**MySql Questions:**

1. **What is MySql?**

**Answer)** MySql is an open source DBMS which is built, supported and distributed by MySqlAB.

1. **What are the technical features of MySql?**

**Answer) The technical features of mysql:**

* Multithreaded SQL server supporting various client programs and libraries
* Different backend
* Wide range of application programming interfaces and Administrative tools.

1. **Why mysql is used?**

**Answer)** MySQL database server is reliable, fast and very easy to use.  This software can be downloaded as freeware and can be downloaded from the internet.

1. **What are heap tables?**

**Answer)** HEAP tables are present in memory and they are used for high speed storage on temporary basis.

Now, some points about heap tables:

* Blob or text fields are not allowed.
* Only comparison operators can be used. =,>,<,>=.<=
* AUTO\_INCREMENT is not supported by heap tables.
* Indexes should not be null.

1. **What is the default port for mysql server?  
     
   Answer)** The default port for mysql server is 3306.
2. **What are the advantages of mysql over oracle?**

**Answer)**

* Mysql is open source software which is available at any time and has no cost involved.
* MySQL is portable
* GUI with command prompt.
* Administration is supported using mysql query browser.

**7) Differentiate between Float and Double.**

Decimal precision can go to 24 places for a FLOAT. (Default is 10,2, where 2 is the number of decimals and 10 is the total number of digits. That means, 8 digits before decimal point and 2 digits after decimal point).

You can define the display length (M) and the number of decimals (D). This is not required and will default to 16,4, where 4 is the number of decimals. Decimal precision can go to 53 places for a DOUBLE.

**Main difference between FLOAT and DOUBLE is based on precision.** FLOAT is for single digit precision whereas, double is for multiple digit precision. FLOAT is accurate to approximately 7 decimal places, and DOUBLE up to 14.

Another difference is based on the datatype’s side. Float has 4 bytes while double has 8 bytes.

1. **Difference Between CHARACTER\_LENGTH and LENGTH?**

**Answer)** CHAR\_LENGTH  is character count whereas the LENGTH is byte count. The numbers are same for Latin characters but they are different for Unicode and other encodings.

1. ****How to represent ENUMs and SETs internally?  (in terms of storage)****

****Answer)** ENUMs and SETs are used to represent power of 2 because of storage optimizations.**

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

**Answer)** ENUM is a string object used to specify set of predefined values and that can be used during table creation.

**Create statement using ENUM:**

CREATE TABLE shirts

(

name VARCHAR(40),

size ENUM('x-small', 'small', 'medium', 'large', 'x-large')

);

**Insert Statement Using ENUM:**

INSERT INTO shirts (name, size) VALUES ('dress shirt','large'), ('t-shirt','medium'),('polo shirt','small');

**SELECT Statement using ENUM:**

SELECT name, size FROM shirts WHERE size = 'medium';

|  |  |
| --- | --- |
| Name | size |
| t-shirt | medium |

**And, to perform an update query:**

UPDATE shirts SET size = 'small' WHERE size = 'large';

COMMIT;

1. **Define REGEXP.**

**Answer)** REGEXP is a pattern match in which  matches pattern anywhere in the search value.

1. **Differences Between VARCHAR and CHAR.**

**Answer)** They can be differentiate in terms of memory optimization and performance. Suppose, you are storing Name, now for holding different people names if we use CHAR datatype, it wont be optimized in terms of memory. SO, in this case VARCHAR datatype is used. But, suppose, you want to store MD5 hash, MD5 hash has always 32 characters. Therefore to maximize your performance use CHAR(32) since CHAR is fixed length.

CHAR column length is fixed to the length that is declared while creating table. The length value ranges from 1 and 255

When CHAR values are stored then they are right padded using spaces to specific length. Trailing spaces are removed when CHAR values are retrieved.

1. ****Give string types available for column?****

****Answer)****

The string types are:

* SET
* BLOB
* ENUM
* CHAR
* TEXT
* VARCHAR

****14. How to get current MySQL version?****

**Answer)**

SELECT VERSION (); within mysql terminal.

Or, mysql --version outside mysql terminal (if you are a linux user)

**15. What storage technique are used in MySQL?**

**Answer)**

Storage engines are called table types and data is stored in files using various techniques.

Technique involves:

* Storage mechanism
* Locking levels
* Indexing
* Capabilities and functions.

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

**Answer)**

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.mxj

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

****Answer)**** TIMESTAMP column is updated with Zero when the table is created.  UPDATE CURRENT\_TIMESTAMP modifier updates the timestamp field to current time whenever there is a change in other fields of the table.

Check the following:

Create table EMP(EMP\_CODE CHAR(5) NOT NULL PRIMARY KEY, JN\_TIME TIMESTAMP);

Now, insert something:

insert into EMP(EMP\_CODE)VALUES("00001");

After that, check the table to see how it is reflected:

|  |  |
| --- | --- |
| **EMP\_CODE** | **JOIN\_TIME** |
| 00001 | 0000-00-00 00:00:00 |

I.e. TIMESTAMP column is updated with Zero when it is not inserted.

Now, use the update statement.

**UPDATE EMP SET JN\_TIME=CURRENT\_TIMESTAMP WHERE EMP\_CODE="00001";**

|  |  |
| --- | --- |
| **EMP\_CODE** | **JOIN\_TIME** |
| 00001 | 2017-06-05 19:41:45 |

****What is the difference between primary key and candidate key?  
  
Answer)****

****Candidate Key:****

Candidate keys are those keys which is candidate for primary key of a table. In simple words we can understand that such type of keys which full fill all the requirements of primary key which is not null and have unique records is a candidate for primary key. So thus type of key is known as candidate key. Every table must have at least one candidate key but at the same time can have several.

****Primary Key:****

Such type of candidate key which is chosen as a primary key for table is known as primary key. Primary keys are used to identify tables. There is only one primary key per table. In SQL Server when we create primary key to any table then a clustered index is automatically created to that column.

1. ****What does myisamchk do?  
     
   Answer)**** It compresses the MyISAM tables, which reduces their disk or memory usage.

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

Answer) Maximum size of Heal table can be controlled by MySQL config variable called max\_heap\_table\_size.

**20. **What is the difference between MyISAM Static and MyISAM Dynamic?****

**Answer)** In MyISAM static all the fields will have fixed width. The Dynamic MyISAM table will have fields like TEXT, BLOB, etc. to accommodate the data types with various lengths.

MyISAM Static would be easier to restore in case of corruption.

21. ****What are federated tables?****

**Answer)** Federated tables which allow access to the tables located on other databases on other servers.

**22. What happens when the column is set to AUTO INCREMENT and if you reach maximum value in the table?**

Answer) It stops incrementing. Any further inserts are going to produce an error, since the key has been used already.

**23. **How can we find out which auto increment was assigned on Last insert?****

**Answer)** LAST\_INSERT\_ID will return the last value assigned by Auto\_increment and it is not required to specify the table name.

Now, it will be used:

**create table Person(ID INT NOT NULL AUTO\_INCREMENT, Name VARCHAR(80), Age TINYINT, Gender CHAR(1));**

Now, insert a person in the table:

**INSERT INTO Person(NAME,AGE,GENDER) VALUES("Sayak Haldar",23,'M');**

Do another insert in the table named Person:

**INSERT INTO Person(NAME, AGE, GENDER) VALUES("Sayantan Pandit", 23, 'M');**

Now, do select LAST\_INSERT\_ID()

It will show you 2.

Now, however, create another table in the same database named Car.

**create table Car(ID INT NOT NULL AUTO\_INCREMENT PRIMARY KEY, NAME VARCHAR(20), Company VARCHAR(20), PRICE DOUBLE(10,2));**

Now,

Perform this insert:

**insert into Car(NAME, Company, PRICE)VALUES("X1","BMW",3185000.00);**

Now, you will see, if you do.

select LAST\_INSERT\_ID();

It will change to 1.

So, this is not table specific solution.

It is not even database specific solution.

For instance, Car table could be residing into TrialDataBase10, but you could change to TrialDataBase9 and still if you do LAST\_INSERT\_ID() you will find: that it is displaying 1.

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

**Answer)** Indexes are defined for the table by:

SHOW INDEX FROM <tablename>.

****24.**  **What do you mean by % and \_ in the LIKE statement?****

**Answer)** % corresponds to 0 or more characters, \_ is exactly one character in the LIKE statement.

1. ****How can we convert between Unix & MySQL timestamps?****

****Answer)****

UNIX\_TIMESTAMP is the command which converts from MySQL timestamp to Unix timestamp

FROM\_UNIXTIME is the command which converts from Unix timestamp to MySQL timestamp.

**26. **What are the column comparisons operators?****

Answer) The = , <>, <=, <, >=, >,<<,>>, <=>, AND, OR, or LIKE operators are used in column comparisons in SELECT statements.

1. ****How can we get the number of rows affected by query?****

****Answer)****

****By using count aggregate function:****

**A sample**

**SELECT COUNT (user\_id) FROM users.**

**Now, otherwise, perform a select query. After displaying the result in tabular form, it will display %d rows in set.**

**Like, consider the following query:**

**select \* from SalaryAccount where TRANSACtION\_ID="1023as890q";**

**Now, if it generates the result:**

|  |  |
| --- | --- |
| ****Transaction\_ID**** | ****AMOUNT**** |
| **1023as890q** | **80000.00** |

****Now, you will see, there’s a message displayed after it.****

**1 row is set.**

**Similarly, after successful update, you will set a message, which will display the number of rows affected as well.**

**For instance, update SalaryAccount SET AMOUNT="11000.00"; after this query:**

**Some message is displayed.**

**Query OK, 2 rows affected (0.02 sec)**

**It will clearly show the number of rows affected.**

**Similarly, deleting also shows similar kind of messages.**

**delete from SalaryAccount;**

**It will also show query ok, 2 rows affected. So, it would also leave some messages.**

1. ****Is mysql query case sensitive?****

****Answer)** Partially yes. The table name used in query is case sensitive. While other things are not.**

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

**Answer)** LIKE and REGEXP operators are used to express with ^ and %.

SELECT \* FROM employee WHERE emp\_name REGEXP "^b";

SELECT \* FROM employee WHERE emp\_name LIKE "%b";

****30. What is the difference between BLOB AND TEXT?  
  
Answer)**** A BLOB is a binary large object that can hold a variable amount of data. There are four types of BLOB –

* TINYBLOB (of 255 characters) (0 to 28-1)
* BLOB (0 to 216-1)
* MEDIUMBLOB of (0 to 224-1) and
* LONGBLOB (232-1)

**A TEXT is a case-insensitive BLOB. The four TEXT types:**

* TINYTEXT (of 255 characters) (0 to 28-1)
* TEXT (0 to 216-1)
* MEDIUMTEXT of (0 to 224-1) and
* LONGTEXT (232-1)

The only difference between BLOB and TEXT types is that sorting and comparison is performed in case-****sensitive**** for BLOB values and case-****insensitive**** for TEXT values.

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

**Answer)** Following are the differences between mysql\_fetch\_array and mysql\_fetch\_object:

mysql\_fetch\_array() -Returns a result row as an associated array or a regular array from database.

mysql\_fetch\_object –  Returns a result row as object from database.

**32. **How can we run batch mode in mysql?****

**Answer)**

First, learn, why do we need batch mode?

Anyone who has spent a fair amount of time working with databases comes to realize that common tasks like backups and data transfers should be run from a script rather than interactively. Having MySQL read commands from a file is called running in batch mode, because such a file generally contains multiple commands that all participate in the completion of the task. Here are a few reasons to use batch jobs:

* If you run a query repeatedly (say, every day or every week), making it a script saves you from retyping it every time you execute it.
* You can generate new queries from existing ones that are similar by copying and editing script files.
* Batch mode can also be useful while you're developing a query, particularly for multiple-line commands or multiple-statement sequences of commands. If you make a mistake, you don't have to retype everything. Just edit your script to correct the error, then have MySQL execute it again.

shell> mysql < batch-file

This is the syntax of running a batch file. (in unix)

And, a sample batch file is:

**Use my\_database;**

**SELECT field1, field2, field3 INTO OUTFILE "result.text"**

**FIELDS TERMINATED BY ',' OPTIONALLY ENCLOSED BY '"'**

**LINES TERMINATED BY "\n"**

**FROM my\_table;**

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

****Answer)****

Each MyISAM table is stored on disk in three formats:

* The ‘.frm’ file stores the table definition
* The data file has a ‘.MYD’ (MYData) extension
* The index file has a ‘.MYI’ (MYIndex) extension

**How are you going yo find it?**

**Now, cd /var/lib/mysql**

**You will find there folder for each database created.**

**Now, you can find the files with the following extensions.**

1. ****What is ISAM?****

****Answer)** ISAM is abbreviated as Indexed Sequential Access Method.It was developed by IBM to store and retrieve data on secondary storage systems like tapes.**

****35. What is InnoDB?****

**Answer)** lnnoDB is a transaction safe storage engine developed by Innobase Oy which is a Oracle Corporation now.

1. ****How MySQL Optimizes DISTINCT?  
   Answer)**** DISTINCT is converted to a GROUP BY on all columns and it will be combined with ORDER BY clause.

****37. How to enter Characters as HEX Numbers?  
  
Answer)****

****I****f you want to enter characters as HEX numbers, you can enter HEX numbers with single quotes and a prefix of (X), or just prefix HEX numbers with (Ox).

A HEX number string will be automatically converted into a character string, if the expression context is a string.

**38. How to display top 50 rows?**

Answer) In MySql, top 50 rows are displayed by using this following query:

**SELECT \* from 0,50.**

****39. How many columns can be used for creating Index?****

Answer) Maximum of 16 indexed columns can be created for any standard table.

****40. What is the different between NOW() and CURRENT\_DATE()?****

**Answer)** NOW () command is used to show current year,month,date with hours,minutes and seconds.

CURRENT\_DATE() shows current year,month and date only.

****41. What are the objects can be created using CREATE statement?****

**Answer)** Following objects are created using CREATE statement:

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

****42. How many TRIGGERS are allowed in MySql table?****

**Answer)** SIX triggers are allowed in MySql table. They are as follows:

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

****43. What are the nonstandard string types?****

**Answer)** Following are Non-Standard string types:

* TINYTEXT
* TEXT
* MEDIUMTEXT
* LONGTEXT

****44. Explain Access Control Lists.****

An ACL (Access Control List) is a list of permissions that is associated with an object. This list is the basis for MySQL server’s security model and it helps in troubleshooting problems like users not being able to connect.

MySQL keeps the ACLs (also called grant tables) cached in memory. When a user tries to authenticate or run a command, MySQL checks the authentication information and permissions against the ACLs, in a predetermined order.

**45. **What are the different tables present in MySQL?  
  
Answer)****

Total 5 types of tables are present:

* MyISAM
* Heap
* Merge
* INNO DB
* ISAM

MyISAM is the default storage engine as of MySQL .