

Oracle for Developers

DBMS SQL



Document History

Date	Course Version No.	Software Version No.	Developer / SME	Change Record Remarks
13-Nov-2008	1.0		Rajita Dhumal	Content Creation
14-Nov-2008	1.1		CLS team	Review
14-Jan-2010	1.2		Anu Mitra	Review
14-Jan-2010	1.2		Rajita Dhumal, CLS Team	Incorporating Review comments
25-Apr-2011	2.0		Anu Mitra	Integration refinements
18-Feb-2014	2.1		Sathiabama Ranganathan	Course Refinements



Course Goals and Non Goals

➤ **Course Goals**

- To understand basic DBMS, and use SQL commands.

➤ **Course Non Goals**

- Nothing Specific.





Pre-requisites

- A proficiency level in familiarity with Windows.



Intended Audience

- Software Programmers
- Software Analysts





Day Wise Schedule

➤ Day 1

- Lesson 1: Introduction to Database
- Lesson 2: Introduction to Data Modeling, ER Modeling and Normalization

➤ Day 2

- Lesson 3 : Basics of SQL
- Lesson 4 : Database objects(Till Regular vs Temporary Tables)
- Lesson 5 : Data Manipulation Language

➤ DAY 3

- Lesson 4 : Database objects(From index).
- Lesson 6 : Data Query Language (Select Statement)



Day Wise Schedule

➤ Day 4

- Lesson 7: Aggregate Functions
- Lesson 8: SQL (Single Row) Functions

➤ Day 5

- Lesson 9: Transactions
- Lesson 10: Joins and Subqueries

➤ Day 6

- Lesson 11: Set Operators
- Lesson 12: Data Control Language
- Lesson 13: Introduction to Oracle Architecture
- Lesson 14: Introduction to Data Dictionary



Day Wise Schedule

➤ Day 7

- Lesson 15: Analytical Functions
- Lesson 16: SQL * Plus Reports
- Lesson 17: SQL * Loader



Table of Contents

- Lesson 1: Getting Started with Database
 - 1.1: Introduction to Database
 - 1.2: Characteristics of DBMS
 - 1.3: Data models
 - 1.4: Relational DBMS
 - 1.5: Database Administrator
- Lesson 2: Introduction to Data Modeling, ER Modeling and Normalization
 - 2.1. Introduction to Data Modeling
 - 2.2. E-R Model
 - 2.3. Normalization



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➤ Lesson 3: Basics of SQL (contd)

- 3.1 Interacting SQL using SQL *Plus
- 3.1 Using SQL *Plus
- 3.1 What is SQL?
- 3.2 Rules for SQL statements
- 3.3 Standard SQL Statement Groups

➤ Lesson 4: Database Objects

- 4.1 Basic DataTypes
- 4.2 Rules for naming a Table
- 4.3 Specifying Integrity Constraints
- 4.4 DDL Statements: Create, Alter, Drop
- 4.5 Regular vs Temporary tables
- 4.6 Index
- 4.7 Synonym
- 4.8 Sequence
- 4.9 Views



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➤ Lesson 5: Data Manipulation Language

- 5.1 Inserting Rows Into a Table
- 5.2 Deleting Rows from a Table
- 5.3 Updating Rows in a Table

➤ Lesson 6: Data Query Language

- 6.1 Select Statement
- 6.2 Comparison, arithmetic & Logical Operators SQL Operators
- 6.3 Distinct Clause
- 6.4 The ORDER BY Clause



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➤ Lesson 7: Aggregate (GROUP) Functions

- 7.1 Aggregate Functions
- 7.2 The GROUP BY Clause
- 7.3 HAVING Clause
- 7.4 ROLLUP Operation
- 7.5 CUBE Operation

➤ Lesson 8: Joins and Sub-queries

- 8.1 Number functions
- 8.2 Character functions
- 8.3 Date functions
- 8.4 Conversion functions
- 8.5 Miscellaneous Single-row functions



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- Lesson 9: Transaction Control Language
 - 9.1 Transaction
 - 9.2 Commit Command
 - 9.3 Rollback and Savepoints

- Lesson 10: Joins and Subqueries
 - 10.1 Inner/Equi Join
 - 10.2 Outer Join
 - 10.3 Self Join
 - 10.4 Subquery
 - 10.5 SUBQUERIES Using Comparison Operators Co-related Subquery
 - 10.6 Exists / Not Exists Operator
 - 10.7 Connect By and Start with clauses



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- Lesson 11: Set Operators
 - 11.1 The UNION Operator
 - 11.2 The INTERSECT Operator
 - 11.3 The MINUS Operator

- Lesson 12: Data Control Language
 - 12.1 User Access Control
 - 12.2 Object Privileges
 - 12.3 Grant and Revoke Statements

- Lesson 13: Introduction to Oracle Architecture
 - 13.1 Outline of Oracle architecture and its main components
 - 13.2 List of structures involved in connecting a user to an Oracle instance



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- Lesson 14: Introduction to Data Dictionary
 - 14.1 Identifying key data dictionary components
 - 14.2 Identifying the contents and uses of Data Dictionary
 - 14.3 Querying the Data Dictionary

- Lesson 15: Analytical Functions
 - 15.1 Analytical Functions
 - RANK & Dense Rank
 - Max, Min, Sum & Avg
 - Row Number
 - Lead & Lag
 - FIRST_VALUE & LAST_VALUE
 - LISTAGG
 - WITH CLAUSE



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➤ Lesson 16: SQL * Plus Reports

- 16.1 SQL * Plus Reporting
- 16.2 SQL * Plus Commands

➤ Lesson 17: SQL * Loader

- 17.1 What is SQL * Loader?
- 17.2 SQL * Loader as a Utility
- 17.3 SQL * Loader Environment
- 17.4 The Bad File and Discard File
- 17.5 Invoking SQL * Loader
- 17.6 SQL * Loader Examples

➤ Lesson 18: Oracle Tools

- 18.1 Use of Oracle tools:



References

- RDBMS Concepts - A Primer
 - <http://safari.oreilly.com>
- Introduction to Database Systems; by C.J.Date
- Relational Database Theory; by Atzeni, Antonellis





Next Step Courses (if applicable)

- Oracle PL/SQL