**Introduction**

When preparing for a MySQL interview, having a strong understanding of key concepts and common questions can make all the difference. Whether you're a seasoned database administrator or a developer looking to brush up on your MySQL knowledge, this blog lists the top 50 MySQL interview questions and answers for 2024.



MySQL is an open-source database that can be used freely by any individual or organization without paying for it and can make modifications in it. This article will discuss 50 commonly asked MySQL interview questions (2024). So, let's get started.

**Basic MySQL Interview Questions**

Given below are some beginner-level MySQL interview questions:

**1. What is MySQL?**

MySQL is a database management system that organizes and manages data in a tabular format and uses structured query language to access, delete or manipulate data.

**2. Why is MySQL used?**

The reasons for using MySQL database are

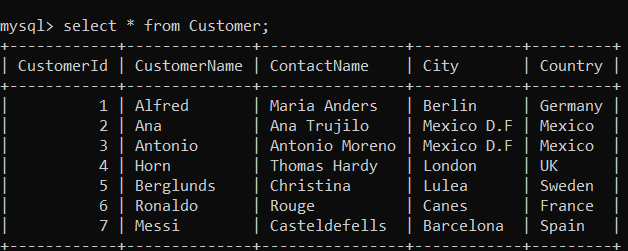
* High availability and security.
* Easy to use.
* Fast and reliable.
* Supports large communities.

**3. What does SQL in MySQL stand for?**

SQL stands for Structured Query Language; it manipulates data by sending query requests to the MySQL server. One can use the command to send requests from the database.

In this query CustomerName, City is the column name, and Customers is a table name. Whereas SELECT and FROM are the commands in SQL.

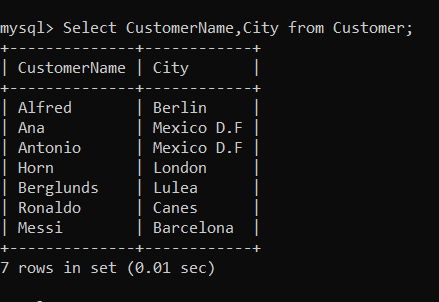
**Customer Table:**



**Query** -

SELECT CustomerName, City FROM Customers;

**Output -**



**4. What are MySQL database queries?**

A query is a way to interact with a database. One can send a query to the database for specific information and get a record out of it based on the condition of the requests.

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

MySQL database contains multiple tables containing rows and columns as a record. The column represents the data fields, and the rows represent a data count in a particular table.

**6. How do you create a database in MySQL?**

There are two ways to create a database in MySQL. One can use the commands given below to create a database.

CREATE DATABASE “Colors”;

CREATE DATABASE IF NOT EXISTS “Colors”;

It is better to use the second query; it prevents errors as if any database with the same designation already exists in the MySQL server.

**7. How do you remove a column from a database?**

You can remove a column from the database by using the DROP keyword. One can use the below command to remove a column.

DROP DATABASE “database\_name”;

**8. What are the String datatypes in MySQL?**

There are various string datatypes in MySQL.

| **Data type** | **Meaning** |
| --- | --- |
| CHAR | Fixed-length non-binary string. |
| VARCHAR | Variable length non-binary string. |
| BINARY | Fixed-length binary string. |
| VARBINARY | Variable length binary string. |
| ENUM | Each column is assigned one enumeration number. |
| TEXT | Small non-binary string. |

**9. What do you mean by databases?**

A database is a collection of information in a systematic and organized form that is stored in the system to be accessed and searched quickly.

**10. How can we interact with MySQL?**

There are three ways to interact with MySQL

* By using a programming language.
* Using a command line interface.
* Via a web interface.

**11. What is BLOB in MySQL?**

BLOB stands for a binary large object. It holds a large amount of data, such as documents, images, videos, etc.

There are four types of BLOB:

* TINYBLOB
* BLOB
* MEDIUMBLOB
* LARGEBLOB

**12. What is a primary key?**

A primary key is a column or set of columns in a table that uniquely identifies each row. It must contain unique values and cannot have NULL values. Primary keys are used to ensure data integrity and to establish relationships between tables.

**13. What is an index in MySQL?**

An index is a data structure that improves the speed of data retrieval operations on database tables. It allows the database engine to find and access specific rows much faster without having to search every row in a table. Common types of indexes include B-tree, hash, and full-text indexes.

**14. What is the use of the AUTO\_INCREMENT attribute in MySQL?**

The AUTO\_INCREMENT attribute is used to automatically generate a unique value for a column, typically used for primary keys. When a new record is inserted into the table, MySQL automatically increments the value by 1 from the last inserted value.

**15. What is a foreign key?**

A foreign key is a column or set of columns in one table that refers to the primary key in another table. It establishes a link between two tables, maintaining referential integrity and defining relationships between tables in a relational database.

**16. How can we optimize MySQL queries?**

We can optimize MySQL queries by:

* Using appropriate indexes
* Avoiding SELECT \* and retrieving only necessary columns
* Using EXPLAIN to analyze query execution plans
* Optimizing JOIN operations
* Using appropriate data types
* Limiting the result set with LIMIT clause
* Avoiding subqueries where possible
* Regular database maintenance

**Intermediate MySQL Interview Questions**

Given below are some intermediate-level MySQL interview questions:

**17. What are MySQL Triggers?**

In MySQL, the trigger is a stored program that invokes automatically in response to an event such as insert, delete, or update occurring on a table.

The SQL standard defines two types of triggers such as row-level and statement-level.

* Row-level trigger activates after affecting each row in a table.
* Statement-level trigger activates after every transaction, regardless of how many rows are affected.

**18. How many triggers are possible in MySQL?**

There are six triggers used in MySQL

* Before Insert.
* After Insert.
* Before Delete.
* After Delete.
* Before Update.
* After Update.

**19. What are the types of relationships used in MySQL?**

There are three types of relationships in MySQL.

* **One-to-One -**In a one-to-one relationship, a record in one table has a relationship with exactly one record in another.
* **One-to-Many -**In a one-to-many relationship, a record in one table is related to more than one record in another table.
* **Many-to-Many -**In many-to-many relationships, many rows in one table are linked with multiple records in another table.

**20. Define Joins in MySQL. Mention its types.**

A join is a clause in MySQL that combines rows from two or more tables based on a common column between them.

There are different types of joins in MySQL, such as:

* **INNER Join -** The INNER join is used to select common records from both tables.
* **LEFT Join** - The LEFT keyword selects all the records from the left table and the common records from both tables.
* **RIGHT Join** - The RIGHT keyword selects all the records from the right table and the common records from both tables.
* **FULL Join -**The FULL Join keyword return all the records when there is a match in left or right table records.

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

Some of the differences between CHAR and VARCHAR are given below.

| **CHAR** | **VARCHAR** |
| --- | --- |
| CHAR datatype is used to store a string of fixed length. | VARCHAR datatype is used to store a string of variable length. |
| The CHAR datatype's storage size is equal to n bytes. | The storage size in VARCHAR datatype is the equal actual length of the entered string in bytes. |
| Takes 1 byte for each character. | It takes 1 byte for each character and some extra bytes for holding length information. |

**22. What does a TIMESTAMP do on the UPDATE CURRENT\_TIMESTAMP data type?**

The TIMESTAMP column gets updated with zero when the table is created. Whenever a change occurs in the field, the UPDATED CURRENT\_TIMESTAMP modifier updates the time to the current time.

**23. What are MySQL ”Views”?**

MySQL views consist of rows and columns that are returned after the execution of a particular query. We can retrieve the data separately with the help of views by using the alias keyword.

There are some advantages to views.

* Security
* Maintainability
* Simplicity

**24. What objects can be created using CREATE statement?**

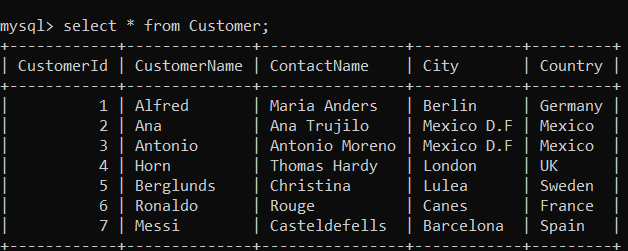
Below are some objects that can be created using CREATE statement

* EVENT
* FUNCTION
* DATABASE
* PROCEDURE
* INDEX
* TABLE
* TRIGGER
* VIEW
* USER

**25. What is the difference between the LIKE and REGEXP operators?**

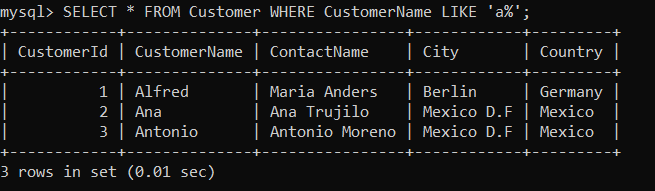
LIKE and REGEXP operators are used to express with “^” and “%”. One can use the LIKE and REGEXP operators in the following way.

**Customer Table:**



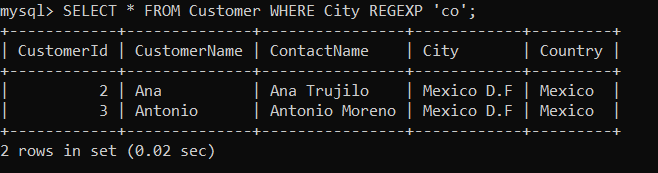
SELECT \* FROM Customers WHERE CustomerName LIKE 'a%';

**Output -**



SELECT \* FROM Customer WHERE City REGEXP 'co';

**Output -**

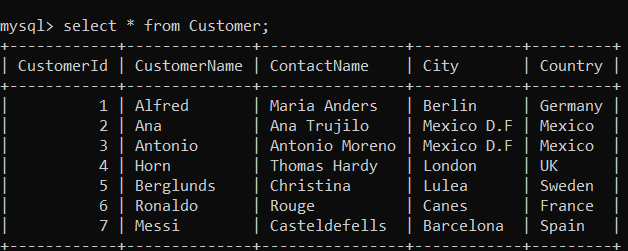


In the above commands, SELECT is used for selecting the data. FROM is used for the table. WHERE is a conditional keyword. LIKE and REGEXP is used with the conditional operator.

**26. How do you create and execute views in MySQL?**

We can create MySQL views with CREATE VIEW statement. By following the below command, you can create a view.

**Customer Table:**



CREATE VIEW Mexico\_Customers AS SELECT CustomerName, ContactName

FROM Customers WHERE Country = 'Mexico';

In the above command, CREATE VIEW syntax is used for creating the view by selecting a different table based on a given condition.

**Output** -

**27. What are all the Common SQL Functions?**

The common SQL functions are:

* **CONCAT** - Combines two string input values to create a single string output.
* **CURRDATE, CURRTIME** - Returns the current date and time.
* **FORMAT** - Formats the function X to D significant digits.
* **SUBTIMES** - Determines the difference between two times.
* **DATEDIFF** - Determines the difference between two dates.
* **NOW** - Returns the current date and time as one value.
* **HOUR(), MINUTE(), SECOND()** – Extracts the given data from a time value.
* **FROMDAYS(INT)** – Converts an integer number of days into a date value.

**28. What is the difference between INNER JOIN and OUTER JOIN in MySQL?**

An INNER JOIN returns only the rows that have matching values in both the tables being joined. On the other hand, an OUTER JOIN returns all rows from one table and the matching rows from the other table. If there is no match, the result will contain NULL values for the columns from the non-matching table.

**29. What do you mean by normalization and denormalization?**

Normalization is the process of organizing data to reduce redundancy. It helps to improve the data integrity. It involves dividing large tables into smaller ones. Then it defines the relationships between them. There are several normal forms (1NF, 2NF, 3NF, BCNF, etc.). Each of the normal forms has specific rules.

On the other hand, denormalization is the opposite process. In this process, we can add redundant data to one or more tables to improve read performance. This is often done in data warehousing scenarios where query speed is more critical than data redundancy.

**30. What are the differences between DELETE and TRUNCATE in MySQL?**

DELETE removes specific rows from a table. It allows the use of a WHERE clause to filter which rows to delete. It logs each deleted row. This makes it slower but allows for a rollback. On the other hand, TRUNCATE removes all rows from a table. It doesn't log individual row deletions. It is faster than DELETE but does not allow for a rollback.

**31. What is the difference between MyISAM and InnoDB storage engines?**

There are several differences between MyISAM and InnoDB storage engines:

* **Transaction support:** InnoDB supports transactions, MyISAM doesn't
* **Foreign key support:** Only InnoDB supports foreign keys
* **Table-level locking vs row-level locking:** MyISAM uses table-level, InnoDB uses row-level
* **ACID compliance:**InnoDB is fully ACID compliant, MyISAM is not
* **Full-text search:** Both support it, but MyISAM was traditionally faster (though InnoDB has improved)

**32. How do we update data in a MySQL table?**

We can update data in a MySQL table using the UPDATE statement. For example:

UPDATE table\_name

SET column\_name = 'new\_value'

WHERE condition;

This command updates the column\_name to new\_value for the rows that match the specified condition.

**33. What are the differences between HAVING and WHERE clauses?**

* The WHERE clause is used to filter rows before grouping (with GROUP BY)
* The HAVING clause is used to filter groups after grouping
* The WHERE clause works on individual rows, HAVING works on groups
* The WHERE clause can't be used with aggregate functions, HAVING can

**34. What is a subquery in MySQL?**

A subquery is a query nested within another SQL query. It is used to perform operations that require data from one query then we can use it as input for another. We can use Subqueries in SELECT, INSERT, UPDATE, or DELETE statements.

**35. What is a transaction in MySQL, and how do we manage it?**

A transaction in MySQL is a sequence of one or more SQL operations executed as a single unit of work. Transactions ensure data integrity by allowing you to commit all changes if successful or roll back all changes if any part fails. We can manage transactions using:

* START TRANSACTION to begin a transaction.
* COMMIT to save changes.
* ROLLBACK to undo changes.

Also see, [Power Electronics Interview Questions](https://www.naukri.com/code360/library/power-electronics-interview-questions)

**Advanced MySQL Interview Questions**

Given below are some advanced-level MySQL interview questions:

**36. What is the difference between mysql\_fetch\_array and mysql\_fetch\_object?**

Below are some differentiating points listed:

| **mysql\_fetch\_array** | **mysql\_fetch\_object** |
| --- | --- |
| It returns a result row as an associative array and numeric array. | It returns a row of the result set. |
| It takes one parameter, which is the result. | It takes two parameters: a class name and an array of parameters. |
| Returns value in an array of strings. | Returns an object with string properties for the accessed row. |

Read more, [wc command in linux](https://www.naukri.com/code360/library/wc-command-in-linux" \t "_blank)

**37. What is Scaling in MySQL?**

In MySQL, scaling is the ability of the MySQL server to handle the load. The load here can be seen from different angles, such as

* Number of users.
* User Activity,
* Size of the related dataset,
* Quantity of data.

**38. What is Sharding ?**

Sharding refers to breaking up the tables into smaller parts called shards. After breaking up, spread them across multiple servers. The main advantage of sharding is that since shards are generally much smaller, it is very easy to maintain and handle all the tasks much faster.

**39. What are the MySQL clients and utilities?**

There are several MySQL programs are available to communicate with the server. Some of them are listed here:

* **mysql** - This program enables you to send requests to the MySQL server and get the result. It can also be used to execute batch scripts.
* **mysqladmin**- This program is used for performing the tasks such as shutting down the server, checking its configuration, or monitoring its status if it appears not functioning properly.
* **mysqldump**- This tool is used for backing up your database by storing its copy on another server.
* **mysqlcheck and myisamchk** - These programs help you perform table checking, analysis, and optimization and repair them if they become damaged. Mysqlcheck works with MyISAM tables and, to some extent, with tables for other storage engines. Myisamchk is for use only with MyISAM tables.

**40. What are Heap tables?**

Heap tables are present in the memory and used for high-speed storage on a temporary basis. Some of the properties of heap tables are listed here:

* Auto-increment is not supported by heap tables.
* Indexes should not be null.
* Only comparison operators can be used =, >, <, =>, =<.
* BLOB or TEXT fields are not allowed.

**41. Explain Access Control Lists.**

An access control list is a permission that is associated with an object. It is a basis for MySQL server’s security model, and it also helps in troubleshooting problems.

MySQL server keeps this list in cached memory. When a user tries to authenticate or run a command, MySQL checks the authentication information and takes permission against the ACLs in the given order.

**42. Where will the MyISAM table be stored? Give their storage formats.**

MyISAM table is stored on disk. It is stored in three formats.

* “.frm’” file stores the table definition.
* “.MYD” (MYData) extension stores a data file.
* “.MYI” (MYIndex) extension stores an index file.

**43. What are the different tables present in MySQL?**

There is a total of five types of tables present in MySQL:

* Heap
* Merge
* MyISAM
* INNODB
* ISAM

**44. What are Transaction Storage Engines in MySQL?**

A storage engine is a software module that a database management system uses to create, read, and update data from a database. One must use MySQL’s Inno DB storage engine to use MySQL transaction facility. The default storage engine prior to MySQL version 5.5 is MyISAM.

**45. Explain the ACID properties in the context of database transactions.**

ACID stands for Atomicity, Consistency, Isolation, and Durability. MySQL ensures transaction consistency by following these principles. Atomicity ensures that a transaction is treated as a single, indivisible unit. Consistency ensures that a transaction brings the database from one consistent state to another. Isolation ensures that concurrent transactions do not interfere with each other. Durability guarantees that once a transaction is committed, its changes are permanent.

**46. What are stored procedures in MySQL, and when would you use them in database design? Provide an example of a stored procedure.**

Stored procedures are precompiled SQL statements that can be stored and executed in the database. They are used to encapsulate a series of SQL operations into a single callable routine. For example, here's a simple MySQL stored procedure that retrieves customer information:

DELIMITER //

CREATE PROCEDURE GetCustomerInfo(IN customerId INT)

BEGIN

SELECT \* FROM Customers WHERE CustomerID = customerId;

END //

DELIMITER ;

**47. What are MySQL partitions, and how do they help to improve performance?**

MySQL partitions involve dividing a table into multiple smaller, more manageable pieces, called partitions, while still treating them as a single table. Each partition can be accessed, queried, or managed separately. This can improve query performance, especially for large datasets.

We can do Partitioning by:

* **RANGE:** Partitioning based on a range of values.
* **LIST:** Partitioning based on a list of values.
* **HASH:**Partitioning based on a hash function.
* **KEY:** Similar to HASH but uses MySQL's internal hashing function.

**48. Explain the concept of MySQL replication and its different types.**

MySQL replication is a process where data from one MySQL database server (the master) is copied automatically to one or more MySQL database servers (the slaves). Types of replication include:

1. **Asynchronous replication:** The default type where the master writes events to its binary log and slaves request these events asynchronously.
2. **Semi-synchronous replication:**The master waits for at least one slave to acknowledge receipt of events before committing.
3. **Synchronous replication:** Ensures that data is written to both master and slave before considering the transaction complete.
4. **Group replication:** Multiple servers work together to keep data consistent across a group.

**49. How do we handle deadlocks in MySQL?**

Deadlocks occur when two or more transactions are waiting for each other to release locks. It can cause a cycle of dependency. It prevents any transaction from completing. To handle deadlocks:

* **Identify Deadlocks:** Use the SHOW ENGINE INNODB STATUS command to identify deadlocks.
* **Optimize Queries:** Ensure that transactions access resources in a consistent order to minimize the chances of deadlocks.
* **Locking Strategy:** Use less restrictive locks or consider using lower isolation levels.
* **Retry Logic:** Implement retry logic in the application to handle deadlocks gracefully by rolling back and retrying the transaction.

**50. How does MySQL implement Multi-Version Concurrency Control (MVCC)?**

MVCC in MySQL (specifically in InnoDB) works by:

1. Maintaining multiple versions of a row
2. Assigning a transaction ID to each version
3. Using these versions to provide consistent reads without locking

When a transaction starts, it gets a consistent snapshot of the database. Modifications create new versions of rows, while the old versions are retained for ongoing transactions. This allows read operations to proceed without being blocked by write operations, improving concurrency.

**51. How does MySQL handle full-text searching and what are its limitations?**

MySQL provides full-text searching capabilities through:

1. **Natural Language Mode:**Searches for words and phrases.
2. **Boolean Mode:**Allows for more complex queries with operators.
3. **Query Expansion:** Adds related words to the search.

We can create Full-text indexes on MyISAM and InnoDB tables. Limitations include:

* Minimum word length (configurable, default is 3 characters)
* Stopword filtering (common words are ignored)
* Limited to specific storage engines
* Performance can degrade with very large datasets

**MySQL MCQ Questions**

**1. Which of the following is the correct syntax to create a database in MySQL?**

a) CREATE DB database\_name;  
b) CREATE DATABASE database\_name;  
c) NEW DATABASE database\_name;  
d) INIT DATABASE database\_name;

**Answer:** b) CREATE DATABASE database\_name;

**2. What does the TRUNCATE command do in MySQL?**

a) Deletes all rows from a table and the table itself  
b) Deletes all rows from a table without logging individual row deletions  
c) Deletes specific rows based on a condition  
d) Deletes a column from a table

**Answer:** b) Deletes all rows from a table without logging individual row deletions

**3. Which of the following MySQL functions is used to get the current date and time?**

a) CURRENT\_TIMESTAMP()  
b) NOW()  
c) GETDATE()  
d) DATE()

**Answer:** b) NOW()

**4. How can you remove duplicate records from a table in MySQL?**

a) Using DELETE DISTINCT  
b) Using DELETE UNIQUE  
c) Using DELETE with a JOIN  
d) Using DELETE with a WHERE clause

**Answer:** c) Using DELETE with a JOIN

**5. Which MySQL clause is used to filter records after grouping?**

a) WHERE  
b) GROUP BY  
c) HAVING  
d) ORDER BY

**Answer:** c) HAVING

**6. What type of join returns all records from the left table and matched records from the right table in MySQL?**

a) INNER JOIN  
b) RIGHT JOIN  
c) LEFT JOIN  
d) FULL OUTER JOIN

**Answer:** c) LEFT JOIN

**7. In MySQL, which data type is used to store large amounts of text?**

a) VARCHAR  
b) CHAR  
c) TEXT  
d) BLOB

**Answer:** c) TEXT

**8. Which of the following is not a valid aggregate function in MySQL?**

a) SUM()  
b) COUNT()  
c) MAX()  
d) JOIN()

**Answer:** d) JOIN()

**9. How can you change the structure of an existing table in MySQL?**

a) MODIFY TABLE  
b) CHANGE TABLE  
c) ALTER TABLE  
d) UPDATE TABLE

**Answer:** c) ALTER TABLE

**10. Which of the following statements is used to remove a stored procedure in MySQL?**

a) DELETE PROCEDURE procedure\_name;  
b) DROP PROCEDURE procedure\_name;  
c) REMOVE PROCEDURE procedure\_name;  
d) CLEAR PROCEDURE procedure\_name;

**Answer:** b) DROP PROCEDURE procedure\_name;

**Frequently Asked Questions**

**What is SQL and MySQL Interview Questions?**

SQL and MySQL interview questions pertain to commonly asked questions and topics during interviews related to the MySQL relational database management system. Before attending an SQL and MySQL interview we should read these questions and their answers.

**What are the questions asked in MySQL interview?**

MySQL interview questions cover topics such as database design, SQL queries, indexing, normalization, and more to assess a candidate's knowledge of MySQL.

**Why to use MySQL?**

MySQL is favored for its open-source nature, speed, reliability, and scalability. It's widely used in web applications, data-driven websites, and various software projects.

**In which language MySQL is written?**

MySQL is primarily coded in C and C++. These languages were chosen for their top-notch performance, system resource control, portability across various operating systems, and ease of integration with other languages and libraries. This combination ensures that MySQL is both high-performing and versatile, making it a popular and powerful database system.

**Conclusion**

In this article, we have covered the 50 MySQL interview questions (2024). Preparing for a MySQL interview requires a solid understanding of both fundamental and advanced concepts in database management. This blog has provided a comprehensive collection of MySQL interview questions, ranging from basic to advanced levels, along with practical examples and explanations.

We hope that this blog has helped you enhance your knowledge regarding MySQL Interview questions, and if you would like to learn more, check out our other articles -

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