**Software Testing: - Assignment -3**

1. **What is RDBMS?**

* The Full form of RDBMS (Relational Database Management System)
* In software testing, RDBMS (Relational Database Management System) refers to a type of database management system that organizes data in a structured format using rows and columns within tables. It enables the creation, storage, retrieval, and management of data using Structured Query Language (SQL).
* RDBMS testing is concerned with ensuring that the software system properly stores, processes, and retrieves data from relational databases.

1. **What is SQL?**

* SQL stands for Structured Query Language.
* SQL can store, retrieve , and manipulate the data in to the database.
* SQL can execute queries against a database.

**3.Write SQL Commands.**

* There are three types of SQL commands:-

1. DDL – Data Definition Language
2. DML – Data Manipulation Language
3. DQL – Data Query Language
4. **Write type of joins.**

* There are 5 types of joins: -
* **INNER JOIN**: Returns rows when there is a match in both tables.
* **LEFT JOIN (or LEFT OUTER JOIN)**: Returns all rows from the left table, and the matching rows from the right table. If there’s no match, the result will contain NULLs for columns from the right table.
* **RIGHT JOIN (or RIGHT OUTER JOIN)**: Similar to the LEFT JOIN, but it returns all rows from the right table and the matching rows from the left table.
* **FULL JOIN (or FULL OUTER JOIN)**: Returns rows when there is a match in either the left or right table. If there’s no match, the result will contain NULLs for the non-matching side.
* **CROSS JOIN**: Returns the Cartesian product of the two tables, meaning every combination of rows between the two tables.

**5. What is join?**

* A JOIN in SQL is an operation that combines data from two or more tables based on a related column between them. It allows you to retrieve meaningful information by linking rows from different tables in a database. Joins are used when you need to get data that is spread across multiple tables, and they enable you to fetch related data based on matching keys or conditions.
* For example, when you have an employee’s table and a departments table, you might want to combine them based on a common column (e.g., department\_id) to see which employees work in which departments.

**6.How Many constraints and describes it self**

* There are several types of constraints in SQL. Here are the most common ones:
* **PRIMARY KEY: -**
* A PRIMARY KEY constraint uniquely identifies each record in a table.
* A table can only have **one primary key**.
* **FOREIGN KEY: -**
* A FOREIGN KEY constraint ensures referential integrity by linking columns in one table to the primary key or a unique key in another table.
* It enforces that the value in the foreign key column must exist in the referenced table’s primary key or unique column.
* **UNIQUE:-**
* The UNIQUE constraint ensures that all values in a column (or a combination of columns) are unique across the table.
* **CHECK:-**
* The CHECK constraint ensures that values in a column meet a specified condition.
* **NOT NULL:-**
* The NOT NULL constraint ensures that a column cannot have NULL values.
* **DEFAULT:-**
* The DEFAULT constraint provides a default value for a column when no value is specified during an insert operation.
* **INDEX: -**
* While not strictly a "constraint," INDEXES are often discussed in the context of constraints because they improve performance on queries that involve searching and sorting.
* An INDEX allows faster retrieval of rows from a table based on certain columns but does not enforce uniqueness like a PRIMARY KEY or UNIQUE constraint.

**7.** **Difference between RDBMS vs DBMS**

| **DBMS** | **RDBMS** |
| --- | --- |
| [DBMS](https://www.geeksforgeeks.org/introduction-of-dbms-database-management-system-set-1/) stores data as file. | [RDBMS](https://www.geeksforgeeks.org/rdbms-architecture/) stores data in tabular form. |
| Data elements need to access individually. | Multiple data elements can be accessed at the same time. |
| No relationship between data. | Data is stored in the form of tables which are related to each other. |
| Normalization is not present. | Normalization is present. |
| DBMS does not support distributed database. | RDBMS supports distributed database. |
| It stores data in either a navigational or hierarchical form. | It uses a tabular structure where the headers are the column names, and the rows contain corresponding values. |
| It deals with small quantity of data. | It deals with large amount of data. |
| Data redundancy is common in this model. | Keys and indexes do not allow Data redundancy. |
| It is used for small organization and deal with small data. | It is used to handle large amount of data. |
| Not all Codd rules are satisfied. | All 12 Codd rules are satisfied. |
| Security is less | More security measures provided. |
| It supports single user. | It supports multiple users. |
| Data fetching is slower for the large amount of data. | Data fetching is fast because of relational approach. |
| The data in a DBMS is subject to low security levels with regards to data manipulation. | There exists multiple levels of data security in a RDBMS. |
| Low software and hardware necessities. | Higher software and hardware necessities. |
| Examples:[XML](https://www.geeksforgeeks.org/xml-basics/), Window Registry, Forxpro, dbaseIIIplus etc. | Examples: [MySQL](https://www.geeksforgeeks.org/architecture-of-mysql/), [PostgreSQL](https://www.geeksforgeeks.org/what-is-postgresql-introduction/), [SQL](https://www.geeksforgeeks.org/what-is-sql/) Server, Oracle, Microsoft Access etc. |

**8**. **What is API Testing**

* API testing ensures that an API functions correctly by verifying its expected behavior. It can be performed manually or automated using specialized tools. Various types of API tests serve different purposes in maintaining reliability.
* Traditionally conducted towards the end of development, API testing is now increasingly [shifting left](https://www.browserstack.com/guide/what-is-shift-left-testing) in the life cycle. This approach enables teams to identify and resolve issues early, supporting faster iterations and ensuring the API’s robustness throughout its development stages.

**9.** **Types of API Testing**

* [**Unit Testing**](https://www.browserstack.com/guide/unit-testing-a-detailed-guide)**:**Testing an API’s “login” function to authenticate user credentials.
* [**Functional Testing**](https://www.browserstack.com/guide/functional-testing)**:**Testing an e-commerce API to ensure proper shopping cart functionality.
* [**Performance Testing**](https://www.browserstack.com/guide/performance-testing)**:**testing an API to measure its speed and responsiveness under different loads.
* **Security Testing:**Testing an API to validate authentication and encryption methods for data protection
* [**Integration Testing**](https://www.browserstack.com/guide/integration-testing): testing an API that integrates with a payment gateway for accurate payment processing).
* [**Load Testing**](https://www.browserstack.com/guide/load-testing)**:**testing an API’s performance under high-user traffic
* **Stress Testing:**testing an API with large data or sudden spikes in user requests.
* **Fuzz Testing:**Trying different combinations of keys on a keyboard to find unexpected errors (e.g., sending random input to an API’s search function to check error handling).

10**. What is Responsive Testing?**

* A responsive web design involves creating a flexible web page that is accessible from any device, starting from a mobile phone to a tablet.
* Further more, a responsive web design improves users browsing experience
* Considering this from a quality assurance perspective, a responsive web design requires thorough evaluation using a variety of device before it is ready to go live.
* Responsive software is software that adapts to different devices, screen sizes, orientations, and user interactions. It is essential for creating a positive user experience and reaching a wider audience

11. **Which types of tools are available for Responsive Testing**

* **Responsive testing tools are** :
* LT Browser
* Lambda testing
* Google resizes
* I am responsive
* Pixel tuner
* Ui.dev/am I responsive

**12. What is the full form of .ipa, .apk**

* .IPA: iOS package App Store
* .APK: Android Application Package

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

* **Below are the steps to open the developer mode ON.**
* Step 1: Go to Settings > About phone.
* Step 2: Scroll down to Build number.
* Step 3: Tap Build number seven times. ...
* Step 4: Once developer options are activated, you will see a message that reads, you are now a developer.
* Step 5: Go back to the settings pane and head to System, where you will now Find Developer options as an entry.
* Step 6: Tap it and toggle the switch on if it is not already, and from there, you can proceed to make adjustments to your phone.