

**Oracle SQL Programming**

**Course Number:** ORC-330
**Duration:** 4 days

**Overview**

Accelebrate's Introduction to Oracle SQL Programming training teaches students how to create, retrieve, and manipulate objects in Oracle Structured Query Language (SQL). Students will also be introduced to Oracle® database features and tools.

**Prerequisites**

No prior experience is presumed.

**Materials**

All students receive comprehensive courseware and a related textbook.

**Software Needed on Each Student PC**

* At least 8 GB RAM
* A complete installation of Oracle 19 or higher
* Oracle SQL Developer
* Please contact us for detailed setup instructions if you have purchased this class.

**Objectives**

* Use SQL Developer and other available SQL interfaces.
* Write simple SQL queries and format & sort the data as needed.
* Write moderately complex SQL queries using various join techniques.
* Supplement SQL code with references to pseudo columns and system functions.
* Summarize, group, and combine data to obtain more meaningful query results.
* Draw conclusions and make business decisions based upon the data processed.
* Learn advanced query techniques such as set operations, sub-queries, and summary functions.
* Create and maintain database tables using the SQL Data Definition Language (DDL).
* Manage data within tables using the SQL Data Manipulation Language (DML).
* Take advantage of regular expressions and support for international data and time zones.
* Learn to use the SQL99 join syntax.
* Perform advanced SQL queries using techniques e.g. CASE structures, rollup, and cube operations.
* Use advanced table definitions and the creation of indexes, sequences, and views.
* Use the powerful set of built-in SQL functions.
* Handle DML errors without application interruption.
* Obtain database object metadata from the data dictionary.
* Understand basic database security and object privileges.
* Protect database integrity and extend the conceptual data model using declarative constraints.
* Use SQL Developer and other available SQL interfaces.

**Outline**

* Introduction
* Relational Database Basics
	+ Brief History of SQL
	+ Relational Databases
	+ Popular Databases
	+ Schemas and Users
* Creating Tables
	+ Data Types
	+ Creating Tables
	+ Creating Tables (Exercise)
	+ Adding Constraints
	+ Altering the departments\_copy Table (Exercise)
	+ UNIQUE Constraints
	+ Adding and Dropping Columns
	+ Dropping Tables
* Basic Selects
	+ Comments
	+ Whitespace and Semi-colons
	+ Case Sensitivity
	+ SELECTing All Columns in All Rows
	+ Exploring the Tables (Exercise)
	+ SELECTing Specific Columns
	+ SELECTing Specific Columns (Exercise)
	+ Sorting Records
	+ Sorting Results (Exercise)
	+ The WHERE Clause and Logical Operator Symbols
	+ Using the WHERE Clause to Check for Equality or Inequality (Exercise)
	+ Checking for Greater Than or Less Than
	+ Using the WHERE Clause to Check for Greater or Less Than (Exercise)
	+ Checking for Null and Not Null
	+ Checking for NULL (Exercise)
	+ WHERE and ORDER BY
	+ Using WHERE and ORDER BY Together (Exercise)
	+ Checking Multiple Conditions with Boolean Operators
	+ Writing SELECTs with Multiple Conditions (Exercise)
	+ The WHERE Clause and Logical Operator Keywords
	+ More SELECTs with WHERE (Exercise)
	+ Limiting Rows
	+ Working with FETCH (Exercise)
* Oracle SQL Functions
	+ The DUAL Table and Column Aliases
	+ Calculated Fields
	+ Calculating Commissions (Exercise)
	+ ROW\_NUMBER()
	+ Numeric Functions
	+ Using MOD() (Exercise)
	+ Character Functions Returning Character Values
	+ Concatenation (Exercise)
	+ More Character Functions Returning Character Values
	+ Character Functions Returning Number Values
	+ Datetime Functions
	+ Dates (Exercise)
	+ SQL\*Plus column Command
	+ NULL-Related Functions
	+ NULL Functions (Exercise)
	+ Other Functions
* Aggregate Functions
	+ Introduction to Aggregate Functions
	+ Working with Aggregate Functions (Exercise)
	+ Grouping Data
	+ Grouping Results (Exercise)
	+ Selecting Distinct Records
	+ ROLLUP() and CUBE()
* Joins
	+ Inner Joins
	+ Inner Joins (Exercise)
	+ Outer Joins
	+ Outer Joins (Exercise)
* Subqueries
	+ Subquery Basics
	+ Subqueries (Exercise)
	+ Subqueries in the SELECT Clause
	+ Subqueries in SELECTs (Exercise)
* Set Operators
	+ Set Operators
	+ UNION
	+ UNION ALL
	+ INTERSECT
	+ MINUS
	+ Working with Set Operators (Exercise)
	+ Set Operators and Aliases
* Conditional Processing with CASE
	+ Selected Case
	+ Searched Case
	+ Working with CASE (Exercise)
* Data Manipulation Language
	+ Transactions and Sessions
	+ INSERT
	+ Inserting Records (Exercise)
	+ UPDATE
	+ DELETE
	+ Updating and Deleting Records (Exercise)
	+ Updating and Deleting Multiple Records
* Creating Views
	+ Creating Views
	+ Benefits of Views
	+ Creating a View (Exercise)
	+ Inline Views
* Conclusion