**MYSQL Assignment**

**1. What is MySQL?**

**A:** Sql stands for structured query language it an open source relational database management system it stores the data in the form of tables and it is used to store and it is used to store manage and update and retrieve the data in structured format.

**2. In which language has MySQL been written?**

**A:** MYSQL is primarily written in C and C++

**3. What are the advantages of using MySQL?**

**A:** MYSQL was widely used in RDBMS(Relational database management system)

Some of the advantages of using mysql is:

* Mysql is open source and free
* It can handle large data sets
* It supports small projects
* It handles database from small projects to database with millions of records

**4. What is a database?**

**A:** database is a structured collection of data.

It is used to store retrieve manage and organize the large amounts of data efficiently and database allows users to query the data using languages like sql we can update, retrieve and add the data to the database.

We have different types of databases :

1. Relational database
2. NoSQL Databases
3. In-Memory Databases
4. Graph Databases
5. Cloud Databases

**5.What does 'MySQL' stand for?**

**A:** The "My" part comes from the daughter of one of the original developers, Michael "Monty" Widenius.

SQL stands for Structured Query Language, which is the standard language used to interac with relational databases, allowing users to query, manipulate, and manage data.

**6. How to check MySQL version?**

**A:** Open MySQL Workbench.

Connect to your MySQL instance.

Go to the Server Status tab, where you should see the MySQL Version listed along with other server details.

**7.What does a MySQL database contain?**

**A: Tables:**

Tables we have rows(records) and columns (fields)

**Rows(records):**

It holds the values of each entity in a table

**Columns(fields):**  
columns are fields define the which type if data to be stored in the database.

**Indexes:**

Indexes are used to retrieve the data quickly

Indexes includes primary keys unique keys.

**8. List the ways to interact with MySQL.**

**Command-Line Client:** Directly execute SQL queries in terminal or command prompt.

**MySQL Workbench:** GUI tool for database management.

**Programming Languages**: Use client libraries in languages like Python, PHP, Java, and Node.js.

**MySQL APIs**: APIs for different programming environments.

**MySQL Shell**: Advanced, multi-language shell for querying and scripting.

**REST APIs**: Interact with MySQL through APIs in web applications.

**9. What are the different tables in MySQL?**

**A:** in mysql we have different types of tables each table is used to storespecific types of data in a structured way.

We have different types of tables :

1.Base tables : base tables are regular tables where actual data is stored.

It consists of rows and columns

2. Temporary Tables:

are used to store data temporarily while a session or a query is being executed. These tables are automatically dropped when the session ends or when the connection is closed.

3.views:

A **view** is a virtual table created by a **SELECT** query that fetches data from one or more base tables.

4.Memory tables:

store data in memory instead of on disk. They are much faster than regular tables, but the data is lost when the server is shut down.

5.InnoDB Tables

Inno DB is the default storage engine for MySQL. It supports ACID transactions, foreign keys, and row-level locking.

**10. What are MySQL Database Queries?**

in MySQL, database queries refer to commands or instructions written in SQL (Structured Query Language) to interact with and manage the data within a database. These queries are used to perform various operations like retrieving, inserting, updating, and deleting data, as well as managing database structure and access permissions.

**SELECT Query**

Used to retrieve data from a database table.

**INSERT Query**

Used to insert new records into a table.

**UPDATE Query**

Used to modify existing data in a table.

**DELETE Query**

Used to remove records from a table.

**CREATE TABLE Query**

Used to create a new table in the database.

**ALTER TABLE Query**

Used to modify an existing table structure, such as adding or removing columns.

**DROP TABLE Query**

Used to delete a table from the database.

**JOIN Query**

Used to combine rows from two or more tables based on a related column.

**GROUP BY Query**

Used to group rows that have the same values in specified columns, often used with aggregate functions.

**ORDER BY Query**

Used to sort the result set by one or more columns, in ascending or descending order.

**11. What are some common MySQL commands?**

Commands used to perform different operations in the database,tables, and data. This commands written in sql and they are catagorized into.

1.data definition language

2.data manipulation language

1. Data Definition Language (DDL) Commands

**CREATE DATABASE**: Creates a new database.

**DROP DATABASE**: Deletes an existing database.

**CREATE TABLE**: Creates a new table in the database.

**ALTER TABLE**: Modifies an existing table.

**DROP TABLE**: Deletes an existing table.

2. Data Manipulation Language (DML) Commands

**SELECT**: Retrieves data from one or more tables.

**INSERT INTO**: Adds new records to a table.

**UPDATE**: Modifies existing records in a table.

**DELETE**: Removes records from a table.

**12. How to create a database in MySQL?**

**A:** To create a database in MySQL, you can use the CREATE DATABASE command. Below are the steps to create a new database

CREATE DATABASE my\_database;

**13. How to create table using MySQL?**

**A:** To create a table in MySQL, you can use the CREATE TABLE command. Below are the steps to create a new database

Create table table\_name(table\_id int primary key, name varchar(20), );

**14. How to insert data in MySQL?**

To insert a data in MySQL, you can use the insert into command. Below are the steps to create a new database

Insert into table\_name( column\_name,)

Values (‘…….’);

**15. How do you remove a column form a database?**

**A:** To remove a column from a data base we use alter command with drop column

ALTER TABLE table\_name DROP COLUMN column\_name;

**16. How do you delete data from MySQL table?**

**A:** To delete data from a MySQL table, you can use the DELETE statement. The DELETE statement is used to remove rows from a table based on a condition.

DELETE FROM table\_name WHERE condition;

**17. How can you view a database in MySQL?**

**A:** To view a database in MySQL, you can use a few different commands depending on what exactly you're trying to view

SHOW DATABASES;

**18. What are string data types in MySQL?**

**A:** MySQL provides several string data types, each with specific use cases depending on the length and nature of the data you need to store.

**1.CHAR:**

Stores a fixed number of characters, padding with spaces if necessary.

Can store up to 255 characters.

2. **VARCHAR**:

Stores text with variable length, allowing for more efficient storage when the string size is unknown or can vary.

Can store up to 65,535 characters

3. **TEXT**:

Suitable for storing large blocks of text like articles or descriptions

stores long strings efficiently, but slower to handle compared to VARCHAR.

**19.what is difference between mysql and sql?**

**SQL (Structured Query Language):**

Sql is standard programming language used for managing and querying relational database.

It is used to create, modify, and retrieve data from relational database management systems (RDBMS).

SQL is the language used to interact with databases.

**Mysql:**

MySQL is an open-source relational database management system (RDBMS) that uses SQL as its query language. It is a software product used to store and manage databases.

So mysql is a database management system that uses sql to perform operations on database

**20.what is difference between char and varchar?**

The difference b/w char and varchar in database

Char: a fixed length string data type.

For example, a CHAR(5) column will always occupy 5 bytes, even if the string stored is only 3 characters long (it will pad 2 spaces).

Varchar: a variable length string data type.

For example, a VARCHAR(5) column with a 3-character value will occupy 3 characters + 1 byte for length (total 4 bytes).