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Course Description	Credit Hours
The SQL Course covers relational database principles and Oracle concepts, writing basic SQL statements, restricting and sorting data, and using single-row functions. Additionally, the student will learn about group functions, sub queries, iSQL*Plus report variables, and the Data Manipulation and Data Definition language statements supported by Oracle8i and 9i.	24 Hrs. (Cost SR.1000 including course material)

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Writing Basic SQL Statements.

This topic covers the following SQL statement aspects.

- Capabilities of SQL Select Statements
- Basic SQL Statement
- Writing SQL Statement
- Selecting All Columns
- Selecting Specific Columns
- Column Heading Default
- Arithmetic Expression
- Using Arithmetic Operators
- Defining a Null Value
- Null Values in Arithmetic Expressions
- Defining a Column Alias
- Using Column Aliases
- Using the Concatenation Operator
- Literal Character String
- Duplicating Rows
- Eliminating Duplicating Rows
- SQL and SQL Plus interaction
- SQL Plus editing commands

Restricting and Sorting Data

This topic covers the following SQL statement aspects.

- Limiting Rows using a Selection
- Using the Where Clause
- Character Strings and Dates
- Comparison Operators
- Using the Comparison Operators
- Using the Between Operator
- Using the In Operator
- Using the Like Operator
- Using the Is Null Operator
- Logical Operators
- Using And – Or – Not Operators
- Order By Clause

Single Row Function

This topic covers the following SQL statement aspects.

- SQL Functions
- Two Types of SQL Functions
- Single Row Function
- Character Function
- Case Conversion Functions
- Using Case Conversion Functions
- Character Manipulation Functions
- Number Functions
- Using the Round Function
- Using the Trunc Function
- Using the Mod Function
- Working with Dates
- Arithmetic with Dates
- Date Function
- To_Char Function
- To_Date Function
- NVL Function
- Decode Function
- Nesting Functions

Display Data from Multiple Tables

This topic covers the following SQL statement aspects.

- Obtaining Data from Multiple Tables
- What is a Join
- Types of Join
- What is Equijoins
- Retrieving Records with Equijoins
- Qualifying Ambiguous Columns Names
- Additional Search with AND Operator
- Using Table Aliases
- Outer Joins

Aggregating Data using Group Functions

This topic covers the following SQL statement aspects.

- What are group Functions
- Types of Group Functions
- Using Group functions
- Using Avg and Sum Functions

- Using Min and Max functions
- Using Count Function
- Creating Groups of Data
- Creating Groups of Data, Group By Clause
- Using Having Clause

Subqueries

This topic covers the following SQL statement aspects.

- Using a Subquery to Solve a Problem
- Types of Subqueries
- Single Row Subqueries
- Using Group Functions in Subqueries
- Having Clause with Subqueries
- Multiple Row Subqueries

Multiple Column Subqueries

This topic covers the following SQL statement aspects.

- Multiple Column Subqueries
- Using Multiple Column Subqueries
- Column Comparisons
- Using a Subqueries in the From Clause

Report Generation with SQL* Plus

This topic covers the following SQL statement aspects.

- Interactive Reports
- Substitution variable
- Using & Substitution Variable
- Using the Set Verify Command
- Using && Substitution Variable
- The Accept Command
- Using the Define Command
- The Column Command
- Using the Break Command
- Using the Ttitleand Btitle Command
- Creating a Script File to Run a Report

Manipulating Data

This topic covers the following SQL statement aspects.

- Data Manipulation Language
- Adding new Row to Table
- The Insert Command
- Creating Scripts with Customize Prompts
- Copying Rows from another Table
- The Update Command
- Updating Rows in a Table
- Updating Rows Based on another Table
- The Delete Command
- Deleting a Row from Table
- Deleting Rows based on another Table
- Database Transactions
- Using Commit – Rollback Statements

Creating and Managing Tables

This topic covers the following SQL statement aspects.

- Database Objects
- Naming Conventions
- The Create Table Statement
- Referencing another User Table
- Creating Tables
- Tables in Oracle Database
- Querying the Data Dictionary
- Data Types
- Creating a Table by Using Subquery
- The Alter Table Statement
- Adding a Column
- Modifying a Column
- Dropping a Table
- Changing the Name of an Object
- Truncating a Table
- Adding Comments to a Table

Including Constraints

This topic covers the following SQL statement aspects.

- What are constraints?
- The Not Null Constraint
- The Unique Constraint
- The Primary Key Constraint
- The Foreign Key Constraint
- The Check Constraint
- Adding a Constraint
- Dropping a Constraint
- Enabling – Disabling the Constraint
- Viewing Constraints

Create Views

This topic covers the following SQL statement aspects.

- What is a View?
- Why use Views?
- Simple Views and Complex Views
- Creating a View
- Retrieving Data from View
- Querying a View
- Creating a Complex View
- Using with Check Option Clause
- Removing a view

Other Database Objects

This topic covers the following SQL statement aspects.

- Database Objects
- What is a Sequence?
- The Create Sequence Statement
- Creating a Sequence
- Nextval and Currval Pseudocolumns
- Using a Sequence
- Removing a Sequence
- What is an Index
- Creating an Index
- Removing an Index
- Synonyms

- Creating and Removing Synonyms

Controlling User Access

This topic covers the following SQL statement aspects.

- Controlling User Access
- Privileges
- System Privileges
- Creating Users
- User System Privileges
- Granting System Privileges
- What is a Role?
- Creating and Granting Privileges to a Role
- Changing your Password
- Object Privileges
- Granting Object Privileges
- Using with Grant Option

Declaring Variables in PL/SQL

This topic covers the following SQL statement aspects.

- About PL/SQL
- Benefits of PL/SQL
- PL/SQL Block Structure
- Block Types
- Program Construct
- Use of Variables
- Handling Variables in PL/SQL
- Naming Rules
- Adding Values to Variables
- Declaring Variables with % Type attribute
- Declaring Boolean – Composite Data Types
- DBMS_OUTPUT.PUT_LINE

Writing Executable Statements

This topic covers the following SQL statement aspects.

- PL/SQL Block Syntax and Guidelines
- PL/SQL Function
- Operator in PL/SQL
- Using Bind Variables
- Variable Scope

Interacting with the Oracle Server

This topic covers the following SQL statement aspects.

- SQL Statements in PL/SQL
- Select Statement in PL/SQL
- Retrieving Data in PL/SQL
- Manipulating Data using PL/SQL
- Inserting Data
- Updating Data
- Deleting Data
- Naming Conventions
- Commit and Rollback Statements
- SQL Cursor
- SQL Cursor Attribute

Writing Control Structure

This topic covers the following SQL statement aspects.

- Controlling PL/SQL Flow of Execution
- IF Statement
- IF Then Else Statement
- Basic Loop
- For Loop
- While Loop

Working with Composite Data Types

This topic covers the following SQL statement aspects.

- Composite Data types
- PL/SQL Records
- Creating a PL/SQL Record

- PL/SQL Record Structure - The %Rowtype Attribute

Writing Explicit Cursor

This topic covers the following SQL statement aspects.

- About Cursors
- Explicite Cursor
- Controlling Explicite Cursor
- Declaring Cursor
- Opening the Cursor
- Closing the Cursor
- Explicite Cursor Attribute
- The %Isopen - %Notfound - %Rowcount Attributes
- Cursor For Loop
- Cursor with Parameters
- The For Update Clause
- The Where Current Of Clause

Handling Exceptions

This topic covers the following SQL statement aspects.

- Handling Exceptions with PL/SQL
- Handling Exceptions
- Exception Types
- Trapping Exceptions