

Smit Vora

Learnings and Conclusion

Module – 7

Topics

28. Database – This deals with backend storage, manipulation and showing data collected from the web application.

MySQL - MySQL is a relational database management system (RDBMS) developed by Oracle that is based on structured query language (SQL).

- MySQL is released under an open-source license. So you have nothing to pay to use it.
- It is reliable, cheap, cross-platform and easy to use that helps to keep afloat being an old technology still in use a lot.
- MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.
- MySQL uses a standard form of the well-known SQL data language.
- MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.
- MySQL works very quickly and works well even with large data sets.

Usage of MySQL with ASP.Net – We can use Entity Framework Model (EF) to map our data objects in classes into datatables in Database.

- The way it works is first we make the class of the table we want in the database we use auto properties to declare the datafields required in the table.
- DbContext and DbSet are two classes of Entity Framework used in following way :
- Then we use a DbContext class to map all those classes in the database using Object Relational Mapping(ORM).
- Here it contains DbContext which corresponds to entire database, the collection of tables and there is a DbSet which corresponds to tables in our

RDMS. DbSet is used to manipulate and show data from our tables. There can be one or more DbSet in our configuring class.

- Then we configure the database connection in appsettings.json file and add service in the StartUp.cs file.
- After that we add migrations in package manager console and a table is created in our database.

WorkBench Overview – MySQL Workbench is a visual database design tool that integrates SQL development, administration, database design, creation and maintenance into a single integrated development environment for the MySQL database system.

It has some main functionalities :

- **Development in SQL** – This functionality provides the capability that enables you to execute SQL queries, create and manage connections to the database Servers with the help of built-in SQL editor.
- **Data modelling** - This functionality provides the capability that enables you to create models of the database Schema graphically, performs reverse and forward engineering between a Schema and a live database, and edit all aspects of the database using the comprehensive Table editor. The Table editor gives the facilities for editing tables, columns, indexes, views, triggers, partitioning, etc.
- **Administration** - This functionality enables you to administer MySQL Server instances by administering users, inspecting audit data, viewing database health, performing backup and recovery, and monitoring the performance of MySQL Server.
- **Data migration** - Allows you to migrate from Microsoft SQL Server, Microsoft Access, Sybase ASE, SQLite, SQL Anywhere, PostgreSQL, and other RDBMS tables, objects and data to MySQL. Migration also supports migrating from earlier versions of MySQL to the latest releases.
- **MySQL Enterprise Supports** - This functionality gives the support for Enterprise products such as MySQL firewall, MySQL Enterprise Backup, and MySQL Audit.

CRUD Operations – These are the Create, Read, Update, Delete Operations taking place in the database.

Create – Used to create a table or database

```
CREATE DATABASE databasename;
```

```
CREATE TABLE table_name(column1 datatype(length)....)
```

Read – TO read the data out of the database

```
SELECT * FROM table_name;
```

```
SELECT column1,column2 FROM table_name;
```

```
SELECT * FROM table_name WHERE condition;
```

Update - Used to update a record in the table or alter the whole table of database

```
UPDATE table_name
```

```
SET column1=value_1;
```

```
WHERE condition
```

Delete - Used to delete a record in the table of database

```
DELETE FROM table_name WHERE condition;
```

Insert - Used to insert a record in the table of database

```
INSERT INTO table_name(column1,column2,...)VALUES(value_1,value_2,..)
```