**1. What is MySQL and How does it differ from other relational databases?**

MySQL is an **open-source** relational database management system (**RDBMS**) that is widely used for **managing structured data**. It utilizes SQL (Structured Query Language) for **querying** and **managing data**. MySQL is known for its reliability, scalability, and performance, making it a popular choice for various applications

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

To create a database in MySQL, we can use the **CREATE DATABASE** statement followed by the name we want to give to our database. For example:

CREATE DATABASE mydatabase;

**3. Difference between CHAR and VARCHAR data types.**

* **CHAR:**Fixed-length character data type where the storage size is predefined. Trailing spaces are padded to reach the defined length.
* **VARCHAR:** Variable-length character data type where the storage size depends on the actual data length. No padding of spaces is done.

**4. Explain the differences between SQL and MySQL?**

| **SQL** | **MySQL** |
| --- | --- |
| It is a structured query language that manages the relational database management system. | It is a relational database management system that uses SQL. |
| It is not an open-source language. | MySQL is an open-source platform. It allows access to anyone. |
| SQL supports [XML](https://www.geeksforgeeks.org/xml-basics/) and user defined functions. | It doesn’t support XML and any user defined functions |
| SQL can be implemented in various RDBMS such as PostgreSQL, SQLite, Microsoft SQL Server, and others. | MySQL is a specific implementation of an RDBMS that uses SQL for querying and managing databases. |
| SQL itself is not a product and doesn’t have a license. It’s a standard language. | MySQL is open-source and available under the GNU General Public License (GPL). |

**5. What is the MySQL server’s default port?**

**3306** is [MySQL server](https://www.geeksforgeeks.org/how-to-stop-mysql-server-on-windows-and-linux/)‘s default port.

**6. How can we learn batch mode in MySQL?**

Below is the syntax used to run [batch](https://www.geeksforgeeks.org/batch-command-in-linux-with-examples/) mode.

*mysql <batch-file>;*

*mysq <batch-file> mysql.out*

**7. How many different tables are present in MySQL?**

There are**5 types of tables**present in MySQL.

* [Heap](https://www.geeksforgeeks.org/heap-sort/) table
* [merge](https://www.geeksforgeeks.org/merge-sort/) table
* MyISAM table
* INNO DB table
* ISAM table

**8. What are the differences between CHAR and VARCHAR data types in MySQL?**

* Storage and retrieval have been different for CHAR and VARCHAR.
* Column length is fixed in CHAR but VARCHAR length is variable.
* CHAR is faster than VARCHAR.
* CHAR datatype can hold a maximum of 255 characters while VARCHAR can store up to 4000 characters.

**9. What is Difference between CHAR\_LENGTH and LENGTH?**

[LENGTH](https://www.geeksforgeeks.org/length-function-in-mysql/) is byte count whereas [CHAR\_LENGTH](https://www.geeksforgeeks.org/char_length-function-in-mysql/) is character count. The numbers are the same for Latin characters but different for Unicode and other encodings.

**Syntax of CHAR\_LENGTH:**

*SELECT CHAR\_LENGTH(column\_name) FROM table\_name;*

**Syntax of LENGTH:**

*SELECT LENGTH(column\_name) FROM table\_name;*

**10. What do you understand by % and \_ in the like statement?**

**‘\_’**corresponds to only one character but ‘%’ corresponds to zero or more characters in the [LIKE](https://www.geeksforgeeks.org/sql-like/) statement.

**11. How many index columns can be created in a table?**

There are **16** indexed columns can be created in a table.

**12. What are string types available for columns?**

There are six string types available for the column.

* [SET](https://www.geeksforgeeks.org/sets-in-javascript/)
* [BOLB](https://www.geeksforgeeks.org/blob-full-form/)
* TEXT
* [ENUM](https://www.geeksforgeeks.org/enumeration-enum-c/)
* CHAR
* VARCHAR

**13. Explain the main difference between FLOAT and DOUBLE?**

* [FLOAT](https://www.geeksforgeeks.org/css-float/) stored floating point number with 8 place accuracy. The size of FLOAT is 4 bytes.
* [DOUBLE](https://www.geeksforgeeks.org/difference-float-double-c-cpp/) also stored floating point numbers with 18 place accuracy. The size of DOUBLE is 8 bytes.

**14. Explain the differences between BOLB and TEXT.**

**BOLB:**

A [BOLB](https://www.geeksforgeeks.org/retrieve-image-and-file-stored-as-a-blob-from-mysql-table-using-python/) is a large object in binary form that can hold a variable amount of data. Sorting and comparing in BLOB values are case-sensitive.

There are four types of BOLB.

* TINYBOLB
* BOLB
* MEDIUMBOLB
* LONGBOLB

**TEXT:**

[Sorting](https://www.geeksforgeeks.org/sorting-algorithms/) and comparison are performed in case-insensitive for TEXT values. we can also say a TEXT is case-insensitive BOLB.

There are four types of TEXT.

* TINYTEXT
* TEXT
* MEDIUMTEXT
* LONGTEXT

**15. Explain the difference between having and where clause in MySQL.**

* [WHERE](https://www.geeksforgeeks.org/sql-where-clause/) statement is used to filter rows but [HAVING](https://www.geeksforgeeks.org/sql-having-clause-with-examples/) statement is used to filter groups.
* [GROUP BY](https://www.geeksforgeeks.org/sql-group-by/) is not used with WHERE. HAVING clause is used with GROUP BY.

**16. Explain REGEXP?**

[REGEXP](https://www.geeksforgeeks.org/mysql-regular-expressions-regexp/) is a pattern match where the pattern is matched anywhere in the search value.

For more detail you refer to our [MySQL | Regular expressions](https://www.geeksforgeeks.org/mysql-regular-expressions-regexp/) Article.

**17. How can we add a column in MySQL?**

A **column** is a series of table cells that store a value for table’s each row. we can add column by using [ALTER TABLE](https://www.geeksforgeeks.org/sql-alter-add-drop-modify/)statement.

*ALTER TABLE tab\_name*

*ADD COLUMN col\_name col\_definition [FIRST|AFTER exist\_col];*

**18. How to delete columns in MySQL?**

We can remove columns in MySQL by using [ALTER TABLE](https://www.geeksforgeeks.org/sql-alter-rename/) statement.

**Syntax:**

***ALTER******TABLE****table\_name****DROP******COLUMN****column1, column2….;*

**19. How to delete a table in MySQL?**

We can delete a table by using [DROP TABLE](https://www.geeksforgeeks.org/hive-drop-table/) statement. This statement deletes complete data of table.

*DROP TABLE table-name;*

**20. How are mysql\_fetch\_array() and mysql\_fetch\_object() different from each another?**

mysql\_fetch\_array() Gets a result row as a related array or a regular [array](https://www.geeksforgeeks.org/array-data-structure/) from database. mysql\_fetch\_object gets a result row as an [object](https://www.geeksforgeeks.org/object-class-in-java/) from the database.

**21. How to get the top 10 rows?**

The following query will be used to get top 10 rows.

*SELECT \* FROM table\_name LIMIT 0,10;*

**22. How does NOW() differ from CURRENT\_DATE()?**

current year, month, and date with hours, minutes, and seconds is shown by using [NOW()](https://www.geeksforgeeks.org/now-function-in-mysql/) command while [CURRENT\_DATE](https://www.geeksforgeeks.org/current_date-function-in-mysql/) shows current year current month, and current date.

**Syntax:**

*SELECT NOW();*

*SELECT CURRENT\_DATE();*

**23. What is the use of the ‘DISTINCT’ keyword in MySQL?**

the [DISTINCT](https://www.geeksforgeeks.org/postgresql-distinct-on-expression/) keyword allows for the removal of all duplicate records and the retrieval of unique records.**The**DISTINCT keyword is used with the SELECT statement.

**Syntax:**

*SELECT DISTINCT colu1, colum2..*

*FROM table\_name;*

**24. Which storage engines are used in MySQL?**

[Storage engines](https://www.geeksforgeeks.org/how-to-manipulate-mysql-storage-engines/) are also called table types. Data is stored in a file using multiple techniques.

Below are some techniques.

* Locking Level
* [Indexing](https://www.geeksforgeeks.org/indexing-in-databases-set-1/)
* Storage mechanism
* Capabilities and functions

**25. How to create a table in MySQL?**

The [CREAT TABLE](https://www.geeksforgeeks.org/postgresql-create-table/) command will be used to create a table in MySQL.

**Syntax:**

*CREATE TABLE ‘Employee’ (‘Employee\_Name’ VARCHAR(128), ‘Employee\_ID’ VARCHAR(128), ‘Employee\_Salary’ VARCHAR(16), ‘Designation’ CHAR(4)) ;*

**26. How to insert data in MySQL table?**

We can add data to a table using the [INSERT INTO](https://www.geeksforgeeks.org/sql-insert-statement/) statement .

**Syntax:**

***INSERT******INTO****table\_name ( field1, field2, field3 )*

***VALUES****( value1, value2, value3 );*

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**27. Write a statement to find duplicate rows In the MySQL table?**

The below statement is used to find duplicate rows.

*SELECT Table\_Name, Category*

*FROM Product*

*GROUP BY Name, Category*

*HAVING COUNT(id) > 1;*

**28. What types of relationships are used in MySQL?**

There are three types of [relationships](https://www.geeksforgeeks.org/recursive-relationships-in-er-diagrams/) used in MySQL.

**One-to-one:** Elements with a [one to one](https://www.geeksforgeeks.org/hibernate-one-to-one-mapping/) relationship can be included as columns in the table.

**One-to-many:** One to many or many to one relationships both are same. It will occur when one row in a table is related to multiple rows in different table.

**Many-to-many:**Many rows in a table are related to many rows in different table is called many to many relationship.

**29. How to insert Date in MySQL?**

We can use INSERT statement to insert date in MySQL table. MySQL default date format is YYYY-MM-DD. Automatic MySQL consist many data types to store dates.

* DATE
* DATETIME
* TIMESTAMP
* YEAR

**Syntax:**

***INSERT******INTO****table\_name (column\_name, column\_date)****VALUES****(‘DATE: Manual Date’, ‘2023-5-20’);*

**30. What is join? Tell different join in MySQL.**

[Joins](https://www.geeksforgeeks.org/sql-join-set-1-inner-left-right-and-full-joins/) are used to connect two or more tables. It returns only same values in all tables.

There are four different ways to join MySQL tables.

* Inner Join
* left Join
* Right Join
* Full Join

**31. What is a primary key? How to drop the primary key in MySQL?**

A primary key in MySQL is a single field or a group of fields that are used to uniquely identify each record in a table. A primary key cannot be null or empty. [ALTER TABLE](https://www.geeksforgeeks.org/sql-alter-add-drop-modify/) statement is used to delete a primary key from a table.

**Syntax:**

***ALTER******TABLE****table\_name****DROP******PRIMARY******KEY****;*

**32. What is a heap table in MySQL?**

A [heap](https://www.geeksforgeeks.org/heap-data-structure/) table is usually used for temporary and fast temporary storage.

* BOLB or TEXT fields are not permitted in the heap table.
* [comparison operator](https://www.geeksforgeeks.org/javascript-comparison-operators/) like =, <,>, = >,=< can be used only.
* Heap table didn’t support the AUTO\_INCREMENT command.
* Indexes should be NOT NULL in the heap table.

**33. What is the main difference between the primary key and the candidate key?**

The primary key uniquely identified each row of a table. only one primary key is available for a table.

* A primary is also a [candidate key](https://www.geeksforgeeks.org/difference-between-primary-and-candidate-key/).
* Candidate key that can be used for all [foreign key](https://www.geeksforgeeks.org/postgresql-foreign-key/) references.

For mor detail you can see: [Difference between Primary and Candidate Key](https://www.geeksforgeeks.org/difference-between-primary-and-candidate-key/)

**34. What is the difference between DELETE and TRUNCATE commands in MySQL?**

[**DELETE**](https://www.geeksforgeeks.org/sql-delete-statement/)Command is used to delete rows from the table depending on given the condition. [TRUNCATE](https://www.geeksforgeeks.org/sql-drop-truncate/) command is used to DELETE all rows from the table. DELETE command is a Data Manipulation Language command. TRUNCATE command is a Data Definition Language command.

For More detail you can see : [Difference between DELETE and TRUNCATE](https://www.geeksforgeeks.org/difference-between-delete-and-truncate/)

**35. What is InnoDB?**

A SQL storage database is called InnoDB database. The InnoDB offers [ACID transactions](https://www.geeksforgeeks.org/acid-properties-in-dbms/), row-level locking, and foreign key support. InnoDB is owned by Oracle Corporation.

**36. What is the difference between UNION and UNION ALL in MySQL?**

During combining the results of more than one SELECT statement, the [UNION](https://www.geeksforgeeks.org/union-and-union-all-in-ms-sql-server/) operator deletes duplicate rows between the various SELECT statements. The [UNION ALL](https://www.geeksforgeeks.org/union-union_all-functions-in-dplyr-package-in-r/) also combines the result set of more than one SELECT statement, but it does not delete duplicate rows.

**37. What is a ‘timestamp’ in MySQL?**

In MySQL, When a row is added to or updated in a table, a data type “[timestamp](https://www.geeksforgeeks.org/get-current-timestamp-using-python/)” automatically records the time.

**38. What is the use of ENUMs in MySQL?**

ENUM is a string [object](https://www.geeksforgeeks.org/objects-in-javascript/) that can be used when creating tables to specify a set of predefined values.

*CREATE table size(name ENUM(‘Small’, ‘Medium’, ‘Large’);*

For more detail refer to those article on [Enumerator (Enum) in MySQL](https://www.geeksforgeeks.org/enumerator-enum-in-mysql/)

**39. How can you control max size of heap in MySQL?**

MySQL config variable *max\_heap\_table\_size* can be used to control the max size of [heap](https://www.geeksforgeeks.org/heap-sort/).

**Syntax:**

*SET max\_heap\_table\_size = M*

**40. What is a view? How to create a view?**

A database object that has no value is called view. Rows and columns exist in a view. A view is virtual table. it is created by combining one or more tables. The difference of a view and a table is that views are definition that build on other tables. If the underlying table changes, the View will also reflect those same changes.

The below syntax is used to create a view.

**Syntax:**

***CREATE******VIEW****view\_name****AS***

***SELECT****columns*

***FROM****tables*

*[****WHERE****conditions];*

**41. Where MyISAM table will be stored and also give MyISAM formats of storage?**

Every MyISAM table is stored on [disk](https://www.geeksforgeeks.org/c-look-disk-scheduling-algorithm/).

There are three storage formats can be used .

* The .frm file can be used to store table definition.
* The .MYD( MYData) extension can be used for data files.
* The .MYI(MYIndex) extension can be used to Index files.

**42. How can we save images in MySQL?**

In MySQL, Blobs can be used to store images. All [database images](https://www.geeksforgeeks.org/how-to-upload-image-into-database-and-display-it-using-php/) are first converted into blobs then saved and then they will be added to the database, and finally, it will later be stored on the disk.

**43. What are trigger and how many TRIGGERS are available in MySQL table?**

A [trigger](https://www.geeksforgeeks.org/sql-trigger-student-database/) is a procedural code in a database. Triggers are automatically triggered when specific events occur on a particular table. During column updating triggers are invoked automatically.

SIX triggers are available in MySQL table.

* BEFORE INSERT
* AFTER INSERT
* BEFORE UPDATE
* AFTER UPDATE
* BEFORE DELETE
* AFTER DELETE

For more detail you can see: [Different types of MySQL Triggers (with examples) – GeeksforGeeks](https://www.geeksforgeeks.org/different-types-of-mysql-triggers-with-examples/)

**44. What are the different characteristics of MySQL MyISAM Static and MyISAM Dynamic?**

* Width of all fields is fixed in MyISAM [Static](https://www.geeksforgeeks.org/static-keyword-cpp/) table whereas width of all fields is not fixed in MyISAM [Dynamic](https://www.geeksforgeeks.org/dynamic-programming/). In MyISAM Dynamic table width will be like TEXT, BOLD, etc.
* In case of corruption MyISAM static table is easy to store.