MODULE 7

1. MYSQL

- MySQL is one of the most recognizable technologies in the modern big data ecosystem. Often called the most popular database and currently enjoying widespread, effective use regardless of industry, it's clear that anyone involved with enterprise data or general IT should at least aim for a basic familiarity of MySQL.

- When we are working with the data we need to store them and manage them continuosly for the proper working system.

- There is a lot of data in the databse and we need them to be secure,managed and organized.

MySQL is a Relational Database Management System (RDBMS) software that provides many things, which are as follows:

- It allows us to implement database operations on tables, rows, columns, and indexes.
- It defines the database relationship in the form of tables (collection of rows and columns), also known as relations.
- It provides the Referential Integrity between rows or columns of various tables.
- It allows us to updates the table indexes automatically.
- It uses many SQL queries and combines useful information from multiple tables for the end-users.

➢ What is Database?

- It is very important to understand the database before learning MySQL. A database is an application that stores the organized collection of records.
- It can be accessed and manage by the user very easily.
- It allows us to organize data into tables, rows, columns, and indexes to find the relevant information very quickly.
- Each database contains distinct API for performing database operations such as creating, managing, accessing, and searching the data it stores.

➢ How MySQL Works?

- MySQL follows the working of Client-Server Architecture. This model is designed for the end-users called clients to access the resources from a central computer known as a server using network services. Here, the clients make requests through a graphical user interface (GUI), and the server will give the desired output as soon as the instructions are matched. The process of MySQL environment is the same as the client-server model.

MYSQL Queries:

Queries	Commands
Create Database	create database db1;
Create table	CREATE TABLE table_name(all fieldse table of t with it's datatype and max length);
List all database on SQL server	Show databases;
To show all table's list	Show tables;
Use a Database	use db1;
Delete a table	Drop table table_name;
Delete a database	Drop database database_name;
Insert into table	INSERT INTO table_name values(value, value2);
Fetch data from a database	SELECT column_name FROM tabke_name;
Edit rows in a table	UPDATE table_name SET column_name = new_name; WHERE condition as per requirement
Alter query	ALTER TABLE table_name ADD column_name column_type(size);
Sort the result set by a particular column	SELECT column_name FROM table_name ORDER BY column_name ASc | DESC;
Join	SELECT column_name(s) FROM table_1 JOIN table_2 ON table_1.column_name=table_2.column_name;
Count the number of rows	SELECT COUNT(column_name) FROM table_name;

2. Workbench Overview:

- MySQL Workbench is a graphical tool for working with MySQL servers and databases. MySQL Workbench fully supports MySQL server version 5.6 and higher.

  MySQL Workbench functionality covers five main topics:

  - ***SQL Development***: Enables you to create and manage connections to database servers. Along with enabling you to configure connection parameters, MySQL Workbench provides the capability to execute SQL queries on the database connections using the built-in SQL Editor.

  - ***Data Modeling (Design)***: Enables you to create models of your database schema graphically, reverse and forward engineer between a schema and a live database,

and edit all aspects of your database using the comprehensive Table Editor. The Table Editor provides easy-to-use facilities for editing Tables, Columns, Indexes, Triggers, Partitioning, Options, Inserts and Privileges, Routines and Views.

- ***Server Administration***: Enables you to administer MySQL server instances by administering users, performing backup and recovery, inspecting audit data, viewing database health, and monitoring the MySQL server performance.

- ***Data Migration***: Allows you to migrate from Microsoft SQL Server, Microsoft Access, Sybase ASE, SQLite, SQL Anywhere, PostreSQL, and other RDBMS tables, objects and data to MySQL. Migration also supports migrating from earlier versions of MySQL to the latest releases.

- ***MySQL Enterprise Support***: Support for Enterprise products such as MySQL Enterprise Backup, MySQL Firewall, and MySQL Audit.

3. CRUD Operation

CRUD stands for create ,read, update and delete operations.

We can perform basic crud operation on the database with some http method as shown.

- **Create**
  CREATE DATABASE databasename;
  CREATE TABLE table_name(column1 datatype(length)....)

- **Read**
  SELECT * FROM table_name; SELECT column1,column2;
  SELECT FROM table_name WHERE condition;

- **Update**
  UPDATE table_name SET column1=value_1; WHERE condition

- **Delete**
  DELETE FROM table_name WHERE condition;

- **Insert**
  INSERT INTO table_name(column1,column2,...)VALUES(value_1,value_2,..)