



Oracle Database 12c: SQL Fundamentals II

Course ID#: 0380-071-12-W

Hours: 21

Course Content

Course Description:

This course builds upon the prerequisite introductory Oracle Database 12c: SQL Expert Series and considers intermediate-level SQL topics such as writing database queries using the SQL-99 syntax and exploiting the power of built-in functions that extend the capabilities of SQL.

You will learn how to complete of an application schema definition by creating database objects such as relational views, sequences, synonyms, indexes and others to compliment the table definitions. The crucial topic of data integrity and how this is protected using declarative constraints is covered.

In this course we will also leave the idyllic realm of the learning environment and begin to explore such practical real-world considerations as database object security and database performance.

Target Student:

The audience for this course is all Oracle professionals, both business and systems professionals. Among the specific groups for whom this course will be helpful are:

- Business and non-IT professionals
- Application designers and developers
- Business Intelligence (BI) analysts and consumers
- Database administrators
- Web server administrators

Topics:

Module 1: Understanding The Data Models

- The Company Data Model
- The Electronics Data Model

Module 2: About The SQL--99 Standard

- SQL--92 & SQL--99
- Cross Joins
- Natural Joins
- Inner Joins
- Implicit Inner Join
- Outer Joins
- Anti Joins
- Named Sub--Queries

Module 3: Enhancing Groups With ROLLUP & CUBE

- Using ROLLUP
- The GROUPING() Function
- Using CUBE

Module 4: Using The CASE Expression Sql Functions: Character Handling

- What Are The Sql Functions?
- String Formatting Functions
- UPPER(), LOWER() Example
- INITCAP() Example
- Character Codes Functions



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- CHR(), ASCII() Examples
- PAD & TRIM FUNCTIONS
- RPAD() Example
- RTRIM() Example
- TRIM() Example
- String Manipulation Functions
- DECODE() Example
- SUBSTR() Example
- INSTR() Example
- TRANSLATE() Example
- REPLACE() Example
- String Comparison Functions
- LEAST() Example
- Phonetic Search Function
- SOUNDIX() Example

Module 5: Sql Functions: Numeric Handling

- About The Numeric Data Functions
- GREATEST() Example
- ABS() Example
- ROUND() Example
- TRUNC() Example
- SIGN() Example
- TO_NUMBER() Example & Data Type Conversions
- NULL VALUES FUNCTIONS
- NVL() & NVL2() Function
- NVL() Example (Character)
- NVL() Example (Numeric Loss Of Data)
- NVL() Example (Numeric Output)
- NVL2() Example
- COALESCE() Function
- NULLIF() Function

Module 6: Sql Functions: Date Handling

- Date Formatting Functions
- TO_CHAR() & TO_DATE() Format Patterns
- TO_CHAR() Examples
- TO_DATE() Examples
- EXTRACT() Example
- DATE ARITHMETIC FUNCTIONS

- MONTHS_BETWEEN() Example
- ADD_MONTHS() Example
- LAST_DAY() Example
- NEXT_DAY() Example
- TRUNC(), ROUND() Dates Example
- NEW_TIME() Example
- About V\$TIMEZONE_NAMES
- CAST() FUNCTION & TIME ZONES

Module 7: Database Objects: About Database Objects

- About Database Objects
- About Schemas
- Making Object References

Module 8: Database Objects: Relational Views

- About Relational Views
- The Create View Statement
- Why Use Views?
- Accessing Views With DML
- Maintaining View Definitions
- Alter View
- Drop View
- DDL Using SQL Developer

Module 9: Database Objects: Indexes

- About Indexes
- CREATE & DROP INDEX Statements
- Indexes & Performance
- Data Dictionary Storage

Module 10: Database Objects: Creating Other Objects

- About Sequences
- Referencing NEXTVAL
- Referencing CURRVAL
- Within The DEFAULT Clause
- ALTER SEQUENCE & DROP SEQUENCE
- ALTER SEQUENCE
- DROP SEQUENCE
- About Identity Columns



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- CREATE TABLE ... GENERATED AS IDENTITY
- ALTER TABLE ... GENERATED AS IDENTITY
- START WITH LIMIT VALUE
- ALTER TABLE ... DROP IDENTITY
- ABOUT SYNONYMS
- CREATE & DROP SYNONYM Statements
- CREATE SYNONYM
- DROP SYNONYM
- Public Vs. Private Synonyms
- CREATE SCHEMA AUTHORIZATION

Module 11: Database Objects: Object Management Using DDL

- The RENAME Statement
- TABLESPACE Placement
- CREATE TABLE ... TABLESPACE
- The COMMENT Statement
- The TRUNCATE TABLE Statement

Module 12: Database Objects: Security

- About Object Security
- Grant Object Privileges
- Revoke Object Privileges
- Object Privileges & SQL Developer

Module 13: Data Integrity Using Constraints

- About Constraints
- NOT NULL Constraint
- NOT NULL Example
- CHECK Constraint
- UNIQUE Constraint
- PRIMARY KEY Constraint
- REFERENCES Constraint
- ON DELETE CASCADE Example
- ON DELETE SET NULL Example
- CONSTRAINTS ON EXISTING TABLES
- Constraints & SQL Developer

Module 14: Managing Constraint Definitions

- Renaming & Dropping Constraints
- Enabling & Disabling Constraints
- Deferred Constraint Enforcement
- Set Constraints
- Handling Constraint Exceptions
- Constraints With Views
- Data Dictionary Storage



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Module 15: The Data Dictionary Structure

- More About The Data Dictionary
- Object--Specific Dictionary Views
- USER_UPDATABLE_COLUMNS
- The Dictionary Structure
- Metadata & SQL Developer