1. Introduction to MySQL (2 hours)

- What is MySQL?

- Installing MySQL Server and Workbench

- Basic SQL Syntax and Structure

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2. Database Design and Modeling (3 hours)

- Understanding Databases and Tables

- Keys: Primary, Foreign, Unique

- Normalization (1NF, 2NF, 3NF)

- ER Diagram Basics

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3. Basic SQL Operations (3 hours)

- CRUD Operations (INSERT, SELECT, UPDATE, DELETE)

- Filtering Data (WHERE, AND, OR)

- Sorting Data (ORDER BY)

- Limiting Results (LIMIT)

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4. Advanced SQL Queries (4 hours)

- Aggregate Functions (COUNT, AVG, SUM, MAX, MIN)

- GROUP BY and HAVING Clauses

- Subqueries and Nested Queries

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5. Joins and Relationships (4 hours)

- Introduction to Joins
    - INNER JOIN
    - LEFT JOIN
    - RIGHT JOIN
    - FULL OUTER JOIN

- Self Joins and Cross Joins

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6. Indexing and Optimization (2 hours)

- Purpose of Indexes

- Types of Indexes

- Optimizing Queries with Indexes

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7. Stored Procedures and Functions (3 hours)

- Creating and Using Stored Procedures

- Creating and Using Functions

- Parameters and Return Values

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8. Triggers and Events (2 hours)

- Understanding Triggers

- Creating and Managing Triggers

- Scheduled Events in MySQL

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9. Transactions and Concurrency Control (2 hours)

- ACID Properties

- START TRANSACTION, COMMIT, and ROLLBACK

- Savepoints and Concurrency Issues

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10. Security and User Management (2 hours)

- Creating and Managing Users

- Granting and Revoking Permissions

- Securing Connections

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11. Backup and Recovery (2 hours)

- Backup Strategies

- Using mysqldump for Backups

- Restoring Databases