SQL Basics Cheat Sheet (Beginner Friendly)

1. Database Commands

Command	Example	Description
Create database	`CREATE DATABASE School;`	Creates a new database named School
Use database	`USE School;`	Switches to the database to start working in it
Drop database	`DROP DATABASE School;`	Deletes the database and all tables in it

2. Table Commands

Command	Example	Description
Create table	`CREATE TABLE Students (id INT PRIMARY KEY, name VARCHAR(50), age INT, course VARCHAR(50));`	Creates a table Students
Drop table	`DROP TABLE Students;`	Deletes the table
Add column	`ALTER TABLE Students ADD email VARCHAR(100);`	Adds a new column
Remove column	`ALTER TABLE Students DROP COLUMN email;`	Removes a column

3. Inserting Data

Command	Example	Description
Insert one row	`INSERT INTO Students (id, name, age, course) VALUES (1, 'Ali', 22, 'Computer Sci');`	Insert one row
Insert multiple rows	`INSERT INTO Students (id, name, age, course) VALUES (2, 'Sara', 21, 'Math'), (3, 'Ahmed', 23, 'Physics');`	Insert multiple rows

4. Reading Data (SELECT)

Command	Example	Description
Select all	`SELECT * FROM Students;`	Show all data
Select specific columns	`SELECT name, age FROM Students;`	Show specific columns

Command	Example	Description
Filter rows	`SELECT * FROM Students WHERE age > 21;`	Filter rows
Filter by text	`SELECT * FROM Students WHERE course = 'Math';`	Filter by text
Sort ascending	`SELECT * FROM Students ORDER BY name ASC;`	Sort ascending
Sort descending	`SELECT * FROM Students ORDER BY age DESC;`	Sort descending
Limit results	`SELECT * FROM Students LIMIT 2;`	Limit results

5. Updating Data

Command	Example	Description
Update one row	`UPDATE Students SET course = 'Data Science' WHERE name = 'Ali';`	Update one row
Update multiple rows	`UPDATE Students SET age = age + 1 WHERE age < 23;`	Update multiple rows

6. Deleting Data

Command	Example	Description
Delete one row	`DELETE FROM Students WHERE id = 2;`	Delete one row
Delete all rows	`DELETE FROM Students;`	Delete all rows
Drop table	`DROP TABLE Students;`	Delete table completely

7. Useful Operators

Operator	Example	Meaning
=	`WHERE age = 22`	Equals
>	`WHERE age > 22`	Greater than
<	`WHERE age < 22`	Less than
>=	`WHERE age >= 22`	Greater or equal
<=	`WHERE age <= 22`	Less or equal
<> / !=	`WHERE age <> 22`	Not equal
LIKE	`WHERE name LIKE 'A%'`	Matches pattern (% = any chars)

Operator	Example	Meaning
AND	`WHERE age > 21 AND course = 'Math'`	Both conditions true
OR	`WHERE age < 22 OR course = 'Physics'`	Either condition true

8. Aggregate Functions

Function	Example	Meaning
COUNT	`SELECT COUNT(*) FROM Students;`	Count rows
SUM	`SELECT SUM(age) FROM Students;`	Total of ages
AVG	`SELECT AVG(age) FROM Students;`	Average age
MAX	`SELECT MAX(age) FROM Students;`	Maximum age
MIN	`SELECT MIN(age) FROM Students;`	Minimum age

9. Grouping Data

Example	Description
`SELECT course, COUNT(*) AS total_students FROM Students GROUP BY course;`	Groups rows by course and counts students

10. Practice Table

Command	Example
Create table	`CREATE TABLE Employees (emp_id INT PRIMARY KEY, name VARCHAR(50), position VARCHAR(50), salary FLOAT, join_date DATE);`
Insert data	`INSERT INTO Employees (emp_id, name, position, salary, join_date) VALUES (1, 'Ali', 'Developer', 60000, '2023-06-01'), (2, 'Sara', 'Manager', 80000, '2022-01-15'), (3, 'Ahmed', 'Designer', 50000, '2023-09-10');`
Select data	`SELECT name, salary FROM Employees WHERE salary > 55000;`
Update data	`UPDATE Employees SET salary = salary * 1.1;`
Delete data	`DELETE FROM Employees WHERE emp_id = 3;`