Question Bank - Basic [SQL]

Consider a example table as -

- step 1 - shoot following query to create a table-

```sql
CREATE TABLE student (
    id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(50),
    age INT,
    email VARCHAR(100),
    gender VARCHAR(10),
    grade CHAR(1),
    marks INT,
    city VARCHAR(50),
    registration_date DATE
);

```

- step 2 - Shoot following query to insert data in table

```sql
INSERT INTO student (name, age, email, gender, grade, marks, city, registration_date) VALUES
('Alice', 20, 'alice@example.com', 'Female', 'A', 88, 'Delhi', '2024-06-01'),
('Bob', 21, 'bob@example.com', 'Male', 'B', 75, 'Mumbai', '2024-05-21'),
('Carol', 22, 'carol@example.com', 'Female', 'C', 64, 'Chennai', '2024-03-14'),
('David', 19, 'david@example.com', 'Male', 'A', 92, 'Pune', '2024-04-10'),
('Eva', 23, 'eva@example.com', 'Female', 'B', 78, 'Delhi', '2024-06-10'),
('Frank', 20, 'frank@example.com', 'Male', 'C', 55, 'Bangalore', '2024-01-29'),
('Grace', 18, 'grace@example.com', 'Female', 'A', 95, 'Mumbai', '2024-05-05'),
('Harry', 21, 'harry@example.com', 'Male', 'B', 70, 'Kolkata', '2024-06-01'),
('Ivy', 20, 'ivy@example.com', 'Female', 'C', 60, 'Hyderabad', '2024-02-15'),
('Jack', 22, 'jack@example.com', 'Male', 'A', 85, 'Delhi', '2024-03-20'),
('Kathy', 24, 'kathy@example.com', 'Female', 'B', 77, 'Chennai', '2024-04-25'),
('Liam', 19, 'liam@example.com', 'Male', 'C', 58, 'Pune', '2024-01-01'),
('Mona', 21, 'mona@example.com', 'Female', 'A', 90, 'Delhi', '2024-05-30'),
('Nate', 20, 'nate@example.com', 'Male', 'B', 74, 'Bangalore', '2024-03-15'),
('Olivia', 22, 'olivia@example.com', 'Female', 'C', 69, 'Kolkata', '2024-04-12'),
('Paul', 23, 'paul@example.com', 'Male', 'A', 83, 'Mumbai', '2024-06-18'),
('Quinn', 18, 'quinn@example.com', 'Female', 'B', 72, 'Hyderabad', '2024-05-22'),
('Rita', 20, NULL, 'Female', 'C', 65, 'Chennai', '2024-03-01'),
('Steve', 21, 'steve@example.com', 'Male', 'A', 88, 'Delhi', '2024-06-24'),
('Tina', 19, 'tina@example.com', 'Female', 'B', 76, 'Pune', '2024-04-02');

```

✅ Basic SQL Questions (Single Table)

🔹 **SELECT & FILTERING (Q1–Q15)**

1. **Select all columns from the student table.**
2. **Select only names and ages of students.**

3. **Find students who are older than 18.**
4. **Find students who are exactly 20 years old.**
5. **Find students with marks greater than or equal to 75.**
6. **Find students living in 'Delhi'.**
7. **Find female students.**
8. **Find students whose name starts with 'A'.**
9. **Find students whose name ends with 'n'.**
10. **Find students whose name contains 'an'.**
11. **Find students whose marks are between 60 and 80.**
12. **Find students whose city is either 'Delhi', 'Mumbai', or 'Chennai'.**
13. **Find students who are not from 'Pune'.**
14. **Find students who are not female.**
15. **Find students with null emails.**

🔹 ORDER BY, LIMIT (Q16–Q20)

16. **List all students sorted by marks in descending order.**
17. **List top 5 students with highest marks.**
18. **List bottom 3 students with lowest marks.**
19. **List students ordered by name alphabetically.**
20. **List students registered most recently (latest date first).**

🔹 AGGREGATE FUNCTIONS (Q21–Q30)

21. **Count total number of students.**
22. **Find the average age of students.**
23. **Find the maximum marks.**
24. **Find the minimum age.**
25. **Find the total marks of all students.**
26. **Count how many students are from 'Delhi'.**
27. **Count male and female students.**
28. **Find average marks for each grade.**
29. **Count number of students in each city.**
30. **Find max, min, and avg marks.**

🔹 GROUP BY & HAVING (Q31–Q35)

31. **Group students by age.**
32. **Find cities with more than 3 students.**
33. **Find grades with average marks above 80.**
34. **List all genders with at least 2 students.**
35. **Find ages with more than 1 student.**

🔹 MODIFY TABLE STRUCTURE (Q36–Q40)

36. **Add a new column `phone` to the student table.**
37. **Change the `grade` column from CHAR(1) to VARCHAR(2).**
38. **Rename the `marks` column to `score`.**
39. **Drop the column `email`.**
40. **Set default value for city as 'Unknown'.**

🔹 UPDATE & DELETE (Q41–Q45)

41. **Update marks to 100 for student named 'John'.**
42. **Increase all student marks by 5.**
43. **Set city to 'Mumbai' for all students with null city.**
44. **Delete all students with marks less than 35.**
45. **Delete students from 'Chennai'.**

🔹 MISCELLANEOUS (Q46–Q50)

46. **Get current date in SQL.**
47. **Find students registered in year 2024.**
48. **Find length of each student's name.**
49. **Convert student names to uppercase.**
50. **Display names with 'Mr.' prefix (use CONCAT).**

Document by ***Suyash*** 😇