**MYSql Interview questions**

MySQL is a freely available open source Relational Database Management System (RDBMS) that uses Structured Query Language (SQL).

SQL is the most popular language for adding, accessing and managing content in a database. It is most noted for its quick processing, proven reliability, ease and flexibility of use. MySQL is an essential part of almost every open source PHP application.

It performs many operation but among then joins are most popular and used operation.

The SQL statement that is used to make a connection between two or more tables based on the matching columns is called a join. It is mainly used for complex queries.

**Different Types of SQL joins are mentioned below and are often asked in an interview.**

* **Inner Join**: It is a default join. It returns records when the values match in the joining tables.
* **Left Outer Join:** It returns all the records from the left table based on the matched records from the right table.
* **Right Outer Join:** It returns all the records from the right table based on the matched records from the left table.
* **Full Outer Join:** It returns all the records that match from the left or right table.

1. **What is the default port number of mysql.**

The default port number of MySQL is 3306.

1. **What are the purpose of using ENUM and SET data types ?**

In mysql, ENUM data type is used to select any one value from the predefined list whereas SET data types is used to select one or more values from the predefined list. These data types are defined to restrict the fields so that only predefined fields can be inserted.

1. **What are differences between a primary key and a foreign key?**

The database tables(relations) uses a primary key to identify each row uniquely. It is necessary to declare primary key in the tables which require relationship among them.

* Foreign key is used to show relationship between tables. In other words, when the primary key of any table is used in another table to establish relationship, is called foreign key.
* Difference between Primary Key and Foreign Key.
* The primary key uniquely identifies a record, whereas foreign key refers to the primary key of another table.
* The primary key can never accept a NULL value but foreign key accepts a NULL value.
* When a record is deleted from the table that contains the primary key then the corresponding record must be deleted from the table containing the foreign key for data consistency. But any record can be deleted from the table that contains a foreign key without deleting a related record of another table

1. **What are the difference between CHAR and VARCHAR data types?**

* CHAR data type is used to store fixed-length string data whereas the VARCHAR data type is used to store variable-length string data.
* The storage size of the CHAR data type will always be the maximum length of this data type and the storage size of VARCHAR will be the length of the inserted string data. Hence, it is better to use the CHAR data type when the length of the string will be the same length for all the records.
* CHAR is used to store small data whereas VARCHAR is used to store large data.
* **CHAR works faster and VARCHAR works slower.**

1. **How can you eliminate duplicate data while retrieving records from the table?**

A **DISTINCT** keyword is used to filter out the duplicate data from the table while retrieving records from the table.

**Example:**

SELECT DISTINCT name FROM `clients`

1. **WHAT is difference between NOW() and CURRENT\_DATE()?**

Both **NOW()** and **CURRENT\_DATE()** are built-in MySQL methods. **NOW()** is used to show the current date and time of the server and **CURRENT\_DATE()** is used to show only the date of the server.

Example:

Select NOW()

Select CURRENT\_DATE()

1. **What is the purpose of using HEAP Table?**

The table which uses a hashed index and stores in the memory is called the HEAP table. It works as a temporary table and it uses the indexes that make it faster than another table type.

When MySQL crashes for any reason then all the data stored in this table can be lost. It uses fixed-length data types. Hence BLOB and TEXT data types are not supported by this table. It is a useful table for those MySQL tasks where speed is the most important factor and temporary data is used.

1. **What is index in mysql? Why it is used ?**

An index is a data structure of a MySQL table that is used to speed up the queries.

It is used by the database search engine to find out the records faster. One or more fields of a table can be used as an index key. Index key can be assigned at the time of table declaration or can be assigned after creating the table.

1. **What is meant by a decimal (5,2) ?**

The meaning of decimal (5,2) means that the total length of the fractional value is 5. The field can contain 3 digits before the decimal point and 2 digits after the decimal point.

1. **What is difference between the Primary key and the Unique key?**

The main difference is that the **Primary** key never accept NULL value but a **Unique** key field accept a NULL value.

1. **What IFNULL() function does?**

**IFNULL()** function takes two arguments. It returns the first argument value if the value of the first argument is not NULL and it returns the second argument if the value of the first argument is NULL.

1. **What is difference between DELETE and TRUNCATE?**

There are two main difference between DELETE and TRUNCATE.

* DELETE command is used to delete a single or multiple or all the records from the table. The TRUNCATE command is used to delete all the records from the table or make the table empty.
* When DELETE command is used to delete all the records from the table then it doesn’t re-initialize the table. So, the AUTO\_INCREMENT field does not count from one when the user inserts any record. However when all the records of any table are deleted by using TRUNCATE command then it re-initializes the table and a new record will start from one for the AUTO\_INCREMENT field.

1. **What is storage engine? What are difference between InnoDB and MyISAM engines?**

Mysql provides different storage engine for doing different types of database operations.

Mainly Mysql support **transactional** and **non-transactional** database engines.InnoDB is a transactional database engine which is also a default engine of Mysql, whereas MYISAM is a non-transactional engine.

There are several difference between **InnoDB** and **MyISAM** which are listed below.

* Since InnoDB is transactional engine, it supports ACID (Atomicity, Consistency, Isolation, and Durability) property but MyISAM doesn’t.
* MyISAM is faster and InnoDB is slower.
* MyISAM supports the FULLTEXT index but InnoDB doesn’t support the FULLTEXT index.

1. **What do you understand by Transaction? Explain ACID property.**

When a group of database operations is done as a single unit then it is called a transaction. If any task of the transactional tasks remains incomplete then the transaction will not succeed. Hence, it is mandatory to complete all the tasks of a transaction to make the transaction successful.

A transaction has four properties which are known as ACID property. These properties are described below.

* **Atomicity:**It ensures that all the tasks of a transaction will be completed successfully otherwise all the completed tasks will be rolled back to the previous state for any failure.
* **Consistency:**It ensures that the database state must be changed accurately for the committed transaction.
* **Isolation:**It ensures that all the tasks of a transaction will be done independently and transparently.
* **Durability:**It ensures that all the committed transaction is consistent for any type of system failure.

1. **What is Triggers? How trigger is created it?**

One of the prominent features of the MySQL database is a trigger that executes automatically when a particular database event occurs.

It fires after or before the execution of an insert or update or deletes a statement. It is a very useful option when a database user wants to do some database operations automatically.

**Syntax:**

DELIMITER

**CREATE TRIGGER trigger\_name AFETR DELETE ON table1 for EACH ROW**

**BEGIN**

**DELETE FROM table2 where table.user\_id = old.id**

**END**

1. **How can you copy the content of one table to another table.**

There are multifarious way to copy records of one table to another table. If you want to copy entire data of one table to another table. You can write the following SQL query.

**INSERT INTO TARGET\_TABLE SELECT \* FROM SOURCE\_TABLE;**

If you want to copy some specific columns data, you can write the following SQL query.

**INSERT INTO TARGET\_TABLE (`col1`,`col2`) SELECT `col1`,`col2` FROM SOURCE\_TABLE;**

1. **What is Stored Procedures? What are the advantages and disadvantage of using Stored Procedures.**

A stored procedure is a segment of SQL statements stored inside the MYSQL Server. When first time stored procedure is invoked ,MYSQL looks up for the name in the database catalogue, compile it and place it into the cache memory and then execute it. If you invoke the same stored procedure in the same session again, MySQL just executes the stored procedure from the cache without having to recompile it.

**Creation of Stored procedure:**

**DELIMITER $$**

**CREATE PROCEDURE GetCustomers()**

**BEGIN**

**SELECT**

**customerName,**

**city,**

**state,**

**country**

**FROM**

**customers**

**ORDER BY customerName;**

**END$$**

**DELIMITER ;**

Once you save the stored procedure, you can invoke it by using the CALL statement:

**CALL GetCustomers();**

**Advantages of using Stored Procedure-**

* **Reduce network traffic:**

Stored procedures help reduce the network traffic between applications and MySQL Server. Because instead of sending multiple lengthy SQL statements, applications have to send only the name and parameters of stored procedures.

* **Make database more secure**

The database administrator can grant appropriate privileges to applications that only access specific stored procedures without giving any privileges on the underlying tables.

**Down sides of using Stored Procedure-**

* **Resource usages:**

If you use many stored procedures, the memory usage of every connection will increase substantially.

* **Troubleshooting:**

It’s difficult to debug stored procedures. Unfortunately, MySQL does not provide any facilities to debug stored procedures like other enterprise database products such as Oracle and SQL Server.

1. **What is difference between signed and unsigned data types?**

**Signed variables**, such as signed integers will allow you to represent numbers both in the positive and negative ranges.

**Unsigned variables**, such as unsigned integers, will only allow you to represent numbers in the positive.

Unsigned and signed variables of the same type (such as int and byte) both have the same range (range of 65,536 and 256 numbers, respectively), but unsigned can represent a larger magnitude number than the corresponding signed variable.

1. **How do you control the max size of a HEAP table?**

Maximum size of Heap table can be controlled by MYSQL config variable called max\_heap\_table\_size.

1. **How can you see all indexes defined for a table?**

Indexes can be shown by following query.

SHOW INDEX FROM table\_name