Module 4 (Database)

Q. What is RDBMS?

A. RDBMS stands for Relational Database Management System. It is a program that allows us to create, delete, and update a relational database.

Q. What is SQL?

A. SQL stands for Structured Query Language. It is a programming language for storing and processing information in a relational database.

Q. Write SQL Commands.

A. SQL commands include,

1. DDL - Data Definition Language - (Create, Drop, Alter, Truncate)
2. DQL - Data Query Language - (Select)
3. DML- Data Manipulation Language - (Insert, Update, Delete, Lock, Call)
4. DCL - Data Control Language – (Grant, Revoke)
5. TCL - Transaction Control Command – (Begin Transaction, Commit, Rollback, Save point)

Q. What is Join?

A. Join command - Combines rows from two or more tables based on a related column.

Q. Write types of Joins.

A. Different types of JOIN commands include, INNER JOIN, LEFT JOIN, RIGHT JOIN, FULL JOIN.

Q. How many constraints and describe itself.

A.

1. **NOT NULL** - Ensures that a column cannot have a NULL value
2. **UNIQUE** - Ensures that all values in a column are different
3. **PRIMARY KEY** - A combination of a NOT NULL and UNIQUE. Uniquely identifies each row in a table
4. **FOREIGN KEY** - Prevents actions that would destroy links between tables
5. **CHECK** - Ensures that the values in a column satisfies a specific condition

6. **DEFAULT** - Sets a default value for a column if no value is specified
7. **CREATE INDEX** - Used to create and retrieve data from the database very quickly

Q. Difference between DBMS and RDBMS.

A.

DBMS	RDBMS
DBMS stores data as a file.	RDBMS stores data in tabular form.
No relationship between data.	Data is stored in the form of tables which are related to each other.
It deals with small quantity of data.	It deals with large amount of data.
It supports single user.	It supports multiple users.
Security is less.	More security measures provided.
Example: XML	Example: MySQL, Oracle, Microsoft Access.

Q. What is an Alias?

A. SQL Aliases are used to give a table, or a column in a table, a temporary name.

- Aliases are often used to make column names more readable.
- An alias only exists for the duration of that query.
- An alias is created with the **AS keyword**.

Q. Write a query to create the table in Structured Query Language.

A. CREATE TABLE table_name (column1 datatype, column2 datatype, column3 datatype);

Q. Write a query to insert data into table.

A. INSERT INTO table_name (column1, column2, column3, ...)
VALUES (value1, value2, value3, ...);

Q. Write a query to update data into table with validations.

A. UPDATE users

SET mobile = ‘9876543210’

WHERE id = 101

```
    AND '9876543210' REGEXP '^[0-9]{10}$'
    AND NOT EXISTS (
    SELECT 1 FROM users
    WHERE mobile = '9876543210'
     AND id <> 101
 );
```

Q. Write a query to delete data from table with validations.

A.
```
DELETE FROM users
    WHERE id = 123
    AND status = 'inactive'    (Validation: only delete inactive users)
    AND NOT EXISTS (
    SELECT 1 FROM orders
    WHERE user_id = 123
    AND status IN ('pending', 'processing')    (Validation: no active orders)
    );
```

Q. Write a query to insert new column in existing table.

A. ALTER TABLE table_name ADD column_name datatype;

Q. Write a query to drop table and database.

A. DROP TABLE table_name;

Q. Write a query to find max and min value from table.

A. SELECT MAX(column_name) FROM table_name

SELECT MIN(column_name) FROM table_name

Q. Create two tables named Seller and Product apply foreign key in product table Fetch data from both table using different joins.

A.

```
 CREATE TABLE Seller (
    seller_id INT PRIMARY KEY,
    seller_name VARCHAR(255) NOT NULL,
    city VARCHAR(255)
);

CREATE TABLE Product (
    product_id INT PRIMARY KEY,
    product_name VARCHAR(255) NOT NULL,
    price DECIMAL(10, 2),
    seller_id INT,
    FOREIGN KEY (seller_id) REFERENCES Seller(seller_id)
);
```

Inner Join Query:

```
SELECT
    p.product_name,
    s.seller_name,
    p.price
FROM
    Product p
INNER JOIN
    Seller s ON p.seller_id = s.seller_id;
```

Q. What is API Testing

A. API testing is the process of verifying the functionality, performance, reliability, and security of Application Programming Interfaces (APIs).

Q. Types of API Testing

A. Types of API testing is,

1. **Unit Testing**: Validates individual API functions like login.
2. **Functional Testing**: Checks core features like cart or checkout.
3. **Performance Testing**: Measures response time under various loads.
4. **Security Testing**: Verifies authentication and data protection.
5. **Integration Testing**: Ensures APIs work with external services like payment gateways.
6. **Load Testing**: Tests stability under high user traffic.

7. **Stress Testing**: Pushes APIs to failure limits with sudden spikes.

Q. What is Responsive Testing?

A. Responsive testing involves how a website or web application looks and behaves on different devices, screen sizes, and resolutions.

Q. Which types of tools are available for Responsive Testing

A. Responsive testing tools are,

- LT Browser
- Lembda Testing
- Google Resizer
- I am Responsive
- Pixel Tuner

Q. How to create step for to open the developer option mode ON?

A. Steps for Developer mode ON,

- Go to your mobile setting option
- Click on advance setting
- Click on the enable option
- Then check it