**MODULE- 3**

**TESTING ON LIVE APPLICATION**

1. **What is RDBMS**

**RDBMS** stands for Relational Database Management System.

All modern database management systems like SQL, MS SQL Server, IBM DB2, Oracle, My-SQL, and Microsoft Access are based on RDBMS.

**Relational Model (RM)** represents the database as a collection of relations. A relation is nothing but a table of values. Every row in the table represents a collection of related data values. These rows in the table denote a real-world entity or relationship.

The table name and column names are helpful to interpret the meaning of values in each row. The data are represented as a set of relations. In the relational model, data are stored as tables. However, the physical storage of the data is independent of the way the data are logically organized. Due to a collection of an organized set of tables, data can be accessed easily in RDBMS.

1. **What is SQL**

SQL stands for Structured Query language. It is used for storing and managing data in relational database management system (RDMS).

**SQL**is a database language designed for the retrieval and management of data in a relational database.

All the RDBMS systems like MySQL, MS Access, Oracle, Sybase, Postgres, and SQL Server use SQL as their standard database language. SQL programming language uses various commands for different operations.

**SQL** is the standard language for dealing with Relational Databases. SQL can be used to insert, search, update, and delete database records. SQL can do lots of other operations, including optimizing and maintenance of databases.

SQL can execute queries against the database. It is used to describe the data. It is used to define the data in the database and manipulate it when needed. It is used to create and drop the database and table. It is used to create a view, stored procedure, function in a database. It allows users to set permissions on tables, procedures, and views.

**3.Write SQL Commands.**

Five types of widely used SQL queries.

* Data Definition Language (DDL)
* Data Manipulation Language (DML)
* Data Control Language (DCL)
* Transaction Control Language (TCL)
* Data Query Language (DQL)

1. **DDL**

DDL stands for data definition language. DDL Commands deal with the schema, i.e., the table in which our data is stored.

Commands covered under DDL are:

1. CREATE

2. ALTER

3.DROP

4. TRUNCATE

5. RENAME

1. **DML**

Data Manipulation Language (DML) allows you to modify the database instance by inserting, modifying, and deleting its data. It is responsible for performing all types of data modification in a database.

Commands covered under DDL are:

* 1. INSERT
  2. SELECT
  3. UPDATE
  4. DELETE

**C.DCL**

DCL (Data Control Language) includes commands like GRANT and REVOKE, which are useful to give “rights & permissions.” Other permission controls parameters of the database system.

Commands covered under DCL are:

**1. GRANT**

**2. REVOKE**

**D.TCL**

Transaction control language or TCL commands deal with the transaction within the database.

Commands covered under DCL are:

**1.COMMIT**

**2. ROLLBACK**

**3. SAVEPOINT**

**E.DQL**

Data Query Language (DQL) is used to fetch the data from the database.

1.SELECT

**4**.**What is join?**

JOIN means to combine something. In case of SQL, JOIN means to combine two or more tables.Joins help retrieving data from two or more database tables. The tables are mutually related using primary and foreign keys.

**5.Write type of joins.**

* Cross join
* Inner join
* Outer join
* Left join
* Right join

**Cross JOIN**

Cross JOIN is a simplest form of JOINs which matches each row from one database table to all rows of another.

In other words, it gives us combinations of each row of first table with all records in second table.

Suppose we want to get all member records against all the movie records, we can use the script shown below to get our desired results.

### **INNER JOIN**

The inner JOIN is used to return rows from both tables that satisfy the given condition.

Suppose, you want to get list of members who have rented movies together with titles of movies rented by them. You can simply use an INNER JOIN for that, which returns rows from both tables that satisfy with given conditions.

**Outer JOINs**

MySQL Outer JOINs return all records matching from both tables.

It can detect records having no match in joined table. It returns [NULL](https://www.guru99.com/null.html) values for records of joined table if no match is found.

**LEFT JOIN**

Assume now you want to get titles of all movies together with names of members who have rented them. It is clear that some movies have not being rented by anyone. We can simply use **LEFT JOIN**for the purpose.

The LEFT JOIN returns all the rows from the table on the left even if no matching rows have been found in the table on the right. **Where no matches have been found in the table on the right, NULL is returned.**

**RIGHT JOIN**

RIGHT JOIN is obviously the opposite of LEFT JOIN. The RIGHT JOIN returns all the columns from the table on the right even if no matching rows have been found in the table on the left. Where no matches have been found in the table on the left, NULL is returned.

In our example, let’s assume that you need to get names of members and movies rented by them. Now we have a new member who has not rented any movie yet

**6.How Many constraints and describes itself**

Constraints are the rules that we can apply on the type of data in a table. That is, we can specify the limit on the type of data that can be stored in a particular column in a table using constraints. 

* **NOT NULL**: This constraint tells that we cannot store a null value in a column. That is, if a column is specified as NOT NULL then we will not be able to store null in this particular column any more.
* **UNIQUE**: This constraint when specified with a column, tells that all the values in the column must be unique. That is, the values in any row of a column must not be repeated.
* **PRIMARY KEY**: A primary key is a field which can uniquely identify each row in a table. And this constraint is used to specify a field in a table as primary key.
* **FOREIGN KEY**: A Foreign key is a field which can uniquely identify each row in another table. And this constraint is used to specify a field as foreign key.
* **CHECK**: This constraint helps to validate the values of a column to meet a particular condition. That is, it helps to ensure that the value stored in a column meets a specific condition.
* **DEFAULT**: This constraint specifies a default value for the column when no value is specified by the user.

**7.Difference between RDBMS vs DBMS**

|  |  |
| --- | --- |
| **RDBMS** | **DBMS** |
| [RDBMS](https://www.guru99.com/difference-dbms-vs-rdbms.html) uses a tabular structure where the headers are the column names, and the rows contain corresponding values | DBMS system, stores data in either a navigational or hierarchical form. |
| It supports multiple users. | DBMS supports single user only. |
| Relational databases are harder to construct, but they are consistent and well structured. They obey [ACID](https://www.guru99.com/dbms-transaction-management.html) (Atomicity, Consistency, Isolation, Durability). | In a regular database, the data may not be stored following the ACID model. This can develop inconsistencies in the database. |
| It is the database systems which are used for maintaining the relationships among the tables. | It is the program for managing the databases on the computer networks and the system hard disks. |
| Higher hardware and software need. | Low software and hardware needs. |
| RDBMS supports the integrity constraints at the schema level. Values beyond a defined range cannot be stored into the particular RDMS column. | DBMS does not support the integrity constants. The integrity constants are not imposed at the file level. |
| RDBMS can be Normalized. | DBMS does not support Normalization |
| RBMS offers support for distributed databases. | DBMS does not support distributed database. |
| RDMS is designed to handle a large amount of data. | DBMS system mainly deals with small quantity of data. |
| Dbms satisfy 8 to 10 Dr. E.F. Codd Rules | Dbms satisfy less than seven of Dr. E.F. Codd Rules |
| RDBMS supports client-server architecture. | DBMS does not support client-server architecture |
| Data fetching is rapid because of its relational approach. | Data fetching is slower for the complex and large amount of data. |
| Keys and indexes do not allow Data redundancy. | Data redundancy is common in this model. |
| Data is stored in the form of tables which are related to each other with the help of foreign keys. | No relationship between data |
| Multiple levels of security. Log files are created at OS, Command, and object level. | There is no security. |
| Data can be easily accessed using SQL query. Multiple data elements can be accessed at the same time. | Data elements need to access individually. |
| Example of RDBMS is [MySQL](https://www.guru99.com/mysql-tutorial.html), Oracle, SQL Server, etc. | Examples of DBMS are a file system, XML, Windows Registry, etc. |

**8.What is API Testing.**

**API Testing** is a software testing type that validates Application Programming Interfaces (APIs). The purpose of API Testing is to check the functionality, reliability, performance, and security of the programming interfaces. In API Testing, instead of using standard user inputs(keyboard) and outputs, you use software to send calls to the API, get output, and note down the system’s response. API tests are very different from GUI Tests and won’t concentrate on the look and feel of an application. It mainly concentrates on the business logic layer of the software architecture.

**API (Application Programming Interface)** is a computing interface that enables communication and data exchange between two separate software systems. A software system that executes an API includes several functions/subroutines that another software system can perform. API defines requests that can be made, how to make requests, data formats that can be used, etc., between two software systems.

**9.Types of API Testing**

There are mainly four main types of APIs:

* **Open APIs:** These types of APIs are publicly available to use like OAuth APIs from Google. It has also not given any restriction to use them. So, they are also known as Public APIs.
* **Partner APIs:** Specific rights or licenses to access this type of API because they are not available to the public.
* **Internal APIs:** Internal or private. These APIs are developed by companies to use in their internal systems. It helps you to enhance the productivity of your teams.
* **Composite APIs:** This type of API combines different data and service APIs.

**10.What is Responsive Testing?**

The term responsive testing is a range of activities that involve it to check whether the website or any application is behaving in the right way after it is launched on different gadgets and screen sizes. The tests used to check whether the user interface changes dynamically in response to different screen resolutions, device orientations, and capabilities act as one of the major aims of testing. As we are dealing with the spread of mobile devices as well as different variations regarding screen sizes and resolutions, it is now almost impossible to content the users with the same perfect screen experience – let alone the additional type of devices with nature-based handcrafted user interfaces.

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

There are many different types of responsiveness testing tools available to test a website or web application:

* **Device farms and emulators:** Device farms and emulators can be useful tools for responsive testing because they allow you to test your site on a variety of different devices and screen sizes without physically accessing the devices. Online device farms such as Lambda Test provide you with access to real devices and emulators that emulate the experience of using actual mobile phones on your site. This can be particularly useful for testing devices you need access to or are unavailable in your location.
* **Browser extensions:** Several browser extensions, such as Window Resizer for Chrome and Responsive Design Mode for Firefox, allow you to test your site on different screen sizes within your browser. These extensions can be particularly useful for quickly testing small changes or for testing on a large number of screen sizes without having to access multiple devices physically.
* **Responsive design frameworks:** Responsive design frameworks provide a set of standardized styles and layout elements to help you create a responsive website. These frameworks often include tools for testing and debugging responsive layouts.
* **Debugging tools:** There are also several debugging tools available such as the dev-friendly [LT Browser 2.0](https://www.lambdatest.com/lt-browser), that can help you identify and fix issues with your site's responsive design across a plethora of device viewports.

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

An IPA (iOS App Store Package) file is an iOS application archive file that stores an iOS app. Each IPA file includes a binary and can only be installed on an iOS device.

APK file stands for (Android Application Package). APK is a file extension of an Android device. APK files can normally be used in Android and a number of other Android-based **Operating Systems** for the distribution and installation of mobile apps and mobile games.

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

* **Go to settings**
* **Tap About phone**
* **Tap Software information**
* **Tap Build number seven times**
* Enter your pattern, PIN or password to enable the Developer options menu
* The Developer options menu will now appear in your Settings menu
* To disable the Developer options menu, tap the switch