

## Level 1: Core Foundations

- **Database Basics:** RDBMS concepts, SQL vs NoSQL
- **MySQL Setup:** Installation, Workbench, CLI
- **Data Types:** Numeric, string, date/time, JSON
- **Basic Queries:** SELECT, WHERE, ORDER BY, LIMIT

## Level 2: Schema & Constraints

- **DDL Commands:** CREATE, ALTER, DROP
- **Constraints:** PRIMARY KEY, FOREIGN KEY, UNIQUE, CHECK
- **Indexes:** Clustered vs non-clustered
- **Views:** Creating and managing

## Level 3: Query Mastery

- **DML Commands:** INSERT, UPDATE, DELETE
- **Joins:** INNER, LEFT, RIGHT, FULL
- **Subqueries:** Correlated and non-correlated
- **Aggregations:** COUNT, SUM, AVG, GROUP BY, HAVING

## Level 4: Transactions & Security

- **Transactions:** COMMIT, ROLLBACK, SAVEPOINT
- **ACID Properties:** Ensuring reliability
- **User Management:** CREATE USER, GRANT, REVOKE
- **Roles & Privileges:** Fine-grained access control

## Level 5: Advanced SQL & Optimization

- **Stored Procedures & Functions**
- **Triggers:** Automating workflows
- **Query Optimization:** EXPLAIN, indexing strategies
- **Normalization:** 1NF → BCNF

## Level 6: Enterprise & Cloud Integration

- **Replication & Backup:** Master-slave, mysqldump
- **Partitioning & Sharding:** Scaling databases
- **Cloud Databases:** MySQL on AWS RDS, Azure SQL, Google Cloud SQL
- **Big Data Integration:** MySQL with Hadoop, Spark, BigQuery
- **NoSQL Awareness:** MongoDB, Cassandra, hybrid architectures
- **System Design:** Designing scalable, fault-tolerant DB systems

## Why This Curriculum is Job-Ready

- **Covers interview essentials:** Joins, subqueries, transactions, normalization.
- **Adds enterprise skills:** Replication, partitioning, optimization.
- **Includes cloud & big data:** Critical for modern roles at Microsoft, Google, Amazon.
- **Prepares for system design rounds:** Scalability, distributed databases, hybrid SQL/NoSQL solutions.