

## MySQL Notes

### 1. Basics of MySQL

- MySQL is an open-source relational database management system (RDBMS).
- It uses Structured Query Language (SQL) to manage and manipulate data.

### 2. Database Operations

- CREATE DATABASE dbname;
- SHOW DATABASES;
- USE dbname;
- DROP DATABASE dbname;

### 3. Table Operations

- CREATE TABLE table\_name (col1 datatype, col2 datatype, ...);
- SHOW TABLES;
- DESCRIBE table\_name;
- DROP TABLE table\_name;
- ALTER TABLE table\_name ADD column datatype;
- ALTER TABLE table\_name DROP column;

### 4. Data Operations (CRUD)

- INSERT INTO table\_name (col1, col2) VALUES (val1, val2);
- SELECT \* FROM table\_name;
- UPDATE table\_name SET col1 = val WHERE condition;
- DELETE FROM table\_name WHERE condition;

### 5. Constraints

- PRIMARY KEY: Ensures unique identifier for rows.
- FOREIGN KEY: Links two tables.
- NOT NULL: Column must have a value.
- UNIQUE: Ensures all values are different.
- DEFAULT: Sets a default value.

### 6. Joins

- INNER JOIN: Returns rows with matching values.
- LEFT JOIN: Returns all rows from left table + matching from right.
- RIGHT JOIN: Returns all rows from right table + matching from left.
- FULL JOIN: Returns all rows when match found in either table.

### 7. Clauses

- WHERE: Filter records.
- ORDER BY: Sort records ASC/DESC.
- GROUP BY: Group rows by column.
- HAVING: Filter groups.

### 8. Functions

- COUNT(), SUM(), AVG(), MIN(), MAX()
- NOW(), CURDATE(), UPPER(), LOWER(), CONCAT()

### 9. Indexes

- CREATE INDEX idx\_name ON table\_name(column);
- Improves query performance.

### 10. Views

- CREATE VIEW view\_name AS SELECT ...;
- DROP VIEW view\_name;

#### 11. Transactions

- START TRANSACTION;
- COMMIT;
- ROLLBACK;

#### 12. Window Functions (MySQL 8+)

- ROW\_NUMBER(), RANK(), DENSE\_RANK()
- OVER(PARTITION BY col ORDER BY col)