Oracle Database: SQL Workshop

Duration: 10 Days (4 hrs / Day)
Applies to: Oracle Database 19c, 21c & 23ai

What You Will Learn

This Oracle Database: SQL Workshop introduces the foundational concepts of relational databases and the SQL programming language. You will learn to write subqueries, combine multiple queries into a single statement using SET operators, and report aggregated data using group functions. The course covers querying single and multiple tables, manipulating data, and creating database objects such as sequences, synonyms, indexes, and views — all reinforced through hands-on exercises.

Learn To:

- Understand the fundamental concepts of relational databases.
- Retrieve row and column data from tables using the SELECT statement.
- Create reports of sorted and restricted data.
- Run Data Manipulation Language (DML) statements to update data.
- Run Data Definition Language (DDL) statements to create and manage schema objects.
- Manage schema objects and query the data dictionary views for metadata.
- Create sequences, synonyms, indexes, constraints, and views.
- Control user access and manage privileges at the object and system level.
- Use subqueries and SET operators to build complex queries.
- Work with data across different time zones using date-time functions.

Advanced Features of SQL

You will use the data dictionary views to retrieve metadata and build reports about your schema objects, while exploring the advanced features of SQL. The course covers a range of date-time functions and demonstrates how to use regular expression support in SQL. You will also be introduced to modern Oracle Database 23ai capabilities, including AI Vector Search and JSON enhancements.

Development Tools

The primary development tools used in this course are SQL Developer and Database Actions on Oracle Autonomous Database, with SQL*Plus available as an optional command-line tool. The labs run against current Oracle Database releases, so the content reflects the latest SQL features.

Who Should Attend

- Application Developers
- Database Administrators
- Data Analysts and Reporting Specialists
- Anyone beginning a path toward Oracle SQL certification

Oracle Database 23ai: Administration Workshop

Duration: 10 Days (4 hrs / Day)
Applies to: Oracle Database 19c, 21c & 23ai

What You Will Learn

This course is your first step toward success as an Oracle professional, providing a firm foundation in core database administration. You will learn how to install, configure, and maintain an Oracle database, and gain a conceptual understanding of the Oracle Database architecture and how its components interact. You will also learn how to create an operational database — including multitenant container and pluggable databases (CDBs and PDBs) — and manage its structures effectively, covering performance monitoring, database security, user management, and backup and recovery. The topics are reinforced with structured hands-on practices and help prepare you for the Oracle Database 23ai Administration certification.

Learn To:

- Install and configure Oracle Database 23ai in on-premises and cloud environments.
- Create and administer multitenant container and pluggable databases (CDBs and PDBs).
- Create and manage users, roles, and database security.
- Create and manage storage structures and tablespaces.
- Configure Oracle Net Services and the listener.
- Monitor database performance and tune key components.
- Perform backup and recovery using RMAN.
- Apply AI-driven and autonomous features for self-optimization.

Audience

- Database Administrators
- Java Developers
- Support Engineers
- Technical Administrators
- Technical Consultants

Prerequisites

Required: Oracle Database: SQL Workshop (or equivalent knowledge)
Suggested: Familiarity with SQL and PL/SQL packages

Course Objectives

- Describe the Oracle Database architecture, including the multitenant architecture.
- Install and configure Oracle Database 23ai.
- Configure Oracle Net Services.
- Monitor and administer undo data.
- Manage the database storage structures.
- Create and administer user accounts.

- Create, provision, clone, and manage pluggable databases (PDBs).
- Perform basic backup and recovery of a database.
- Manage data concurrency and monitor performance.

Course Topics

Exploring the Oracle Database Architecture

- Oracle Database architecture overview and the multitenant architecture (CDB/PDB).
- Oracle ASM architecture overview.
- Process and memory structures.
- Logical and physical storage structures.

Installing and Creating a Database

- Tasks of an Oracle Database Administrator and the tools used.
- Installation system requirements and the Oracle Universal Installer (OUI).
- Installing Oracle Grid Infrastructure and Database software (including silent install).
- Creating and deleting a database using the DBCA; container and pluggable databases.

Managing the Database Instance

- Start and stop the Oracle database, listener, and components.
- Use Oracle Enterprise Manager and SQL Developer / Database Actions.
- Access a database with SQL*Plus and SQLcl.
- Modify initialization parameters; describe startup and shutdown stages.
- View the alert log and access dynamic performance views.

Networking, Storage, and Security

- Configure the listener and Oracle Net; test connectivity with tnsping.
- Manage database storage structures and tablespaces; Oracle Managed Files (OMF).
- Administer user security: accounts, predefined roles, and profiles.
- Implement database auditing and review the audit trail.

Concurrency, Undo, and Maintenance

- Manage data concurrency, locking, and deadlocks.
- Configure undo retention; understand undo versus redo data.
- Manage optimizer statistics and the Automatic Workload Repository (AWR).
- Use the Automatic Database Diagnostic Monitor (ADDM) and advisory framework.
- Set alert thresholds and use automated maintenance tasks.

Backup, Recovery, and Moving Data

- Backup and recovery concepts; instance recovery and media failure.
- Configure archive log files and the fast recovery area.
- Perform backups and recovery with Recovery Manager (RMAN).
- Use the Data Recovery Advisor for data failures.
- Move data using directory objects, SQL*Loader, external tables, and Data Pump.
- Work with Oracle Support: log service requests and manage patches.

Oracle Database 23ai: Administration Workshop II — Advanced

Duration: 10 Days (4 hrs / Day)
Applies to: Oracle Database 19c, 21c & 23ai

What You Will Learn

This advanced workshop takes the database administrator beyond the basic tasks covered in the first workshop. You will begin by gaining a deep understanding of one of the most important responsibilities a DBA has — performing backup and recovery — then move on to diagnosing and repairing data failures with Flashback technology, optimizing storage, managing memory and performance, and automating administrative tasks with the Scheduler.

Learn To:

- Diagnose and repair data failures with Flashback technology.
- Manage space to optimize storage and respond to growing space requirements.
- Monitor and manage major database components: memory, performance, and resources.
- Secure database availability through appropriate backup and recovery strategies.
- Automate DBA tasks with the Scheduler.

Benefits to You

Ensure fast, reliable, secure, and easy-to-manage performance. Optimize database workloads, lower IT costs, and deliver a higher quality of service by enabling smooth and rapid consolidation within your data center using Oracle's multitenant architecture.

Audience

- Database Administrators
- Support Engineers
- Technical Administrators
- Technical Consultants

Prerequisites

Required: Oracle Database 23ai: Administration Workshop
Suggested: Working knowledge of SQL and PL/SQL packages

Course Topics

Configuring for Recoverability

- Purpose of backup and recovery; typical tasks and terminology.
- Using Recovery Manager (RMAN); configuring ARCHIVELOG mode and backup retention.
- Configuring and using a Fast Recovery Area (FRA).
- Using the RMAN recovery catalog and stored scripts.

Backup, Restore, and Recovery

- Creating backup sets and image copies, incremental and archival backups.
- Restoring and recovering from file loss (data files, redo logs, control files).
- Complete and incomplete recovery; recovery on a new host.
- Monitoring and tuning RMAN performance.

Diagnostics and Flashback Technology

- Data Recovery Advisor, block corruption, and the Automatic Diagnostic Repository (ADR).
- Flashback Query, Flashback Table, and Flashback Transaction.
- Flashback Drop and the Recycle Bin; Flashback Database.

Memory, Performance, and Resources

- Oracle memory structures and Automatic Memory Management.
- Tuning activities, optimizer statistics, and the AWR.
- SQL tuning with the SQL Tuning Advisor and SQL Access Advisor.
- Database Resource Manager: consumer groups, plans, and Instance Caging.

Automation, Space, and Data Movement

- Automating tasks with the Scheduler: jobs, programs, schedules, and windows.
- Managing space in blocks and segments; segment shrink and the Segment Advisor.
- Transporting tablespaces and databases.
- Duplicating and cloning a database with RMAN.
