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SQL Commands

Database Creation & Management

1. **CREATE DATABASE <db_name>;** - Create a new database.
2. **DROP DATABASE <db_name>;** - Delete an existing database.
3. **USE <db_name>;** - Select a database to use.
4. **SHOW DATABASES;** - List all databases.
5. **ALTER DATABASE <db_name> CHARACTER SET <charset>;** - Change database character set.

Table Creation & Modification

1. **CREATE TABLE <table> (<columns>;** - Create a new table.
2. **DROP TABLE <table>;** - Delete an existing table.
3. **ALTER TABLE <table> ADD <column> <type>;** - Add a column to a table.
4. **ALTER TABLE <table> DROP COLUMN <column>;** - Remove a column from a table.
5. **ALTER TABLE <table> MODIFY <column> <type>;** - Modify a column's type.
6. **SHOW TABLES;** - List all tables in database.
7. **DESCRIBE <table>;** - Show table structure.

Data Manipulation

1. **INSERT INTO <table> (<columns>) VALUES (<values>;** - Insert new data into table.
2. **UPDATE <table> SET <column>=<value> WHERE <condition>;** - Update existing data.
3. **DELETE FROM <table> WHERE <condition>;** - Delete data from table.
4. **SELECT * FROM <table>;** - Retrieve all data from table.
5. **SELECT <columns> FROM <table>;** - Retrieve specific columns.
6. **SELECT DISTINCT <column> FROM <table>;** - Retrieve unique values.



Query Filtering & Sorting

1. **SELECT * FROM <table> WHERE <condition>;** - Filter data based on condition.
2. **SELECT * FROM <table> ORDER BY <column> ASC;** - Sort data in ascending order.
3. **SELECT * FROM <table> ORDER BY <column> DESC;** - Sort data in descending order.
4. **SELECT * FROM <table> LIMIT <number>;** - Limit the number of results.
5. **SELECT * FROM <table> OFFSET <number>;** - Skip the first number of rows.
6. **SELECT <columns> FROM <table> WHERE <column> LIKE '<pattern>';** - Filter using pattern matching.

Joins & Relationships

1. **SELECT * FROM <table1> INNER JOIN <table2> ON <table1.column = table2.column>;** - Join two tables.
2. **SELECT * FROM <table1> LEFT JOIN <table2> ON <table1.column = table2.column>;** - Left join two tables.
3. **SELECT * FROM <table1> RIGHT JOIN <table2> ON <table1.column = table2.column>;** - Right join two tables.
4. **SELECT * FROM <table1> FULL JOIN <table2> ON <table1.column = table2.column>;** - Full join two tables.
5. **SELECT * FROM <table> WHERE EXISTS (SELECT 1 FROM <table2> WHERE <condition>);** - Check existence of rows.

Aggregation & Grouping

1. **SELECT COUNT(*) FROM <table>;** - Count rows in a table.
2. **SELECT AVG(<column>) FROM <table>;** - Calculate average value of a column.
3. **SELECT SUM(<column>) FROM <table>;** - Calculate total sum of a column.
4. **SELECT MIN(<column>) FROM <table>;** - Find minimum value in a column.
5. **SELECT MAX(<column>) FROM <table>;** - Find maximum value in a column.
6. **SELECT <column>, COUNT(*) FROM <table> GROUP BY <column>;** - Group data and count.



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Indexing & Optimization

1. **CREATE INDEX <index_name> ON <table>(<column>);** - Create an index on a column.
2. **DROP INDEX <index_name> ON <table>;** - Delete an existing index.
3. **SHOW INDEX FROM <table>;** - List indexes on a table.
4. **ANALYZE TABLE <table>;** - Optimize table performance.
5. **OPTIMIZE TABLE <table>;** - Reorganize table data.

User Management & Permissions

1. **CREATE USER '<user>'@'<host>' IDENTIFIED BY '<password>;** - Create a new user.
2. **GRANT ALL PRIVILEGES ON <db_name>.* TO '<user>'@'<host>;** - Grant all privileges to user.
3. **REVOKE ALL PRIVILEGES ON <db_name>.* FROM '<user>'@'<host>;** - Revoke all privileges from user.
4. **DROP USER '<user>'@'<host>;** - Delete an existing user.
5. **SHOW GRANTS FOR '<user>'@'<host>;** - Show user privileges.

Transaction Management

1. **START TRANSACTION;** - Begin a new transaction.
2. **COMMIT;** - Commit changes made during transaction.
3. **ROLLBACK;** - Undo changes made during transaction.
4. **SAVEPOINT <name>;** - Set a savepoint within a transaction.
5. **ROLLBACK TO SAVEPOINT <name>;** - Roll back to a savepoint.

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