* **Software Testing**

**Module 3**

1. **What is RDBMS?** An RDBMS (Relational Database Management System) is a software system for managing databases based on the relational model. It stores data in tables with rows and columns, enabling efficient data organization and retrieval through defined relationships. Popular examples include MySQL, PostgreSQL, and Oracle.
2. **What is SQL?** SQL (Structured Query Language) is a standard programming language used to manage and manipulate relational databases. It allows users to create, retrieve, update, and delete data, as well as define and control database structures. SQL is essential for interacting with RDBMS.
3. **Write SQL Commands** SQL commands are instructions used to communicate with a database to perform specific tasks. Examples include SELECT to retrieve data, INSERT to add new rows, UPDATE to modify existing data, and DELETE to remove data. These commands fall under DDL, DML, DCL, and TCL categories.
4. **What is Join?** A JOIN clause in SQL combines rows from two or more tables based on a related column between them. It allows you to retrieve data that is spread across multiple tables by linking them logically. This is fundamental for working with relational data.
5. **Write type of joins.** The main types of JOINs are INNER JOIN (returns matching rows from both tables), LEFT (OUTER) JOIN (returns all rows from the left table and matching rows from the right), RIGHT (OUTER) JOIN (returns all rows from the right table and matching rows from the left), and FULL (OUTER) JOIN (returns all rows when there is a match in one of the tables). There's also CROSS JOIN which returns the Cartesian product.
6. **How Many constraint and describes it self** Database constraints are rules enforced on data columns to limit the type of data that can be entered, ensuring data integrity and accuracy. Common constraints include PRIMARY KEY (unique identifier), FOREIGN KEY (links to a primary key in another table), UNIQUE (all values in a column are different), NOT NULL (ensures a column cannot have NULL values), and CHECK (ensures all values satisfy a specific condition).
7. **Difference between RDBMS vs DBMS** DBMS (Database Management System) is a general term for software that manages databases, while RDBMS (Relational Database Management System) is a specific type of DBMS that organizes data into tables with relationships. All RDBMS are DBMS, but not all DBMS are RDBMS (e.g., NoSQL databases are DBMS but not RDBMS). RDBMS enforces ACID properties more rigorously.
8. **What is API Testing** API (Application Programming Interface) testing is a type of software testing that validates the functionality, reliability, performance, and security of APIs. It involves sending requests to an API and analyzing the responses to ensure they meet expectations. This testing happens at the business logic layer, not the GUI layer.
9. **Types of API Testing** Types of API testing include functional testing (verifying API behavior), load testing (checking performance under stress), security testing (identifying vulnerabilities), and reliability testing (ensuring consistent performance). Other types include UI testing of APIs, validation testing, and negative testing.
10. **What is Responsive Testing?** Responsive testing is a type of software testing that verifies how well a website or application adapts its layout and functionality across various screen sizes, resolutions, and devices (desktops, tablets, mobiles). It ensures a consistent and optimal user experience regardless of the viewing environment. This is crucial for modern web development.
11. **Which types of tools are available for Responsive Testing** Tools for responsive testing include browser developer tools (e.g., Chrome DevTools' device mode), online responsive testing simulators (e.g., Responsinator, BrowserStack), and dedicated automation frameworks like Selenium or Cypress, which can simulate different viewport sizes. Cloud-based testing platforms also offer extensive device labs for comprehensive testing.