Correlated Subqueries
- Updating and Deleting Rows Using Correlated Subqueries
- Using the EXISTS and NOT EXISTS operators

Using the WITH clause

Using the Recursive WITH clause

### **Regular Expression Support**

Using the Regular Expressions Functions and Conditions in SQL

Using Meta Characters with Regular Expressions

Performing a Basic Search using the REGEXP\_LIKE function

Finding patterns using the REGEXP\_INSTR function

Extracting Substrings using the REGEXP\_SUBSTR function

Replacing Patterns Using the REGEXP\_REPLACE function

Using Sub-Expressions with Regular Expression Support

Using the REGEXP\_COUNT function