1. Introduction to SQL

Key Takeaways

- SQL (Structured Query Language) is essential for managing and interacting with relational databases.
- Databases store data in organized structures, while a DBMS provides tools to manage them.
- Popular RDBMS systems include MySQL, PostgreSQL, Oracle, and SQL Server.

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2. SQL Basics

Key Takeaways

- SQL commands are simple, English-like statements, often ending with a semicolon.
- Data is stored in tables with rows (records) and columns (fields).
- Common data types include INT, VARCHAR, DATE, and FLOAT.
- Use `CREATE DATABASE` to make a new database and `USE DATABASE` to work with it.

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3. Data Definition Language (DDL)

Key Takeaways

- Use `CREATE TABLE` to define the structure of a table.
- Modify existing tables with `ALTER TABLE` (e.g., adding or removing columns).
- Remove entire tables and their data with `DROP TABLE`.
- Constraints like PRIMARY KEY, FOREIGN KEY, UNIQUE, CHECK, DEFAULT, and NOT NULL enforce data integrity.

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4. Data Manipulation Language (DML)

Key Takeaways

- Use `INSERT INTO` to add new rows of data into a table.
- Modify existing records with `UPDATE` using specific conditions.
- Delete unwanted records from a table with `DELETE`.
- Retrieve data using `SELECT`, with options for filtering (`WHERE`), sorting (`ORDER BY`), and comparison operators (`=`, `!=`, `LIKE`, etc.).
- Use `IN` to match specific values and `BETWEEN` to filter data within a range.