**MYSQL**

**What are the main differences between InnoDB and MyISAM?**

**Ans:-**

.InnoDB has row-level locking, MyISAM can only do full table-level locking.

* InnoDB has better crash recovery.
* MyISAM has FULLTEXT search indexes, InnoDB did not until MySQL 5.6 (Feb 2013).
* InnoDB implements transactions, foreign keys and relationship constraints, MyISAM does not.
* MYISAM-The main mechanism used is the key cache. It only caches index pages from .MYI files.
* InnoDB-The main mechanism used is the InnoDB Buffer Pool. It caches data and index pages from InnoDB tables accessed.
* **InnoDB offers:**
* ACID transactions
* row-level locking
* foreign key constraints
* automatic crash recovery
* table compression (read/write)
* spatial data types (no spatial indexes)

**SQL Query to find second highest salary of Employee==>**

1. select MAX(sal) from emp WHERE sal NOT IN (select MAX(sal) from emp);

(for getting any order/position of salary use n-1 formula)

2. Select \* from emp order by sal desc limit n-1,1; //n second highest number

3. SELECT max(sal) FROM emp WHERE sal < (SELECT max(sal) FROM emp);

4. SELECT max(p1.salary) FROM `employees` p1 where 'nth highest number'= (select count(DISTINCT(p2.salary)) from employees p2 where p1.salary <= p2.salary )

##Get second highest salary of Employee with name

1. select fname,age from tbl\_signup WHERE age=(Select age from tbl\_signup order by age desc limit 1,1)

2. SELECT name, salary

FROM employees

WHERE salary = (SELECT MAX(salary) FROM employees WHERE salary < (SELECT MAX(salary) FROM employees))

**What is MySQL Partitions.**

**Ans:-**

**<http://www.vertabelo.com/blog/technical-articles/everything-you-need-to-know-about-mysql-partitions>**

-Partitioning takes this notion a step further, by enabling you to distribute portions of individual tables across a file system according to rules which you can set largely as needed.

-In effect, different portions of a table are stored as separate tables in different locations. -The user-selected rule by which the division of data is accomplished is known as a partitioning function, which in MySQL can be the modulus, simple matching against a set of ranges or value lists, an internal hashing function, or a linear hashing function.

-The function is selected according to the partitioning type specified by the user, and takes as its parameter the value of a user-supplied expression. This expression can be a column value, a function acting on one or more column values, or a set of one or more column values, depending on the type of partitioning that is used.

-MySQL partitioning is about altering – ideally, optimizing – the way the database engine physically stores data.

-It allows you to distribute portions of table data (a.k.a. partitions) across the file system based on a set of user-defined rules (a.k.a. the “partitioning function”).

-In this way, if the queries you perform access only a fraction of table data and the partitioning function is properly set, there will be less to scan and queries will be faster.

-It is important to note that partitioning makes the most sense when dealing with large data sets. If you have fewer than a million rows or only thousands of records, partitioning will not make a difference.

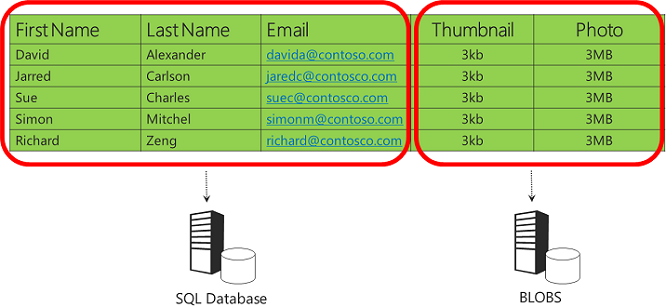
Two types: **Horizontal vs. Vertical Partitioning**

### **Horizontal vs. Vertical Partitioning**

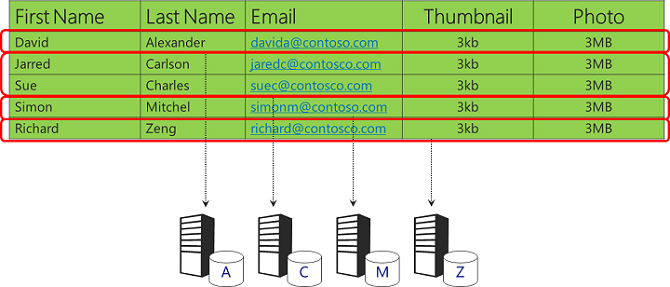
-Horizontal partitioning means that all **rows** matching the partitioning function will be assigned to different physical partitions.

- Vertical partitioning allows different table **columns** to be split into different physical partitions.

- Currently, MySQL supports horizontal partitioning but not vertical. The engine’s documentation clearly states it won’t support vertical partitions any time soon: ”There are no plans at this time to introduce vertical partitioning into MySQL.”



Vertical partitioning is about splitting up columns



Horizontal partitioning is about splitting up rows

Some of the advantages of using partitions are:

* **Storage:** It is possible to store more data in one table than can be held on a single disk or file system partition.
* **Deletion:** Dropping a useless partition is almost instantaneous, but a classical DELETE query run in a very large table could take minutes.
* **Partition Pruning:** This is the ability to exclude non-matching partitions and their data from a search; it makes querying faster. Also, MySQL 5.7 supports explicit partition selection in queries, which greatly increases the search speed. (Obviously, this only works if you know in advance which partitions you want to use.) This also applies for DELETE, INSERT, REPLACE, and UPDATEstatements as well as LOAD DATA and LOAD XML.

How to Check If Your Engine Supports Partitioning:

1. SHOW PLUGINS

2.INFORMATION\_SCHEMA.PLUGINS

ex.

|  |
| --- |
| **CREATE** **TABLE** userslogs (      username **VARCHAR**(20) NOT NULL,      logdata BLOB NOT NULL,  **created** DATETIME NOT NULL,  **PRIMARY** **KEY**(username, created)  )  PARTITION **BY** RANGE( YEAR(**created**) )(      PARTITION **from\_2013\_or\_less** **VALUES** LESS THAN (2014)  );  ex.  **CREATE** **TABLE** rc1 (      a **INT**,      b **INT**  )  PARTITION **BY** RANGE COLUMNS(a, b) (      PARTITION p0 **VALUES** LESS THAN (5, 12),      PARTITION p3 **VALUES** LESS THAN (MAXVALUE, MAXVALUE)  ); |

**Partition Types: There are basically four partition types available: RANGE, LIST, HASH and KEY**

#### **RANGE Partitioning**

This type of partition assigns rows to partitions based on column values that fall within a stated range. The values should be contiguous, but they should not overlap each other. The VALUES LESS THANoperator will be used to define such ranges in order from lowest to highest (a requirement for this partition type). Also, the partition expression – in the following example, it is YEAR(created) – must yield an integer or NULL value.

#### **LIST Partitioning**

LIST partitioning is similar to RANGE, except that the partition is selected based on columns matching one of a set of discrete values. In this case, the VALUES IN statement will be used to define matching criteria. Let’s see an example:

#### **HASH Partitioning**

In HASH partitioning, a partition is selected based on the value returned by a user-defined expression. This expression operates on column values in rows that will be inserted into the table. A HASH partition expression can consist of any valid MySQL expression that yields a nonnegative integer value. HASH is used mainly to evenly distribute data among the number of partitions the user has chosen.

For RANGE and LIST, one must define the partitions where the data will be stored; HASH does this automatically, based on the expression or INT value of the selected column. Let’s see how it works:

#### **KEY Partitioning**

This is very similar to HASH partitioning, but the hashing function is supplied by MySQL. A KEY partition can specify zero or many columns, which can contain non-integer values. An integer result will be returned regardless of the column data type. The following example will clarify this:

**ACID Properties of Transactions**

**Ans:**

-A transaction is a sequential group of database manipulation operations, which is performed as if it were one single work unit.

-In other words, a transaction will never be complete unless each individual operation within the group is successful. If any operation within the transaction fails, the entire transaction will fail.

-Practically, you will club many SQL queries into a group and you will execute all of them together as a part of a transaction

**Atomicity** − This ensures that all operations within the work unit are completed successfully; otherwise, the transaction is aborted at the point of failure and previous operations are rolled back to their former state.

**Consistency** − This ensures that the database properly changes states upon a successfully committed transaction.

**Isolation** − This enables transactions to operate independently on and transparent to each other.

**Durability** − This ensures that the result or effect of a committed transaction persists in case of a system failure.

In MySQL, the transactions begin with the statement BEGIN WORK and end with either a COMMIT or a ROLLBACK statement. The SQL commands between the beginning and ending statements form the bulk of the transaction.

COMMIT and ROLLBACK

These two keywords Commit and Rollback are mainly used for MySQL Transactions.

When a successful transaction is completed, the **COMMIT** command should be issued so that the changes to all involved tables will take effect.

If a failure occurs, a **ROLLBACK** command should be issued to return every table referenced in the transaction to its previous state.

You can control the behavior of a transaction by setting session variable called AUTOCOMMIT. If AUTOCOMMIT is set to 1 (the default), then each SQL statement (within a transaction or not) is considered a complete transaction and committed by default when it finishes.

When AUTOCOMMIT is set to 0, by issuing the SET AUTOCOMMIT = 0 command, the subsequent series of statements acts like a transaction and no activities are committed until an explicit COMMIT statement is issued.

ex.

**Begin transaction by issuing the SQL command BEGIN WORK.**

* Issue one or more SQL commands like SELECT, INSERT, UPDATE or DELETE.
* Check if there is no error and everything is according to your requirement.
* If there is any error, then issue a ROLLBACK command, otherwise issue a COMMIT command.

ex.2. [PHP + MySQL transactions examples](https://stackoverflow.com/questions/2708237/php-mysql-transactions-examples)

try {

// First of all, let's begin a transaction

$db->beginTransaction();

// A set of queries; if one fails, an exception should be thrown

$db->query('first query');

$db->query('second query');

$db->query('third query');

// If we arrive here, it means that no exception was thrown

// i.e. no query has failed, and we can commit the transaction

$db->commit();

} catch (Exception $e) {

// An exception has been thrown

// We must rollback the transaction

$db->rollback();

}

###### 1. Using SELECT statement find the version of the server you are running and print the name of the current database?

mysql> select version(),database();

+-------------------------+------------+

| version() | database() |

+-------------------------+------------+

| 5.7.21-0ubuntu0.16.04.1 | NULL |

+-------------------------+------------+

2. How to see all mysql users;

select user from mysql.user;

###### 3. What IFNULL() statement is used for in MySQL?

Ans: The Query in MySQL can be written precisely using IFNULL() statement. The IFNULL() statement test its first argument and returns if it’s not NULL, or returns its second argument, otherwise.

mysql> SELECT name, IFNULL(id,'Unknown') AS 'id' FROM taxpayer;

+---------+---------+

| name | id |

+---------+---------+

| bernina | 198-48 |

| bertha | Unknown |

| ben | Unknown |

| bill | 475-83

###### 4. Oracle Vs MySQL. Which one and Why?

Ans: Well both has its advantages and disadvantages. As a matter of time I prefer MySQL.

##### Reason for Selection MySQL Over oracle

1. Mysql is FOSS.
2. MySQL is portable.
3. MYSQL supports both GUI as well as Command Prompt.
4. MySQL Administration is supported over Query Browser.

###### 5. What is MySQL\_pconnect? And how it differs from MySQL\_connect?

Ans: MySQL\_pconnect() opens a connection that is persistent to the MySQL Database which simply means that the database is not opened every-time the page loads and hence we can not use MySQL\_close() to close a persistent connection.

A brief difference between MySQL\_pconnect and MySQL\_connect are.

Unlike MySQL\_pconnect, MySQL\_connect – Opens the Database every-time the page is loaded which can be closed any-time using statement MySQL\_close().

###### 6. You need to show all the indexes defined in a table say ‘tbl\_customers’ of Database say ‘ccm’. How will you achieve this?

mysql> show indexes from tbl\_customers;

+---------------+------------+----------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+

| Table | Non\_unique | Key\_name | Seq\_in\_index | Column\_name | Collation | Cardinality | Sub\_part | Packed | Null | Index\_type | Comment | Index\_comment |

+---------------+------------+----------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+

| tbl\_customers | 0 | PRIMARY | 1 | id | A | 3 | NULL | NULL | | BTREE | | |

+---------------+------------+----------+--------------+-------------+-----------+-------------+----------+--------+------+------------+---------+---------------+

1 row in set (0.00 sec)

7. Compare MySQL Vs. SQL Server

|  |  |  |
| --- | --- | --- |
| Criteria | MySQL | SQL Server |
| Targeted towards | Internet servers & Open Source software | Corporate & Enterprise market |
| Functionality | Speed | Administration, Graphical data modelling |
| Works with | Assumes internet access | Administration, Graphical data modelling |

8. 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 user, various other applications as well as the database itself. The objective is capturing and analyzing data and manages definition, querying, creation, updating as well as administration of database.

9. What are the features of MySQL?

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

10 .What is the default port for MySQL Server?

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

11. 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 is CREATE TABLE command. DML denotes Data Manipulation Language such as SELECT, INSERT etc. DCL stands for Data Control Language and includes commands like GRANT, REVOKE etc.

12. What are the common MySQL functions?

Common MySQL functions are as follows: • NOW() – function for returning current date and time as single value. • CURRDATEO – function for returning the current date or time. • CONCAT (X, Y) – function to concatenates two string values creating single string output. • DATEDIFF (X, Y) – function to determine difference two dates.

13. What is the difference between CHAR and VARCHAR?

When the 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. VARCHAR command is given to adjust the column and table length as required.

**14. What are HEAP Tables?**

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

- HEAP tables are found in memory.  
- They are used for high speed storage on temporary basis.  
  
Some of their characteristics are:  
- They do not allow BLOB or TEXT fields.  
- Only comparison operators like =, <, >, = >, =< can be used with them.  
- AUTO\_INCREMENT is not supported by HEAP tables  
- Indexes should be NOT NULL

## How do you control the max size of a HEAP table?

- Maximum size of Heap table can be controlled using MySQL config variable called max\_heap\_table\_size.

15. What is the syntax for concatenating tables in MySQL?

The syntax for concatenating tables is MySQL is CONCAT (string 1, string 2, string 3)

**16. What are the limits for using columns to create the Index?**

The maximum limits of indexed columns that could be created for any table is 16.

17. What are the different types of strings in Database columns in MySQL?

Different types of strings that can be used for database columns are SET, BLOB, VARCHAR, TEX, ENUM, and CHAR.

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

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

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

MyISAM is the default(before mysql 5.5.5 ) table that is based on the sequential access method.

* HEAP is the table that is used for fast data access but data will be lost if the table or system crashes.
* InoDB is the table that supports transactions using the COMMIT and ROLL BACK commands.
* BDB can support transactions similar to InoDB 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 /etc/init.d/mysql start

21. What is the use of ENUM in MySQL?

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

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

The following TRIGGERS are allowed in MySQL:• BEFORE INSERT

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

23. 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 can you change the root password if the root password 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 normal mode.

**25. How to resolve the problem of 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 as well as the .idb files into that link location.**

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

Basically DELETE TABLE is 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 in comparison. TRUNCATE TABLE can be rolled back and is functionally similar to the DELETE statement using no WHERE clause.

No DML triggers will be fired. The operation cannot be rolled back. DROP and TRUNCATE are DDL commands, whereas DELETE is a DML command. Therefore DELETE operations can be rolled back (undone), while DROP and TRUNCATE operations cannot be rolled back

We canot use where codition for TRUNCATE.. For DELETE we can use where condition.

0 down vote

in mysql:

start transaction;

savepoint sp1;

delete from customer where ID=1;

savepoint sp2;

delete from customer where ID=2;

rollback to sp2;

rollback to sp1;

25.How to create database with collation and character set ??

create database testdb character set 'utf8' collate 'utf8\_unicode\_ci';

Query OK, 1 row affected (0.00 sec)

26 Create table

create table customer(id INT NOT NULL PRIMARY KEY AUTO\_INCREMENT, name VARCHAR(250) NOT NULL, mobile\_number int NOT NULL UNIQUE);

show create table customer;

+----------+-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

| Table | Create Table |

+----------+-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

| customer | CREATE TABLE `customer` (

`id` int(11) NOT NULL AUTO\_INCREMENT,

`name` varchar(250) COLLATE utf8\_unicode\_ci NOT NULL,

`mobile\_number` int(11) NOT NULL,

PRIMARY KEY (`id`),

UNIQUE KEY `mobile\_number` (`mobile\_number`)

) ENGINE=InnoDB DEFAULT CHARSET=utf8 COLLATE=utf8\_unicode\_ci |

+----------+------------------------------------------------------------

27. What is the difference between primary key and unique key?

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

28. What is the difference between BLOB and TEXT?

BLOBs are binary large object holding huge data. 4 types of BLOB are TINYBLOB, BLOB, MEDIBLOB, and LONGBLOB. TEXT is case-sensitive BLOB. 4 types of TEXT are TINY TEXT, TEXT, MEDIUMTEXT, and LONG TEXT.

29. What are Heap tables?  
HEAP tables are present in memory and they are used for high speed storage on temporary basis.  
Check Important Points about Heap Tables?

* BLOB or TEXT fields are not allowed.
* Only comparison operators can be used like =, <,>, = >,=<.
* AUTO\_INCREMENT is not supported by HEAP tables.
* Indexes should be NOT NULL.

30. Difference between FLOAT and DOUBLE?  
1. Floating point numbers are stored in FLOAT whereas Double are stored in DOUBLE.  
2. Float takes 4 bytes whereas DOUBLE takes eight bytes.  
3. FLOAT is for single-precision whereas DOUBLE is for double-precision numbers.  
4. Float have accuracy up to eight place whereas DOUBLE upto 18 placeS.

31. What are the drivers in MySQL?

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

32. What is the difference between primary key and candidate key?  
Primary Key:   
Every row of a table is identified uniquely by primary key and there is only one primary key fore each table.  
  
Candidate keys:   
These are those keys which is candidate for primary key of a table means a key which full fill all the requirements of primary key.

33. What does myisamchk do?  
Myisamchk compress the MyISAM tables, which reduces the disk or memory usage.

34.What is the difference between MyISAM Static and MyISAM Dynamic?  
MyISAM static will have fixed width for all the fields. Also Its easier to restore in case of corruption.  
MyISAM Dynamic will have variable width like TEXT,BLOB.

35. What is timestamp meaning in MySQL?  
timestamp is datatype in MySQL. If we create a filed with timestamp datatype, it will auto-update with current date/time when record is added/updated.

36. What happens when auto\_increment on integer column reaches the max\_value in databases?  
It stops incrementing and through following error.  
ERROR 1467 (HY000): Failed to read auto-increment value from storage engine.

37.What is ISAM?  
ISAM stands for Indexed Sequential Access Method, a method for indexing data for fast retrieval.  
  
  
38. Question: What is the different between NOW() and CURRENT\_DATE()?  
NOW () is used to show current year,month,date, hours,minutes and seconds.  
CURRENT\_DATE() shows current year,month and date only.

**39.How to insert if record have containing single quotes?**  
Escape it with Slash like below

INSERT INTO `users` (`id`,`name`) VALUES (NULL, 'this is test\'s message')

40.How to get Last insertID in MYSQL ?  
Use LAST\_INSERT\_ID() MySQL Function

INSERT INTO `users` (`id`,`name`) VALUES (NULL, 'this is test\'s message');

SELECT LAST\_INSERT\_ID();

41. What is Query to delete a Index?

ALTER TABLE table\_name DROP INDEX index\_name.

42. How to update auto increment value to 1000?

ALTER TABLE tbl\_name AUTO\_INCREMENT = 1000;

43. What is command to check table is exist?

CHECK TABLE table\_name;

mysql> check table customer;

+-----------------+-------+----------+----------+

| Table | Op | Msg\_type | Msg\_text |

+-----------------+-------+----------+----------+

| testdb.customer | check | status | OK |

+-----------------+-------+----------+----------+

1 row in set (0.00 sec)

mysql> check table customer3;

+------------------+-------+----------+----------------------------------------+

| Table | Op | Msg\_type | Msg\_text |

+------------------+-------+----------+----------------------------------------+

| testdb.customer3 | check | Error | Table 'testdb.customer3' doesn't exist |

| testdb.customer3 | check | status | Operation failed |

+------------------+-------+----------+----------------------------------------+

2 rows in set (0.00 sec)

44. What is command to display current Date and Time ?

SELECT NOW();

mysql> select now();

+---------------------+

| now() |

+---------------------+

| 2018-04-14 12:24:07 |

+---------------------+

1 row in set (0.00 sec)

**45.What are the objects you can use with CREATE statement?**

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

46.What are the nonstandard string types?  
TINYTEXT, TEXT, MEDIUMTEXT and LONGTEXT  
47.What is SQLyog?  
The SQLyog program is Software which provide GUI tool for MySQL.

48. What are string datatype in MySQL?

* CHAR
* VARCHAR
* TINY TEXT
* TEXT
* MEDIUM TEXT
* LONG TEXT
* BINARY
* VARBINARY
* TINYBLOB
* MEDIUMBLOG
* BLOB
* LONGBLOB
* ENUM
* SET

49. How to get number of days difference between two date?

SELECT DATEDIFF('2010-10-22', '2010-10-19');

50. Why MySQL is used?

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.

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

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

52.How can we convert between Unix & MySQL timestamps?

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.

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

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

54. Whats the default storage engine as of MySQL .

If you omit the ENGINE option, the default storage engine is used. The default engine is InnoDB as of MySQL 5.5.5 ( MyISAM before 5.5.5). ... SET default\_storage\_engine=MYISAM; When MySQL is installed on Windows using the MySQL Configuration Wizard, the InnoDB or MyISAM storage engine can be selected as the default.

55. 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.

56. Write a command with which MySQL table can be repaired

The command syntax with which mysql table can be repaired is as follows:

REPAIR TABLE tablename;  
REPAIR TABLE tablename QUICK;  
REPAIR TABLE tablename EXTENDED;

The command will just do as it says repair a specified table, but if QUICK or EXTENDED is used then the meaning of it changes. In case of QUICK it will repair only the index tree, whereas in case of EXTENDED it will create index row by row and repair it.

## SQL Query Interview Questions and Answers

Question 1: SQL Query to find second highest salary of Employee

Answer: There are many ways to find second highest salary of Employee in SQL, you can either use SQL Join or Subquery to solve this problem. Here is SQL query using Subquery:

select MAX(Salary) from Employee WHERE Salary NOT IN (select MAX(Salary) from E

mployee );

See [How to find second highest salary in SQL](http://javarevisited.blogspot.com/2012/12/how-to-find-second-highest-or-maximum-salary-sql.html) for more ways to solve this problem.

Question 2: SQL Query to find Max Salary from each department.

Answer: You can find the maximum salary for each department by grouping all records by DeptId and then using MAX() function to calculate maximum salary in each group or each department.

SELECT DeptID, MAX(Salary) FROM Employee  GROUP BY DeptID.

These questions become more interesting if Interviewer will ask you to print department name instead of department id, in that case, you need to join Employee table with Department using foreign key DeptID, make sure you do LEFT or RIGHT OUTER JOIN to include departments without any employee as well.  Here is the query

SELECT DeptName, MAX(Salary) FROM Employee e RIGHT JOIN Department d ON e.DeptId = d.DeptID GROUP BY DeptName;

In this query, we have used RIGHT OUTER JOIN because we need the name of the department from Department table which is on the right side of JOIN clause, even if there is no reference of dept\_id on Employee table.   
  
Question 3: Write SQL Query to display the current date.

Answer: SQL has built-in function called GetDate() which returns the current timestamp. This will work in Microsoft SQL Server, other vendors like Oracle and MySQL also has equivalent functions.

SELECT GetDate();

Question 4: Write an SQL Query to check whether date passed to Query is the date of given format or not.

Answer: SQL has IsDate() function which is used to check passed value is a date or not of specified format, it returns 1(true) or 0(false) accordingly. Remember ISDATE() is an MSSQL function and it may not work on Oracle, MySQL or any other database but there would be something similar.

SELECT  ISDATE('1/08/13') AS "MM/DD/YY";

It will return 0 because passed date is not in correct format.

Question 5: Write an SQL Query to print the name of the distinct employee whose DOB is between 01/01/1960 to 31/12/1975.

Answer: This SQL query is tricky, but you can use BETWEEN clause to get all records whose date fall between two dates.

SELECT DISTINCT EmpName FROM Employees WHERE DOB  BETWEEN ‘01/01/1960’ AND ‘31/12/1975’;

Question 6: Write an SQL Query find number of employees according to gender  whose DOB is between 01/01/1960 to 31/12/1975.

Answer :

SELECT COUNT(\*), sex from Employees WHERE DOB BETWEEN '01/01/1960' AND '31/12/1975' GROUP BY sex;

Question 7: Write an SQL Query to find an employee whose Salary is equal or greater than 10000.

Answer :

SELECT EmpName FROM Employees WHERE Salary>=10000;

Question 8: Write an SQL Query to find name of employee whose name Start with ‘M’

Answer :

SELECT \* FROM Employees WHERE EmpName like 'M%';

Question 9: find all Employee records containing the word "Joe", regardless of whether it was stored as JOE, Joe, or joe.

Answer :

SELECT \* from Employees WHERE UPPER(EmpName) like '%JOE%';

Question 10: Write an SQL Query to find  the year from date.

Answer:  Here is how you can find Year from a Date in SQL Server 2008

SELECT YEAR(GETDATE()) as "Year";

Question 11: Write SQL Query to find duplicate rows in a database? and then write SQL query to delete them?  
Answer: You can use the following query to select distinct records:

SELECT \* FROM emp a WHERE rowid = (SELECT MAX(rowid) FROM EMP b WHERE a.empno=b.empno)

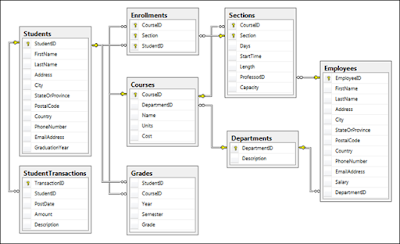
to Delete:

DELETE FROM emp a WHERE rowid != (SELECT MAX(rowid) FROM emp b WHERE a.empno=b.empno);

Question 12: There is a table which contains two column Student and Marks, you need to find all the students, whose marks are greater than average marks i.e. list of above average students.  
Answer: This query can be written using subquery as shown below:

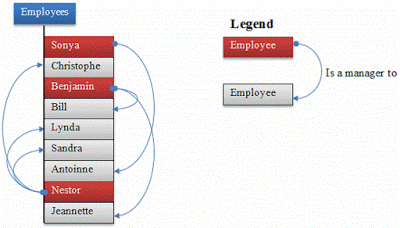
SELECT student, marks from table where marks > SELECT AVG(marks) from table)

Read more: [http://www.java67.com/2013/04/10-frequently-asked-sql-query-interview-questions-answers-database.html#ixzz5Cd35XZu1](http://www.java67.com/2013/04/10-frequently-asked-sql-query-interview-questions-answers-database.html" \l "ixzz5Cd35XZu1)



Question 13: How do you find all employees which are also manager? .  
You have given a standard employee table with an additional column mgr\_id, which contains employee id of the manager.

Read more: [http://www.java67.com/2013/04/10-frequently-asked-sql-query-interview-questions-answers-database.html#ixzz5Cd3IACb5](http://www.java67.com/2013/04/10-frequently-asked-sql-query-interview-questions-answers-database.html" \l "ixzz5Cd3IACb5)



Answer: You need to know about self-join to solve this problem. In Self Join, you can join two instances of the same table to find out additional details as shown below

SELECT e.name, m.name FROM Employee e, Employee m WHERE e.mgr\_id = m.emp\_id;

this will show employee name and manager name in two column e.g.  
  
name  manager\_name  
John   David  
  
One follow-up is to modify this query to include employees which don't have a manager. To solve that, instead of using the inner join, just use left outer join, this will also include employees without managers.  
  
  
  
Question 14: You have a composite index of three columns, and you only provide the value of two columns in WHERE clause of a select query? Will Index be used for this operation? For example if Index is on EmpId, EmpFirstName, and EmpSecondName and you write query like

SELECT \* FROM Employee WHERE EmpId=2 and EmpFirstName='Radhe'

If the given two columns are secondary index column then the index will not invoke, but if the given 2 columns contain the primary index(first column while creating index) then the index will invoke. In this case, Index will be used because EmpId and EmpFirstName are primary columns.

Hope this article will help you to take a quick practice whenever you are going to attend any interview and not have much time to go into the deep of each query, but if you have good time to prepare then I suggest you to read and solve SQL queries from Joe Celko's [SQL Puzzles and Answers](http://www.amazon.com/Puzzles-Answers-Edition-Kaufmann-Management/dp/0123735963?tag=javamysqlanta-20), Second edition, one of the best book for SQL query lovers and enthusiastic

Read more: [http://www.java67.com/2013/04/10-frequently-asked-sql-query-interview-questions-answers-database.html#ixzz5Cd3Q1kue](http://www.java67.com/2013/04/10-frequently-asked-sql-query-interview-questions-answers-database.html" \l "ixzz5Cd3Q1kue)

**<http://a4academics.com/interview-questions/53-database-and-sql/397-top-100-database-sql-interview-questions-and-answers-examples-queries?showall=&limitstart>**=

<http://narendra86.blogspot.in/2013/10/top-80-sql-query-interview-questions.html>

https://www.globalguideline.com/interview\_questions/Questions.php?sc=Learn\_MySQL\_Programming\_with\_interview\_questions\_and\_answers