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ACADEMY

SQL Training Course

CURRICULUM

Module I – Introduction to Databases & SQL

- What is a Database?
- Relational vs Non-Relational Databases
- What is SQL and Why MySQL?
- Overview of MySQL Architecture (Client, Server, Storage Engine)
- Installing and Setting Up MySQL (Workbench & CLI)
- MySQL Command-Line Basics (mysql -u root -p)
- Creating and Dropping Databases (CREATE DATABASE, DROP DATABASE)
- Understanding Tables, Rows, Columns, and Data Types
- Using MySQL Workbench for Query Execution
- MySQL vs Other RDBMS (SQL Server, PostgreSQL, Oracle)

Module II – Data Definition Language (DDL)

- CREATE TABLE, ALTER TABLE, DROP TABLE
- MySQL Data Types — Numeric, String, Date/Time, JSON
- Keys and Constraints (Primary Key, Foreign Key, Unique, Default, Check, Not Null)
- AUTO_INCREMENT Columns
- MySQL Storage Engines (InnoDB vs MyISAM)
- Renaming Tables and Columns
- Database Normalization (1NF, 2NF, 3NF, BCNF)
- Designing Relationships: One-to-One, One-to-Many, Many-to-Many
- Referential Integrity in MySQL
- Schema Design Best Practices

Module III – Data Manipulation Language (DML)

- INSERT INTO, UPDATE, DELETE
- Truncate vs Delete in MySQL
- Inserting Multiple Rows
- Conditional Updates using WHERE
- Using Transactions in MySQL (START TRANSACTION, COMMIT, ROLLBACK)
- MySQL Savepoints
- Using DEFAULT Values
- Handling Foreign Key Constraints on Deletion
- Common Data Errors & Troubleshooting
- Practical Data Editing in MySQL Workbench

Module IV – Data Query Language (DQL)

- SELECT Statement Fundamentals
- Filtering with WHERE, AND, OR, NOT
- Using Operators: BETWEEN, IN, LIKE, IS NULL
- Sorting Data with ORDER BY
- Limiting Results with LIMIT
- Aliases (AS) for Columns and Tables
- String Functions (CONCAT, LENGTH, UPPER, SUBSTRING)
- Date & Time Functions (NOW, DATEDIFF, DATE_FORMAT)
- Conditional Expressions (CASE WHEN THEN END)
- MySQL Query Optimization Basics

Module V – Joins and Relationships

- INNER JOIN
- LEFT JOIN / RIGHT JOIN
- FULL OUTER JOIN (via UNION workaround in MySQL)
- CROSS JOIN
- SELF JOIN
- Subqueries (in WHERE, SELECT, and FROM)
- Using EXISTS and NOT EXISTS
- Nested and Correlated Subqueries
- Common Table Expressions (CTEs) with WITH
- Join Optimization Techniques

Module VI – Aggregation and Grouping

- Aggregate Functions: COUNT, SUM, AVG, MIN, MAX
- GROUP BY and HAVING Clauses
- ROLLUP and Grouping Extensions
- Handling NULLs in Aggregations
- MySQL Window Functions (OVER, PARTITION BY)
- Ranking Functions: RANK(), DENSE_RANK(), ROW_NUMBER()
- Running Totals and Moving Averages
- LAG() and LEAD() in Analytics
- Analytical Query Design Patterns
- Real-world Aggregation Scenarios (Sales, HR, Finance)

Module VII – Data Control Language (DCL)

- Creating Users (CREATE USER)
- Assigning Privileges (GRANT, REVOKE)
- Role Management in MySQL 8+
- Password Management and Authentication Plugins
- Restricting Database Access
- Security Best Practices for MySQL
- MySQL Views: CREATE VIEW, ALTER VIEW, DROP VIEW
- Materialized Views (Simulation in MySQL)
- Auditing and Logging in MySQL
- Database Backup and Restore (mysqldump, mysqlimport)

Module VIII – Advanced SQL and MySQL Programming

- Stored Procedures and Functions (CREATE PROCEDURE, CALL)
- Triggers and Events (AFTER INSERT, BEFORE UPDATE)
- Transactions and ACID Properties
- Indexes: Clustered, Non-Clustered, Composite
- Query Execution Plans (EXPLAIN, EXPLAIN ANALYZE)
- Temporary Tables and Derived Tables
- Recursive CTEs
- Dynamic SQL in MySQL (PREPARE, EXECUTE)
- Handling Large Datasets (Pagination with LIMIT OFFSET)
- Query Optimization and Performance Tuning

Module IX – MySQL Administration & Maintenance

- MySQL Architecture Overview
- Configuration Files (my.cnf)
- Storage Engines: InnoDB, MyISAM, MEMORY, CSV
- Backup and Recovery (Logical vs Physical)
- Replication and Failover Concepts
- Partitioning and Sharding
- Performance Schema and Monitoring
- Slow Query Log Analysis
- Server Variables and Optimization
- Upgrading and Maintaining MySQL Versions

Module X – SQL + MySQL in Real Projects

- SQL + Python Integration (mysql.connector, SQLAlchemy, pandas.read_sql)
- SQL + Power BI Integration
- MySQL in Web Development (Flask, Django)
- MySQL for ETL Pipelines
- Building Analytical Dashboards
- Data Cleaning & Transformation in SQL
- Stored Procedures for Reporting Automation
- Query Optimization for BI Tools
- Using MySQL with Cloud Platforms (AWS RDS, GCP Cloud SQL, Azure Database for MySQL)
- MySQL in MLOps Pipelines

SQL Training Course

Schedule

Duration

2 Months

(8 Weeks)

Training Schedule

Weekdays Training

Monday to Friday

Weekend Training

Saturday & Sunday

Daily / Weekly Session

Live Online Instructor Led Session



SQL Training Course Fee

Limited Time Offer

Currency	Code	Offer Price	Regular Price
US dollar	USD	450	~~650~~
Canadian dollar	CAD	620	~~820~~
Australian dollar	AUD	700	~~900~~
Sterling pound	GBP	360	~~560~~
New Zealand dollar	NZD	780	~~980~~
Indian rupee	INR	35,000	~~55,000~~

- Fee is inclusive of all applicable taxes and include examination and certification fee.
- No other hidden charges of any type.

Thank You!

Thank you for downloading our curriculum! We're excited to be part of your learning journey. Feel free to reach out if you need more information.

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