MySQL Interview Questions & Practice Syntax

1. What is MySQL?

- MySQL is an open-source relational database management system (RDBMS) based on SQL (Structured Query Language).

2. Difference between SQL & MySQL?

- SQL is a language to manage databases.

- MySQL is an RDBMS that uses SQL.

3. Basic MySQL Commands (Practice Syntax):

• Show databases:

```
SHOW DATABASES;
```

• Create / Select database:

```
CREATE DATABASE myDatabase;
USE myDatabase;
```

• Show tables:

```
SHOW TABLES;
```

• Create a table:

```
CREATE TABLE users (
id INT AUTO_INCREMENT PRIMARY KEY,
name VARCHAR(50),
age INT,
status VARCHAR(20)
);
```

• Insert data:

```
INSERT INTO users (name, age, status) VALUES ('Rohan', 23, 'active');
INSERT INTO users (name, age, status) VALUES
('Aman', 24, 'inactive'),
('Priya', 22, 'active');
```

• Select data:

```
SELECT * FROM users;
SELECT name, age FROM users WHERE age = 23;
SELECT * FROM users WHERE status = 'active';
```

• Update data:

```
UPDATE users SET age = 24 WHERE name = 'Rohan';
UPDATE users SET status = 'active' WHERE age > 20;
```

• Delete data:

```
DELETE FROM users WHERE name = 'Aman';
DELETE FROM users WHERE status = 'inactive';
```

• Filtering with Operators:

```
SELECT * FROM users WHERE age > 21;
SELECT * FROM users WHERE age < 30;
SELECT * FROM users WHERE age BETWEEN 20 AND 25;
SELECT * FROM users WHERE age != 22;
```

• Logical Operators:

```
SELECT * FROM users WHERE age > 20 AND status = 'active';
SELECT * FROM users WHERE age = 22 OR status = 'active';
SELECT * FROM users WHERE NOT age > 30;
```

• Sorting & Limiting:

```
SELECT * FROM users ORDER BY age ASC;
SELECT * FROM users ORDER BY age DESC;
SELECT * FROM users LIMIT 5;
```

• Aggregate Functions:

```
SELECT COUNT(*) FROM users;
SELECT AVG(age) FROM users;
SELECT status, COUNT(*) FROM users GROUP BY status;
SELECT status, COUNT(*) FROM users GROUP BY status HAVING COUNT(*) > 1;
```

• Joins:

```
SELECT users.name, orders.product
FROM users
INNER JOIN orders ON users.id = orders.user_id;

SELECT users.name, orders.product
FROM users
LEFT JOIN orders ON users.id = orders.user_id;
```

• Indexing:

```
CREATE INDEX idx_name ON users(name);
SHOW INDEXES FROM users;
```

• Drop table / database:

```
DROP TABLE users;
DROP DATABASE myDatabase;
```

4. What is Normalization?

- The process of organizing data to reduce redundancy and improve data integrity.

5. What are ACID Properties?

- Atomicity, Consistency, Isolation, Durability.

6. What is the difference between CHAR and VARCHAR?

- CHAR is fixed length, VARCHAR is variable length.

7. What is the difference between DELETE, TRUNCATE, and DROP?

- DELETE removes rows (can be rolled back).
- TRUNCATE removes all rows, faster (cannot roll back).
- DROP removes the table structure itself.