



INDEED INSPIRING INFOTECH



Learning & Development Company

www.indeedinspiring.com | info@indeedinspiring.com

[9762203269](tel:9762203269) / [9850113269](tel:9850113269)



SQL Fundamentals Course

SQL (Structured Query Language) is a powerful tool for working with relational databases like MySQL. If you're looking to learn SQL fundamentals for MySQL, here are some essential topics to get you started:

INTRODUCTION TO DATABASES

- Understand what databases are and their importance in data management.
- Relational Database Concepts
- Learn about tables, rows, columns, and relationships between tables.

- **MYSQL INSTALLATION**

- How to install MySQL on your system.

- **DATABASE DESIGN**

- Creating a well-structured database schema, including defining tables, columns, and data types.

DATA MANIPULATION LANGUAGE (DML)

- **BASIC SQL COMMANDS FOR RETRIEVING AND MODIFYING DATA**
 - **SELECT:** Retrieve data from one or more tables.
 - **INSERT:** Add new records to a table.
 - **UPDATE:** Modify existing records.
 - **DELETE:** Remove records from a table.
 - **Data Definition Language (DDL)**

COMMANDS FOR DEFINING AND MANAGING THE STRUCTURE OF A DATABASE

- **CREATE DATABASE:** Create a new database
- **CREATE TABLE:** Define a new table
- **ALTER TABLE:** Modify an existing table structure
- **DROP TABLE:** Delete a table

- **CONSTRAINTS**

- Learn about constraints like PRIMARY KEY, UNIQUE, NOT NULL, and FOREIGN KEY for data integrity.

- **INDEXES**

- Understand how to create and use indexes to optimize query performance.

- **JOINS**

- Master different types of SQL joins (INNER JOIN, LEFT JOIN, RIGHT JOIN, FULL JOIN) to combine data from multiple tables.

- **AGGREGATION FUNCTIONS**

- Use functions like COUNT, SUM, AVG, MIN, and MAX to summarize data

- **GROUPING AND FILTERING DATA**

- GROUP BY and HAVING clauses for grouping and filtering query results

- **SUBQUERIES**

- Write subqueries to retrieve data from nested queries

- **SQL FUNCTIONS**

- Explore common SQL functions like DATE functions, string functions, and mathematical functions.

- **TRANSACTIONS AND ACID PROPERTIES**

- Understand the concept of transactions and the properties that ensure database integrity (ACID: Atomicity, Consistency, Isolation, Durability)

- **VIEWS**

- Create and use views to simplify complex queries and provide a layer of abstraction over tables

- **STORED PROCEDURES AND FUNCTIONS**

- Create and use stored procedures and functions to encapsulate logic within the database

- **SECURITY AND USER MANAGEMENT**

- Learn about user privileges and how to secure your MySQL database

- **BACKUPS AND RESTORES**

- Understand how to backup and restore databases to prevent data loss

- **NORMALIZATION**

- Learn about database normalization techniques to optimize data storage



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