Assignment-Module-3

→What is RDBMS?

- RDBMS stands for **R**elational **D**atabase **M**anagement **S**ystem. RDBMS is the basis for SQL, and for all modern database systems like MS SQL Server, IBM DB2, Oracle, MySQL, and Microsoft Access.
- It is called Relational Database Management System (RDBMS) because it is based on the relational model introduced by E.F. Codd.
- A relational database is the most commonly used database. It contains several tables, and each table has its primary key.
- Due to a collection of an organized set of tables, data can be accessed easily in RDBMS.
- From 1970 to 1972, E.F. Codd published a paper to propose using a relational database model.
- RDBMS is originally based on E.F. Codd's relational model invention.

→What is SQL?

- SQL is a short-form of the structured query language, and it is pronounced as S-Q-L or sometimes as See-Quell.
- SQL is a database computer language designed for the retrieval and management of data in a relational databases like MySQL, MS Access, SQL Server, MS Access, Oracle, Sybase, Informix, Postgres etc.
- SQL was developed in the 1970s by IBM Computer Scientists.
- SQL is not a database management system, but it is a query language which is used to store and retrieve the data from a database or in simple words SQL is a language that communicates with databases.

→Write SQL Commands.

The SQL commands help in creating and managing the database. The most common SQL commands which are highly used are mentioned below:

- **SELECT** - extracts data from a database
- **UPDATE** - updates data in a database
- **DELETE** - deletes data from a database
- **INSERT INTO** - inserts new data into a database
- **CREATE DATABASE** - creates a new database
- **ALTER DATABASE** - modifies a database
- **CREATE TABLE** - creates a new table
- **ALTER TABLE** - modifies a table
- **DROP TABLE** - deletes a table
- **CREATE INDEX** - creates an index (search key)
- **DROP INDEX** - deletes an index

→ What is join?

- As the name shows, JOIN means to combine something. In case of SQL, JOIN means "to combine two or more tables".
- The SQL JOIN clause takes records from two or more tables in a database and combines it together
- ANSI standard SQL defines five types of JOIN : 1) Inner join, 2) Left outer join, 3) Right outer join, 4) Full outer join, and 5) Cross join.
- If you want to access more than one table through a select statement.
- If you want to combine two or more table then SQL JOIN statement is used .it combines rows of that tables in one table and one can retrieve the information by a SELECT statement.
- The joining of two or more tables is based on common field between them.
- SQL INNER JOIN also known as simple join is the most common type of join.

→ Write type of joins.

Here are the different types of the JOINs in SQL:

- **(INNER) JOIN**: Returns records that have matching values in both tables
- **LEFT (OUTER) JOIN**: Returns all records from the left table, and the matched records from the right table
- **RIGHT (OUTER) JOIN**: Returns all records from the right table, and the matched records from the left table
- **FULL (OUTER) JOIN**: Returns all records when there is a match in either left or right table
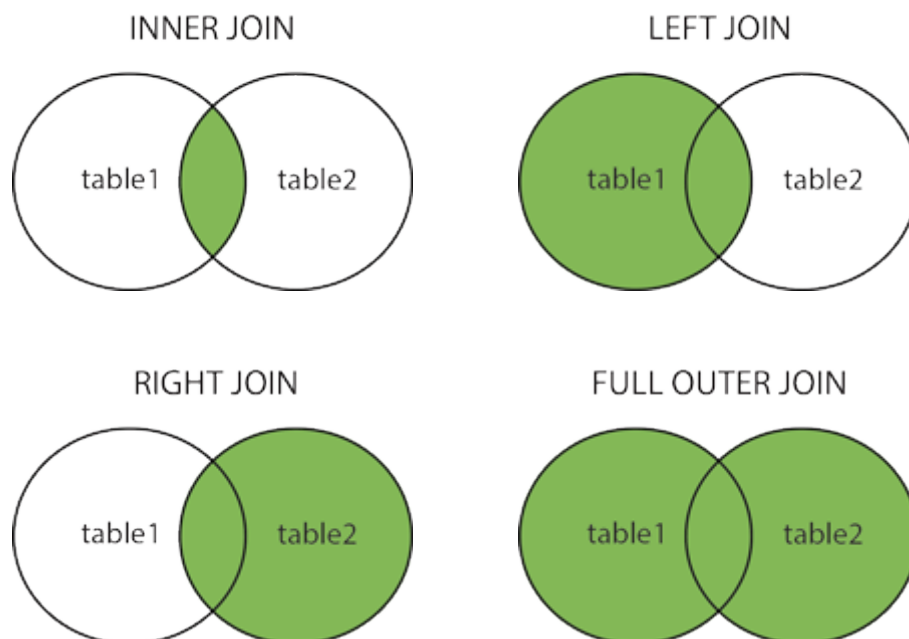
→ How Many constraint and describes it self

- Constraints in SQL means we are applying certain conditions or restrictions on the database. This further means that before inserting data into the database, we are checking for some conditions. If the condition we have applied to the database holds true for the data which is to be inserted, then only the data will be inserted into the database tables.

  Constraints in SQL can be categorized into two types:

1. *Column Level Constraint*:

   Column Level Constraint is used to apply a constraint on a single column.

2. *Table Level Constraint*:

   Table Level Constraint is used to apply a constraint on multiple columns.

  Constraints available in SQL are:

- **NOT NULL Constraint** − Ensures that a column cannot have NULL value.
- **DEFAULT Constraint** − Provides a default value for a column when none is specified.
- **UNIQUE Constraint** − Ensures that all values in a column are different.
- **PRIMARY Key** − Uniquely identifies each row/record in a database table.
- **FOREIGN Key** − Uniquely identifies a row/record in any of the given database table.
- **CHECK Constraint** − The CHECK constraint ensures that all the values in a column satisfies certain conditions.
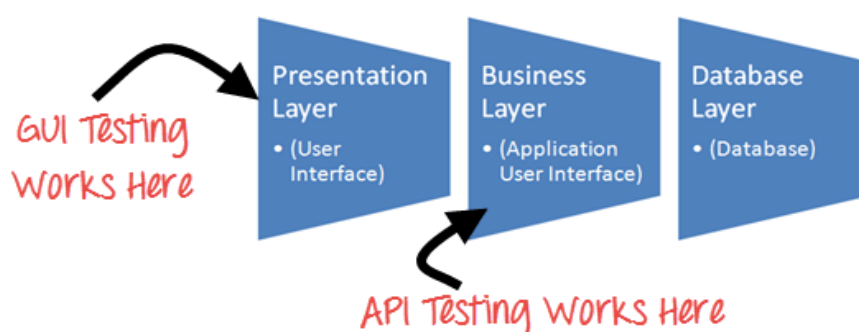- **INDEX** − Used to create and retrieve data from the database very quickly.

→ Difference between RDBMS vs DBMS

DBMS	RDBMS
DBMS applications store **data as file**.	RDBMS applications store **data in a tabular form**.
In DBMS, data is generally stored in either a hierarchical form or a navigational form.	In RDBMS, the tables have an identifier called primary key and the data values are stored in the form of tables.
DBMS does **not apply any security** with regards to data manipulation.	RDBMS **defines the integrity constraint** for the purpose of ACID (Atomocity, Consistency, Isolation and Durability) property.

DBMS	RDBMS
DBMS uses file system to store data, so there will be **no relation between the tables**.	in RDBMS, data values are stored in the form of tables, so a **relationship** between these data values will be stored in the form of a table as well.
DBMS has to provide some uniform methods to access the stored information.	RDBMS system supports a tabular structure of the data and a relationship between them to access the stored information.
Normalization is not present in DBMS.	**Normalization is** present in RDBMS.
DBMS **does not support distributed database**.	RDBMS **supports distributed database**.
DBMS is meant to be for small organization and **deal with small data**. it supports **single user**.	RDBMS is designed to **handle large amount of data**. it supports **multiple users**.
Examples of DBMS are file systems, **xml** etc.	Example of RDBMS are **mysql**, **postgre**, **sql server**, **oracle** etc.

→**What is API Testing?**

- API testing, or application programming interface testing, is a type of software testing that focuses on the testing of individual API methods and the interactions between different APIs. This type of testing is typically performed at the integration level, after unit testing is completed, and before user interface testing begins. It is used to validate that the API behaves correctly and that it meets the requirements of the system.
- API testing can be performed manually or using automated testing tools.
- API acts as an intermediate of communication between two applications.
- Due to this intermediary role of API (Application Programming Interface) two applications talk to each other and perform the required actions efficiently. API contains a set of rules and guidelines based on which the applications are developed. So in simple we can say an API acts as an interface between two software applications so that two software applications can communicate with each other.

→ <u>**Types of API Testing.**</u>

API testing types

⚙ Functional Testing		🛡 Security Testing	
👤 UI Testing		⚡ Penetration Testing	
🔄 Load Testing		📄 Fuzz Testing	
⊗ Runtime/Error Testing		🖥 Validation Testing	

- ❖ *<u>Functional Testing :</u>* This testing is a broad-level examination of the specific functions of the program. It evaluates the responses in terms of accuracy of output, whether it lies within expected parameters, and how errors are handled.

- ❖ *<u>Security Testing :</u>* Since the API provides access to all external applications to access the internals of the software product, it is usually considered the most exposed or vulnerable part of the system. Hence Security Testing is critical to ensure the safety of the system, as a single vulnerability or bug could jeopardize the entire operations of an enterprise. Penetration Testing and Fuzz/Noise Testing are subsets of Security Testing.

- ❖ *<u>UI Testing :</u>* As may be expected, UI Testing evaluates the User Interface of the application. It is an indirect test of the API in the sense that it does not test the API directly but rather tests the UI that is connected with the API. It however gives testers an overview of the performance, efficiency, and usability of the system.

- ❖ *<u>Penetration testing :</u>* It is considered the second test in the auditing process. In this type, users with limited API knowledge will try to assess the threat vector from an outside perspective, which is about functions, resources, processes, or aim to the entire API and its components.

- ❖ *<u>Load testing :</u>* It generally occurs after a specific unit or the whole codebase has been completed. This technique checks if the theoretical solutions work as planned. Load testing monitors the app's performance at both normal and peak conditions.

❖ *Fuzz testing:* It is another step in the security audit process. In fuzz testing, a vast amount of random data (referred to as "noise" or "fuzz") will be input into the system to detect any forced crashes or negative behaviors. This technique tests the API's limits to prepare for the "worst-case scenarios."

❖ *Run-time/ Error Testing :* This testing type is related to the actual running of the API — particularly with the universal results of utilizing the API codebase. This technique focuses on one of the below aspects: monitoring, execution errors, resource leaks, or error detection.

❖ *Validation Testing :* Validation testing occurs among the final steps and plays an essential role in the development process. It verifies the aspects of product, behavior, and efficiency. In other words, validation testing can be seen as an assurance of the correct development.

→What is Responsive Testing?

▪ Responsive website testing is a process that ensures your website works well on multiple devices by using CSS media queries based on the user's device where the website is accessed.

▪ In simpler terms, responsive testing is a process that enables you to check how well a website works on various types of devices, including desktops and smartphones. A website that responds well to all screen sizes and resolutions gives your business a competitive edge over other companies.

▪ Responsive design incorporates many elements, including media queries, flexible grids, and responsive typography. It makes it easy to build websites that adjust automatically to any screen size. While a responsive design may seem simple, incorporating it into ongoing projects is tricky; it's best to follow its principles before starting a new project.

→Which types of tools are available for Responsive Testing

- ▪ LT Browser
- ▪ Lemda Testing
- ▪ I am responsive
- ▪ Google resizer
- ▪ Responsinator
- ▪ Pixel Tuner

→<u>What is the full form of .ipa, .apk .</u>

ipa	iOS package App, international phonetic alphabet
apk	Android Application Package

→<u>How to create step for to open the developer option mode ON?</u>

Step 1: Go to *Settings >my Phone*.

Step 2: Tap *Software Info > Build Number*.

Step 3: Tap *Build Number* seven times. After the first few taps, you should see the steps counting down until you unlock the developer options. You may also have to tap in your PIN for verification.

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, where you will now find *Developer* options as an entry.

Step 6: Tap it and toggle (USB debugging) the switch on if it is not already, and from there, you can proceed to make adjustments to your phone.