**Top Answers to MySQL Interview Questions**

**1. Compare MySQL vs SQL Server.**

|  |  |  |
| --- | --- | --- |
| **Criteria** | **MySQL** | **SQL Server** |
| Developed by | Oracle | Microsoft |
| Programmed in | C and C++ | Mainly C++, but some parts in C |
| Platforms | Supports many platforms | Supports only Linux and Windows |
| Syntax | Complex Syntax | Simpler and easy-to-use syntax |

**2. What is SQL Server?**

SQL Server is one of the database management systems (DBMS) and is designed by Microsoft.  DBMS are computer software applications with the capability of interacting with users, various other applications, and databases. The objective of SQL Server is capturing and analyzing data and managing the definition, querying, creation, updating, and administration of the database.

**3. How and why use SQL Server?**

SQL Server is free and anyone can download and use it. The application uses SQL (Structured Query Language), and it is easy to use.

**4. What are the features of MySQL?**

MySQL provides cross-platform support, a wide range of interfaces for application programming, and has many stored procedures like triggers and cursors that help in managing the database.

**5. What is the Traditional Network Library for a system?**

In either Windows or POSIX systems, the named pipes provide ways of inter-process communications to connect different processes running on the same machine. It dispenses with the necessity of using the network stack, and data can be sent without affecting the performance. Servers set up named pipes to listen to requests. The client process needs to know the specific pipe name to send the request.

**6. What is the default port for MySQL Server?**

The default port for MySQL Server is 3306. Another standard default port is 1433 in TCP/IP for SQL Server.

**7. What do DDL, DML, and DCL stand for?**

DDL is the abbreviation for Data Definition Language dealing with database schemas, as well as the description of how data resides in the database. An example of this is the CREATE TABLE command. DML denotes Data Manipulation Language which includes commands such as SELECT, INSERT, etc. DCL stands for Data Control Language and includes commands like GRANT, REVOKE, etc.

**8. What is a join in MySQL?**

In MySQL, joins are used to query data from two or more tables. The query is made using the relationship between certain columns existing in the table. There are four types of joins in MySQL. Inner join returns rows if there is at least one match in both tables. Left join returns all the rows from the left table even if there is no match in the right table. Right join returns all the rows from the right table even if no matches exist in the left table. Full join would return rows when there is at least one match in the tables.

**9. What are the common MySQL functions?**

Common MySQL functions are as follows:

* **NOWO:** The function for returning the current date and time as a single value
* **CURRDATEO:** The function for returning the current date or time
* **CONCAT (X, Y):** The function to concatenate two string values creating a single string output
* **DATEDIFF (X, Y):** The function to determine the difference between two dates

**10. What is the difference between CHAR and VARCHAR?**

When a table is created, CHAR is used to define the fixed length of the table and columns. The length value could be in the range of 1–255. The VARCHAR command is used to adjust the column and table lengths as required.

**11. What are Heap Tables?**

Basically, Heap tables are in-memory tables used for high-speed temporary storage. But, TEXT or BLOB fields are not allowed within them. They also do not support AUTO INCREMENT.

**12. What is the syntax for concatenating tables in MySQL?**

The syntax for concatenating tables is MySQL:

CONCAT (string 1, string 2, string 3)

**13. What is the limit of indexed columns that can be created for a table?**

The maximum limit of indexed columns that can be created for any table is 16.

**14. What are the different types of strings used in database columns in MySQL?**

In MySQL, the different types of strings that can be used for database columns are SET, BLOB, VARCHAR, TEXT, ENUM, and CHAR.

**15. How can a user get the current SQL version?**

The syntax for getting the current version of MySQL:

SELECT VERSION ();

**16. Is there an object-oriented version of MySQL library functions?**

Yes. MySQLi is the object-oriented version of MySQL, and it interfaces in PHP.

**17. What is the storage engine used for MySQL?**

Storage tables are named as table types. The data is stored in the files using multiple techniques such as indexing, locking levels, capabilities, and functions.

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

The primary key in MySQL is used to identify every row of a table in a unique manner. For one table, there is only one primary key. The candidate keys can be used to reference the foreign keys. One of the candidate keys is the primary key.

**19. What are the different types of tables in MySQL?**

MyISAM is the default table that is based on the sequential access method.

* **Heap** is the table that is used for fast data access, but the data will be lost if the table or the system crashes.
* **InnoDB** is the table that supports transactions using the COMMIT and ROLLBACK commands.
* **BDB** can support transactions similar to InnoDB, but the execution is slower.

**20. Can you use MySQL with Linux operating system?**

Yes. The syntax for using MySQL with Linux operating system is as follows:

etc/init.d/mysqlstart

**21. What is the use of ENUM in MySQL?**

The use of ENUM will limit the values that can go into a table. For instance, a user can create a table giving specific month values and other month values would not enter into the table.

**2. What are the TRIGGERS that can be used in MySQL tables?**

Following TRIGGERS are allowed in MySQL:

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

**23. What is the difference between LIKE and REGEXP operators in MySQL?**

* LIKE is denoted using the ‘%’ sign. For example:

SELECT \* FROM user WHERE user name LIKE “%NAME”

* On the other hand, the use of REGEXP is as follows:

SELECT \* FROM user WHERE username REGEXP “^NAME”;

**24. How to use the MySQL slow query log?**

Information that is provided on the slow query log could be huge in size. The query could also be listed over a thousand times. In order to summarize the slow query log in an informative manner, one can use the third-party tool ‘pt-query-digest’.

**25. How can one take an incremental backup in MySQL?**

A user can take an incremental backup in MySQL using Percona XtraBackup.

**26. How can you change the root password if it is lost?**

In such cases when the password is lost, the user should start the DB with skip-grants-table and then change the password. Thereafter, with the new password, the user should restart the DB in a normal mode.

**27. How to resolve the problem of the data disk that is full?**

When the data disk is full and overloaded, the way out is to create and soft link and move the .frm and the .idb files into that link location.

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

Basically, DELETE TABLE is a logged operation, and every row deleted is logged. Therefore, the process is usually slow. TRUNCATE TABLE also deletes rows in a table, but it will not log any of the rows deleted.  The process is faster here in comparison. TRUNCATE TABLE can be rolled back and is functionally similar to the DELETE statement without a WHERE clause.

**29. What are the types of joins in MySQL?**

There are four types of joins in MySQL. Inner join returns the rows if there is at least one match in two tables. Left join returns all the rows from the left table even if there is no match in the right table. Right join returns all the rows from the right table even if no matches exist in the left table. Full join would return rows when there is at least one match in the tables.

**30.What are the storage models of OLAP?**

The storage models in OLAP are MOLAP, ROLAP, and HOLAP.

**31. How to define the testing of network layers in MySQL?**

For this, it is necessary to review the layered architecture and determine hardware and software configuration dependencies with respect to the application put to test.

**32. What is the difference between primary key and unique key?**

While both are used to enforce the uniqueness of the column defined, the primary key would create a clustered index, whereas the unique key would create a non-clustered index on the column. The primary key does not allow ‘NULL’, but the unique key does.

**33. What is meant by transaction? What are ACID properties?**

Transaction is a logical unit of work where either all or none of the steps should be performed. ACID is the abbreviation for Atomicity, Consistency, Isolation, and Durability that are properties of any transaction.

**34. How can one restart SQL Server in the single user or the minimal configuration modes?**

The command line SQLSERVER.EXE used with ‘–m’ will restart SQL Server in the single user mode and the same with ‘–f’ will restart it in the minimal configuration mode.

**35. What is the difference between BLOB and TEXT?**

BLOBs are binary large object holding huge data. Four types of BLOBs are TINYBLOB, BLOB, MEDIBLOB, and LONGBLOB. TEXT is a case-sensitive BLOB. Four types of TEXT are TINY TEXT, TEXT, MEDIUMTEXT, and LONG TEXT.

**36. What is the basic MySQL architecture?**

The logical architecture of MySQL is made of ‘connection manager’, ‘query optimizer’, and ‘pluggable engines’.

**1) What is MySQL?**

MySQL is a multithreaded, multi-user SQL database management system which has more than 11 million installations. This is the world's second most popular and widely used open source database. It is interesting how MySQL name was given to this query language. The term My is coined by the name of the daughter of co-founder Michael Widenius`s daughter, and SQL is the short form of Structured Query Language. Using MySQL is free of cost for the developer, but enterprises have to pay a license fee to Oracle.

Formerly MySQL was initially owned by a for-profit firm MySQL AB, then Sun Microsystems bought it and then Oracle bought Sun Microsystems, so Oracle currently owns MySQL.

MySQL is an Oracle-supported Relational Database Management System (RDBMS) which is based on structured query language. MySQL supports wide ranges of operating systems most famous of those include Windows, Linux & UNIX. Although it is possible to develop a wide range of application with MySQL, it is only used for web applications & online publishing. It is a fundamental part of an open source enterprise known as Lamp.

**What is Lamp?**

Lamp is a platform used for web development. Lamp uses Linux, Apache, MySQL, and PHP as an operating system, web server, database & object-oriented scripting language respectively. And hence abbreviated as LAMP.

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

MySQL is written in C and C++, and its SQL parser is written in yacc.

**3) What are the technical specifications of MySQL?**

MySQL has the following technical specifications -

* Flexible structure
* High performance
* Manageable and easy to use
* Replication and high availability
* Security and storage management
* Drivers
* Graphical Tools
* MySQL Enterprise Monitor
* MySQL Enterprise Security
* JSON Support
* Replication & High-Availability
* Manageability and Ease of Use
* OLTP and Transactions
* Geo-Spatial Support

**4) What is the difference between MySQL and SQL?**

SQL is known as the standard query language. It is used to interact with the database like MySQL. MySQL is a database that stores various types of data and keeps it safe.

A PHP script is required to store and retrieve the values inside the database.

SQL is a computer language, whereas MySQL is a software or an application

SQL is used for the creation of database management systems whereas MySQL is used to enable data handling, storing, deleting and modifying data

**5) What is the difference between database and table?**

There is a major difference between a database and a table. The differences are as follows:

* Tables are a way to represent the division of data in a database while the database is a collection of tables and data.
* Tables are used to group the data in relation with each other and create a dataset. This dataset will be used in the database. The data which are stored in the table in any form is a part of the database, but the reverse is not true.
* A database is a collection of organized data and also features which are used to access them, whereas table is a collection of rows and columns which are used to store the data.

**6) Why do we use the MySQL database server?**

First of all MYSQL server is free to use for developers and a small fee for enterprises.

MySQL server is open source.

The community of MySQL is tremendous and supportive hence any help regarding MySQL is resolved as soon as possible.

MySQL has very stable versions available, as MySQL has been in the market since a long time so all bugs arising in the previous builds have been continuously removed and a very stable version is provided after every update.

The MySQL database server is very fast, reliable and easy to use. You can easily use and modify the software. MySQL software can be downloaded free of cost from the internet.

**7) What are the different tables present in MySQL?**

There are many tables that remain present by default. But, MyISAM is the default database engine used in MySQL. There are five types of tables that are present:

* MyISAM
* Heap
* Merge
* INNO DB
* ISAM

**8) What is the difference between CHAR and VARCHAR?**

A list of differences between CHAR and VARCHAR:

* CHAR is variable-length whereas VARCHAR is of fixed length.
* CHAR and VARCHAR types are different in storage and retrieval.
* CHAR column length is fixed to the length that is declared while creating a table. The length value ranges from 1 and 255.
* When CHAR values are stored when they are right-padded using spaces to a specific length. Trailing spaces are removed when CHAR values are retrieved.
* CHAR uses static memory allocation whereas VARCHAR uses dynamic memory allocation.
* CHAR is 50% faster than VARCHAR.

**9) What is the difference between TRUNCATE and DELETE in MySQL?**

TRUNCATE is a DDL command, DELETE is a DML command.

It is not possible to use Where command with TRUNCATE but you can use it with DELETE command.

TRUNCATE cannot be used with indexed views whereas DELETE can be used with indexed views.

The DELETE command is used to delete data from a table. It only deletes the rows of data from the table while, truncate is very dangerous command and should be used carefully because it deletes every row permanently from a table.

**10) How many Triggers are possible in MySQL?**

There are only six Triggers allowed to use in MySQL database.

1. Before Insert
2. After Insert
3. Before Update
4. After Update
5. Before Delete
6. After Delete

**11) What is heap table?**

Tables that are present in memory is known as HEAP tables. When you create a heap table in MySQL, you should need to specify the TYPE as HEAP. These tables are commonly known as memory tables. They are used for high-speed storage on a temporary basis. They do not allow BLOB or TEXT fields.

**12) What is BLOB and TEXT in MySQL?**

**BLOB** is an acronym stands for a large binary object. It is used to hold a variable amount of data.

There are four types of BLOB.

1. TINYBLOB
2. BLOB
3. MEDIUMBLOB
4. LONGBLOB

The differences among all these are the maximum length of values they can hold.

**TEXT** is a case-insensitive BLOB. TEXT values are non-binary strings (character string). They have a character set, and values are stored, and compared based on the collation of the character set.

There are four types of TEXT.

1. TINYTEXT
2. TEXT
3. MEDIUMTEXT
4. LONGTEXT

**13) What is a trigger in MySQL?**

A trigger is a set of codes that executes in response to some events.

**14) What is the difference between heap table and temporary table?**

**Heap tables:**

Heap tables are found in memory. They are used for high-speed storage on a temporary basis. They do not allow BLOB or TEXT fields.

Heap tables do not support AUTO\_INCREMENT.

Indexes should be NOT NULL.

**Temporary tables:**

The temporary tables are used to keep the transient data. Sometimes it is beneficial in cases to hold temporary data. The Temporary table is deleted after the current client session terminates.

**Main differences:**

The heap tables are shared among clients while temporary tables are not shared.

Heap tables are just another storage engine, while for temporary tables you need a special privilege (create temporary table).

**15) What is the difference between FLOAT and DOUBLE?**

FLOAT stores floating point numbers with accuracy up to 8 places and allocates 4 bytes, on the other hand DOUBLE stores floating point numbers with accuracy up to 18 places and allocates 8 bytes.

**16) What are the advantages of MySQL in comparison to Oracle?**

1. MySQL is a free, fast, reliable, open source relational database while Oracle is expensive, although they have provided Oracle free edition to attract MySQL users.
2. MySQL uses only just under 1 MB of RAM on your laptop while Oracle 9i installation uses 128 MB.
3. MySQL is great for database enabled websites while Oracle is made for enterprises.
4. MySQL is portable.

**17) What are the disadvantages of MySQL?**

1. MySQL is not so efficient for large scale databases.
2. It does not support COMMIT and STORED PROCEDURES functions version less than 5.0.
3. Transactions are not handled very efficiently.
4. Functionality of MySQL is highly dependent of other addons.
5. Development is not community driven.

**18) What is the difference between CHAR and VARCHAR?**

1. CHAR and VARCHAR are differ in storage and retrieval.
2. CHAR column length is fixed while VARCHAR length is variable.
3. The maximum no. of character CHAR data type can hold is 255 character while VARCHAR can hold up to 4000 character.
4. CHAR is 50% faster than VARCHAR.
5. CHAR uses static memory allocation while VARCHAR uses dynamic memory allocation.

**19) What is the difference between MySQL\_connect and MySQL\_pconnect?**

**Mysql\_connect:**

1. It opens a new connection to the database.
2. Every time you need to open and close database connection, depending on the request.
3. Opens page whenever it is loaded.

**Mysql\_pconnect:**

1. In Mysql\_pconnect, "p" stands for persistent connection so it opens the persistent connection.
2. The database connection cannot be closed.
3. It is more useful if your site has more traffic because there is no need to open and close connection frequently and every time when page is loaded.

**20) What does "i\_am\_a\_dummy flag" do in MySQL?**

The "i\_am\_a\_dummy flag" enables MySQL engine to refuse any UPDATE or DELETE statement to execute if the WHERE clause is not present. Hence it can save the programmer from deleting the entire table my mistake if he does not use WHERE clause.

**21) How to get the current date in MySQL?**

To get current date, use the following syntax:

1. SELECT CURRENT\_DATE();

**22) What are the security alerts while using MySQL?**

Install antivirus and configure the operating system's firewall.

Never use the MySQL Server as the UNIX root user.

Change root username and password Restrict or disable remote access.

**23) How to change a password for an existing user via Mysqladmin?**

Mysqladmin -u root -p password "newpassword".

**24) What is the difference between Unix timestamps and MySQL timestamps?**

Actually both Unix timestamp and MySQL timestamp are stored as 32-bit integers but MySQL timestamp is represented in readable format of YYYY-MM-DD HH:MM:SS format.

**25) How to display Nth highest salary from a table in a MySQL query?**

Let us take a table named the employee.

**To find Nth highest salary is:**

**select distinct**(salary)**from** employee **order by** salary **desc** limit n-1,1

if you want to find 3rd largest salary:

**select distinct(salary)from employee order by salary desc limit 2,1**

**26) What is MySQL default port number?**

MySQL default port number is 3306.

**27) What is REGEXP?**

REGEXP is a pattern match using a regular expression. A Regular expression is a powerful way of specifying a pattern for a sophisticated search.

Basically it is a special text string for describing a search pattern. To understand it better you can think of a situation of daily life when you search for .txt files to list all text files in the file manager. The regex equivalent for .txt will be .\*\.txt.

**28) How many columns can you create for an index?**

You can create maximum of 16 indexed columns for a standard table.

**29) What is the difference between NOW() and CURRENT\_DATE()?**

NOW() command is used to show current year, month, date with hours, minutes and seconds while CURRENT\_DATE() shows the current year with month and date only.

**30) What is the query to display top 20 rows?**

**SELECT \* FROM** table\_name LIMIT 0,20;

**31) Write a query to display current date and time?**

If you want to display current date and time, use -

**SELECT** NOW();

If you want to display current date only, use:

**SELECT CURRENT\_DATE**();

**32) What is save point in MySQL?**

A defined point in any transaction is known as savepoint.

SAVEPOINT is a statement in MySQL which is used to set a named transaction save point with a name of identifier.

**33) What is SQLyog?**

SQLyog program is the most popular GUI tool for admin. It is the most popular MySQL manager and admin tool. It combines the features of MySQL administrator, phpMyadmin and others MySQL front ends and MySQL GUI tools.

**34) How do you backup a database in MySQl?**

It is easy to back up data with phpMyAdmin. Select the database you want to backup by clicking the database name in the left-hand navigation bar. Then click the export button and make sure that all tables are highlighted that you want to back up. Then specify the option you want under export and save the output.

**35) What are the different column comparison operators in MySQL?**

The =, <>, <=, <, >=, >, <<, >>, < = >, AND, OR or LIKE operator are the comparison operators in MySQL. These operators are generally used with SELECT statement.

**36) Write a query to count the number of rows of a table in MySQL.**

**SELECT COUNT** user\_id FROM users;

**37) Write a query to retrieve a hundred books starting from 20th.**

**SELECT** book\_title FROM books LIMIT 20, 100;

**38) Write a query to select all teams that won either 1, 3, 5 or 7 games.**

**SELECT** team\_name FROM team WHERE team\_won IN (1, 3, 5, 7);

**39) What is the default port of MySQL Server?**

The default port of MySQL Server is 3306.

**40) How is MyISAM table stored?**

MyISAM table is stored on disk in three formats.

* '.frm' file : storing the table definition
* '.MYD' (MYData): data file
* '.MYI' (MYIndex): index file

**41) What is the usage of ENUMs in MySQL?**

ENUMs are string objects, by defining ENUMs we allow the end user to give correct input as in case the user provides an input which is not part of the ENUM defined data then the query won't execute and an error message will be displayed which says "Wrong Query". For instance suppose we want to take the gender of the user as an input so we specify ENUM('male', 'female', 'other') and hence whenever the user tries to input any string any other than these three it results in an error.

ENUMs are used to limit the possible values that go in the table:

**For example:**

CREATE TABLE months (month ENUM 'January', 'February', 'March'); INSERT months VALUES ('April').

**42) What are the advantages of MyISAM over InnoDB?**

MyISAM follows a conservative approach to disk space management and stores each MyISAM table in a separate file, which can be further compresses, if required. On the other hand, InnoDB stores the tables in tablespace. Its further optimization is difficult.

**43) What are the differences between MySQL\_fetch\_array(), MySQL\_fetch\_object(), MySQL\_fetch\_row()?**

Mysql\_fetch\_object is used to retrieve the result from the database as objects while mysql\_fetch\_array returns result as an array. This will allow access to the data by the field names.

**For example:**

Using mysql\_fetch\_object field can be accessed as $result->name.

Using mysql\_fetch\_array field can be accessed as $result->[name].

Using mysql\_fetch\_row($result) where $result is the result resource returned from a successful query executed using the mysql\_query() function.

**Example:**

1. $result = mysql\_query("SELECT \* from students");
2. while($row = mysql\_fetch\_row($result))
3. {
4. Some statement;
5. }

**44) What is the difference between mysql\_connect and mysql\_pconnect?**

Mysql\_connect() is used to open a new connection to the database while mysql\_pconnect() is used to open a persistent connection to the database. It specifies that each time the page is loaded mysql\_pconnect() does not open the database.

**45) What is the use of mysql\_close()?**

Mysql\_close() cannot be used to close the persistent connection. Though it can be used to close connection opened by mysql\_connect().

**46) What is MySQL data directory?**

MySQL data directory is a place where MySQL stores its data. Each subdirectory under this data dictionary represents a MySQL database. By default the information managed my MySQL = server mysqld is stored in data directory.

**47) How do you determine the location of MySQL data directory?**

The default location of MySQL data directory in windows is C:\mysql\data or C:\Program Files\MySQL\MySQL Server 5.0 \data.

**48) What is the usage of regular expressions in MySQL?**

In MySQL, regular expressions are used in queries for searching a pattern in a string.

* \* Matches 0 more instances of the string preceding it.
* + matches one more instances of the string preceding it.
* ? Matches 0 or 1 instances of the string preceding it.
* . Matches a single character.
* [abc] matches a or b or z
* | separates strings
* ^ anchors the match from the start.
* "." Can be used to match any single character. "|" can be used to match either of the two strings
* REGEXP can be used to match the input characters with the database.

**Example:**

The following statement retrieves all rows where column employee\_name contains the text 1000 (example salary):

* 1. Select employee\_name
  2. From employee
  3. Where employee\_name REGEXP '1000'
  4. Order by employee\_name

**49) What is the usage of "i-am-a-dummy" flag in MySQL?**

In MySQL, the "i-am-a-dummy" flag makes the MySQL engine to deny the UPDATE and DELETE commands unless the WHERE clause is present.

**50) Which command is used to view the content of the table in MySQL?**

The SELECT command is used to view the content of the table in MySQL.

**51) Explain Access Control Lists.**

An ACL is a list of permissions which are associated with an object. MySQL keeps the Access Control Lists cached in memory and whenever the user tries to authenticate or execute a command, MySQL checks the permission required for the object and if the permissions are available then execution completes successfully.

**52) What is InnoDB?**

InnoDB is a storage database for SQL. The ACID-transactions are also provided in addition InnoDB also includes support for the foreign key. Initially owned by InnobaseOY now belongs to Oracle Corporation after it acquired the latter since 2005.

**53. What is ISAM?**

It is a system for file management developed by IBM which allows records to access sequentially or even randomly.

**54. How can we run batch mode in MySQL?**

To perform batch mode in MySQL we use the following command:

mysql;

mysql mysql.out;

**55. What are federated tables?**

Federated tables are tables which points to the tables located on other databases on some other server.

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

To identify each row of a table, a primary key is used. For a table, there exists only one primary key.

A candidate key is a column or a set of columns which can be used to uniquely identify any record in the database without having to reference any other data.

**57. What are the drivers in MySQL?**

Following are the drivers available in MySQL:

* PHP Driver
* JDBC Driver
* ODBC Driver
* C WRAPPER
* PYTHON Driver
* PERL Driver
* RUBY Driver
* CAP11PHP Driver
* Ado.net5.mxz

**58. What Is DDL, DML, And DCL?**

Majorly SQL commands can be divided into three categories i.e. DDL, DML & DCL. Data Definition Language (DDL) deals with all the database schemas, and it defines how the data should reside in the database. Commands like CreateTABLE and ALTER TABLE are part of DDL.

Data Manipulative Language (DML) deals with operations and manipulations on the data the commands in DML are Insert, Select etc.

Data Control Languages (DCL) are related to the Grant and permissions. In short, the authorization to access any part of database is defined by these.