

inter - platform
question - level -
MySQL - questions., internship - Duration.

MySQL - queries, JavaScript in depth

Candidate Key =

SuperKey Super key is set of attribute that can uniquely identify a tuple is known as Super key -

for e.g

STUD_NO, (STUD_NO, STUD_NAME) etc.

DBMS	RDBMS
1) It stores data as file	1) It stores data in tabular form
2) normalization is not present in DBMS	2) normalization present in RDBMS.
3) It does not support distributed Sys	3) It supports distributed system.

DBMS interview questions

1. Define DBMS

Stands for -- , it is a collection of application program which allow user to organize, restore and retrieve information about data. -

Some of popular example of DBMS's are MySql, Oracle, Sysbase etc.

2. RDBMS - Relational

RDBMS store data into the collection of tables, which related by common fields between the columns of the table.

3. SQL- what is sql?

Stands for Structural query lang.
And it is used to communicate with the database .

This is a Standard language used to perform tasks such as retrieval.

Standard SQL Commands are

Select

1.4. What is primary key?

A primary key is combination of fields which uniquely specify a row -

It is a special kind of unique key, and it has implicit NOT NULL constraint. It means, primary key values cannot be null.

2. What is unique key?

unique key constraint uniquely identified each record in the database.

This provides uniqueness for the column or set of columns.

A primary key constraint has automatic unique constraint defined on it. But not in the case of unique key.

There can be many unique constraint defined per table, but only one primary key constraint defined per table.

(Referential object)

3. What is foreign key?

A foreign key is one table which can be related to key of another table.

The relationship needs to be created between two tables by referencing foreign key with the primary key.

4. What is Join?

Join - This is a keyword used to query data from more tables based on relationship between the fields of the tables. Key play a major role when Joins are used.

5. What is normalization?

Normalization is the process of minimizing redundancy and dependency by organizing field table of a database.

The main advantage of aim of normalization is to add, delete or modify field that can be made in single table.

What are the diff normalization

Normalization can be divided into 5 form -

1. First Normal form (1NF) -

This should remove all duplicate columns from the table, creation of tables for the related data and identification of unique columns.

2) Second normal form (2NF)

meeting all requirement of first normal form. placing the subsets of data in separate tables and creation of relationship between the tables using primary key.

3) Third normal form (3NF)

This should meet all requirements of 2NF removing the columns which are not dependent on primary key constraint.



What is relationship and what are they?

- Database relationship is defined as the connection between the tables in a database. Various relationships
 - 1. 1 to one
 - 2. One to many
 - 3. Many to one
 - 4. Self-Referencing rel
- What is a stored procedure?

Stored procedure is a function consist of many SQL statement to access the database system.

- CREATE DATABASE Book;

- CREATE TABLE BookHistory (

Author VARCHAR(128),
title VARCHAR(128),
btype VARCHAR(128),
year CHAR(4),
);

I) To drop table column :-

[ALTER TABLE tableName DROP column-name]

For Example :-

ALTER TABLE BookHistory DROP year;
 ↓ ↓
 Table-name column-nm

2) How to Delete Data from a
MySql table?

→ DELETE Statement is used to delete
Data

→

DELETE FROM Table_name
WHERE Column_name = Value_name.

3) Insert values into table -

INSERT INTO table_name (column1,
column2, column3,)
values (value1, value2, value3, ...)

For example -

INSERT INTO table_name BookHistory
values ("Jame Red", "Hackerth", "Comic")

4) update - Column name in mySql

→

ALTER TABLE table-name RENAME
COLUMN Old-name_col To new_col-
name.



Example -

ALTER TABLE BookHistory RENAME
COLUMN btype TO BookType;

Syntax

ALTER TABLE table_name RENAME
COLUMN old_col_name To New_col_name;

5) ADD new column in table

ALTER TABLE table_name;
ADD Column_name datatype;

Example.

ALTER TABLE BookHistory ADD year
CHAR(4);

6) SELECT Command
→

↳ SELECT * FROM table_name
↳ for all table visualization.

Example -

SELECT * FROM BookHistory;

2. For Customer ('WHERE' condition)

SELECT * FROM BookHistory WHERE

Book-Type = "hacking";

7) MySQL Numeric Data-Types

MySQL has numeric data types for

integer, fixed-point, floating-point and bit etc.

* Numeric can be signed or unsigned

- | | |
|--------------|-----------|
| 1. TINYINT | 7. FLOAT |
| 2. SMALLINT | 8. DOUBLE |
| 3. MEDIUMINT | 9. BIT |
| 4. INT | |
| 5. BIGINT | |
| 6. DECIMAL | |

8) String DATA-TYPES

1. CHAR
2. VARCHAR
3. BINARY
4. VARBINARY
5. TINYBLOB
6. MEDIUMBLOB
7. LONGBLOB

9) Temporal Data types in MySQL?

- DATE - A date value in 'CCYY-MM-DD'
- TIME - Time in 'hh:mm:ss'
- DATETIME - Date-time - CCYY-MM-DD hh:mm:ss
- TIMESTAMP - 'CCYY-MM-DD' hh:mm:ss
- YEAR - CCYY or YY

10) CREATE user in MySQL

Example

```
CREATE USER 'user-name' IDENTIFIED  
BY 'Sample-password';
```

INTERMEDIATE LEVEL

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11) → WHAT are the "views"

In MySQL, a view consists of a set of rows that is returned if particular query is executed.

- It also known as "Virtual table". Advantages:- Simplicity, Security,

Not consume any mem, maintainability,

12) How do you create & execute views in MySQL?

We can create views using the CREATE VIEW Statement.

- A View is table in Database that has no values, The views are created by Joining one or more table

Syntax for creating views.

[CREATE [or REPLACE] VIEW view_name
AS SELECT Columns From tables
[WHERE Conditions];]

SELECT AND :-

SELECT * FROM CUS_tbl WHERE
Ename = 'Abhi' AND CUS_id > 3;

Truncate -

It removes "Complete" data without removing it's structure. It is DDL command.

Example -

TRUNCATE TABLE Customer;

13) Update Command in MySQL.

Example Syntax

UPDATE 'table-name' SET 'Column-name' = 'new-value' [WHERE condition];

BETWEEN

SELECT * FROM CUS_tbl WHERE
ID = 8 AND 11;

→ 14) Find version of installed MySQL

Type following command

[SHOW VARIABLES LIKE "%version%";]

→ 15) ENUM and SET (softwarentestinghelp.com).

ENUM data type is used in the MySQL datatypes to Select any one values from the predefined list.

Example :-

```
CREATE DATABASE newEnum;
CREATE TABLE clients (
    id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(50),
    membership ENUM('Silver', 'Gold',
                    'Diamond'),
    interested SET('Movie', 'music',
                   'concert'));
```

(Cannot Set Multiple in ENUM
but we can Set Multiple Values
in SET);

15) What are different bet Primary key and foreign key -



The database table uses primary key to identify each row uniquely. It is necessary to declare a primary key on those tables that require to create a relationship among them. One or more field of table table can be declared as primary key.

- When primary key of any table is used in another table as the

is used in another table as the primary key or another field for making a database relation, then it is called foreign key.

- Primary key identified a record, whereas foreign key refers to the primary key of another tables.

- P.K never accept null value, but F.Key accepts null value.

16) Filter duplicate values.

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

Example -

SELECT * FROM items

	id	name	type	brand	man_id
1	Samsung J6	mobile	Samsu	1	
2	apple	mobile	apple	2	
3	Song	TV	Sony	2	

SELECT DISTINCT type from items.
Output :-

Type
Mobile
TV

17) which statement is used in a Select query for partial matching?



REGEXP and LIKE Statement can be used in a Select query for partial matching.

REGEXP - used to Search records based on the pattern matching

Like - is used to Search any record by matching string at begining or end or middle of particular field value.

Example

1) REGEXP (Search records start with s)

[SELECT * FROM clients WHERE name
REGEXP "^\w{s}";]

2) LIKE

[SELECT * FROM clients WHERE name
LIKE "A%";]

18) Rename Table



Example

[RENAME TABLE table name To New-hm]

Example

[RENAME TABLE items To Products;]

19) Retrieve a portion of any Column value by Using Select query ?



SUBSTR() function is used to retrieve the portion of any column.

Syntax :-

[SELECT SUBSTR(name,1,5) FROM products;]

or 'SUBSTRING'

Output :-

SubSTR(name , 1,5)

Samsu
iphon
Sony.

20) Calculate Sum of any column of table ?



SUM() function is used to calculate the Sum of any column.

Syntax:

Sum(DISTINCT expression)

Example -

[SELECT SUM(Price) as total From products ;]

Output :-

total
2109.00

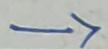
Techbeamers

1. Fetch firstName from worker table



SELECT First_Name AS Worker_name
FROM WORKER;

2. Fetch FIRST_NAME AS upper Case



SELECT upper(First_Name) FROM Worker

-will return all name in upper
-case

- 3.) Fetch unique Values from Department.



SELECT DISTINCT Department FROM
WORKER;

output :-

DEPARTMENT

HR

ADMIN

ACCOUNT

- 4) Find position of alphabets('a') in
first_name Column 'Amitabh' from
worker.

Example

```
SELECT INSTR(Firstname, BINARY'a')
from worker WHERE FIRSTNAME
= "Amitabh";
```

Output :-

INSTR(FIRSTNAME, BINARY'a')

5

5) Removing white Spaces

1. RTRIM - To remove white
Spaces from right Side

e.g :-

```
SELECT RTRIM(FIRSTNAME)
FROM Worker.
```

2. LTRIM - To remove white Spaces
from Left Side

Example

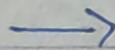
```
SELECT LTRIM(DEPARTMENT) FROM
Worker.
```

6) Query to print FIRSTNAME and LASTNAME from worker table into a Single column Complete name.



```
SELECT CONCAT(FIRSTNAME, ' ', LASTNAME)
AS 'NAME-SALARY' FROM Worker;
```

7) Query to print all worker details from Worker table order by FIRSTNAME Ascending



```
SELECT * FROM Worker ORDER BY
FIRSTNAME ASC;
```

8) Print details for worker with first name as "vipulö" and "Satish" from worker table.



```
SELECT * FROM Worker WHERE
FIRSTNAME IN ('vipul', 'Satish');
```

9) Query to fetch the count of employee working in the department 'admin'.



The Count function Return Count of given queries -

Example :-

```
SELECT COUNT(*) FROM Worker WHERE  
DEPARTMENT = 'Admin';
```

Output :-

```
+-----+  
|Count(4)|  
+-----+
```

AGGREGATE Functions :-

Sql aggregate functions is used to perform calculations on multiple row of a single column of a table, it returns single values.

- 1) COUNT()
- 2) SUM()
- 3) AVG()
- 4) MAX()
- 5) MIN.

1) COUNT - Count the number of Rows in database;
It uses function count(*) that return count all rows.

Example :-

```
SELECT COUNT(*) FROM Worker WHERE  
DEPARTMENT = 'Admin'
```

Output

	count(4)
	4

2) Sum :- SUM function is used to calculate the sum of all selected columns . it only work on numeric value.

Syntax: SUM();

Example :

* SELECT SUM(Salary) FROM Worker;

* SELECT SUM(Salary) from Worker WHERE worker_id < 5;

3) AVG! USED to calculate average value of the numeric type.
AVG function return the average of all non-null values.

Syntax : AVG()

Example : SELECT AVG(Salary)
from Worker;

4) MAX: MAX function used to find the Maximum Value of a certain Column. This function determines the largest value of all Selected values of Column.

Syntax: MAX()

Example:

SELECT MAX(SALARY) FROM Worker;

5) MIN: MIN used to find minimum value of a certain column. This function determines the smallest value of all Selected values of a Column.

Syntax: MIN();

Example:

SELECT MIN(SALARY) FROM Worker;

• SQL Commands :-

- SQL Commands are the Instructions
- Used to communicate with the database, also use to perform specific task, functions, & queries of data

FIVE Types of SQL Commands.

1. DDL - CREATE, DROP, ALTER, TRUNCATE
2. DML - INSERT, UPDATE, DELETE,
3. DCL - GRANT, REVOKE
4. TCL - COMMIT, ROLLBACK, SAVE POINT.
5. DQL - SELECT.

1) DDL - Data definition language.



- DDL changes the structure of Database table like creating, delete, altering, etc.

IMP

- All the Command of DDL are auto-committed that means it permanently save all changes in database.

1) CREATE - Used to create table

Syntax :- CREATE TABLE Table-name
(column_name datatype);

2) Drop :- Used to delete both the structure and record stored in the table.

Syntax :- DROP table table-name.

Example :-

③ `DROP TABLE Employee.`

3) ALTER :- It is used to alter the structure of the database. This change could be either modify the characteristics of an existing attribute or probably to add new attribute.

Syntax :- 1. To add new column in table.

`ALTER TABLE NAME ADD Column-name Datatype;`

2) To modify existing table;

`ALTER TABLE table-name MODIFY (column Definition).`

DELETE UPDATE
REMOVE RENAME

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4. TRUNCATE :-

Used to delete all the rows from the table and free the space containing the table

Syntax :

TRUNCATE TABLE Table name;

Example :

TRUNCATE TABLE EMPLOYEE;

2) Data Manipulation language -

- 1) INSERT
- 2) UPDATE
- 3) DELETE

1. INSERT :- is SQL query. It is used to insert data into the row of table.

Syn :- INSERT INTO Table name
(Col1, Col2, Col3, ... Coln)
VALUES (Value1, Value2, Value3... ValueN).

or

INSERT INTO TABLE_NAME VALUES
(value1, value2, value3, ... valueN)

B) UPDATE :- This Command is used to update and modify the values of column in the table.

Syntax :

UPDATE TABLENAME SET [Column name1 = value1, Column name2 = value2, Column N = valueN] [WHERE (Condition)]

Example :

UPDATE Students SET User_name = 'Sonoo' WHERE Student_id = '3';

C) DELETE :- Used to Remove one or more rows from a table.

Syntax :

DELETE FROM table-name
[WHERE Condition];

For example :-

DELETE FROM Mywork where
Author = "Sonoo";

3) DATA Control LANGUAGE

DCL used to grant and take back authority from any database user ?

DCL Commands :-

A) Grant

B) REVOKE

A) GRANT - It is used to give a user access privilege to a database.

Example :-

GRANT SELECT, UPDATE ON MY_TABLE_
TO SOME_USER, ANOTHER_USER;

B) Revoke: it is used to take back permissions from the user.

Example :-

used to take back permission from the user.

REVOKE: SELECT, UPDATE ON MY-TABLE FROM USER1, USE2;

4) Transaction Control language

TCL Commands can only use with DML Commands like insert, update, delete, only.

These transaction operations are automatically committed in the database that's why they cannot be used while creating tables or dropping them.

Here are some TCL commands.

- A) COMMIT
- B) ROLLBACK
- C) SAVEPOINT.

a. COMMIT : Commit Command
is used to save all
the transaction to the database.

Syntax :-

COMMIT;

Example :-

DELETE FROM CUSTOMERS WHERE
AGE = 25;

COMMIT;

b. ROLLBACK : Rollback command
is used to undo the
transaction that have not already
been saved to database.

Syntax :

ROLLBACK;

Example :-

DELETE FROM CUSTOMERS WHERE
AGE = 25;
ROLLBACK;

C. SAVE POINT :-

Used to roll the transaction back to a certain without rolling back the entire transaction.

Syntax :-

`SavePOINT SAVEPOINTNAME;`

5) DATA query language. -

Used to fetch data from the database.

It uses only one command.

- `SELECT`

A. `SELECT` : is used as same as projection operation of relational algebra. Used to Select attribute based on the condition described by `WHERE` clause.

Syntax :-

SELECT Expression FROM Tables
WHERE Conditions.

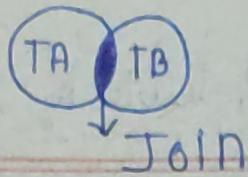
Example :-

SELECT emp_name FROM employee
WHERE age > 20;

Joins - Sql

- Sql Join Statements are used to combine data or rows from two or more tables based on a common field between them, Diff types of Join

- a. INNER_JOIN
- b. LEFT_JOIN
- c. RIGHT_JOIN
- d. FULL_JOIN.



A. INNER JOIN :

Inner Join Selects all the rows from both the table as long as the condition Satisfies. This key word will create the result-set by Combining all rows from both the tables where the condition Satisfies. i.e value of the common field will be same.

Syntax -

```

SELECT table1.Column1, table1.Column2
      table2.Column1, ...
  FROM table1
INNER JOIN table2
    ON table1.Matching_Column =
       table2.Matching_Column;
  
```

Example :-

```

SELECT StudentCourse.COURSE_ID, Studen.
NAME, Student.AGE FROM Student
INNER JOIN StudentCourse ON
Student.ROLL_NO = StudentCourse.ROLLNO;
% Output :-
```

COURSE_ID	NAME	Age
1	HARSH	18
2	PRATIK	19



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2) LEFT JOIN :- This Join return all the rows of table on the left side of the Join and matching rows for the table on the right side of Join.

The row for which there is no matching row on right side, the result-set will contain null. LEFT JOIN is also known as LEFT OUTER JOIN.

Syntar :

```

SELECT table1.Column1, table1.Column2
      , table2.Column1
   FROM Table1
LEFT JOIN table2
      ON table1.matching_Column = table2.matching_Column;
  
```

Example :- SELECT Student.NAME ,
 StudentCourse.COURSE_ID
 FROM STUDENT
 LEFT JOIN StudentCourse ON
 StudentCourse.ROLLNO = Student.ROLL
 -NO;

from
table1

from

Table 2

Output :-

<u>NAME</u>	<u>COURSE_ID</u>
HARSH	1
PRATIK	2
PRIYANKA	2

3) RIGHT JOIN : RIGHT JOIN is similar to left Join. This Join returns all rows of the table on the right side of the Join and matching rows for the table on the left side of Join.

The row of which there is no matching row on left side, the result-set will contain null. RIGHT JOIN is also known as RIGHT OUTER JOIN.

Syntax :-

~~SELECT Student.NAME, ST~~

SELECT table1.col1, table1.col2,
table2.col1 . . .

FROM table1 RIGHT JOIN table2
ON table1.Matching_col = table2.Mat_col;

from
table1

Output :

from
Table 2

NAME	COURSE_ID
HARSH	1
PRATIK	2
PRIYANKA	2

3) RIGHT JOIN : RIGHT JOIN is similar to left Join. This Join returns all rows of the table on the right side of the Join and matching rows for the table on the left side of Join.

The row of which there is no matching row on left side, the result-set will contain null. RIGHT JOIN is also known as RIGHT OUTER JOIN.

Syntax :-

SELECT Student.NAME, St

SELECT .table1.Col1, table1.Col2,
table2.Col1 ...

FROM table1 RIGHT JOIN table2
ON table1.Matching_Col = table2.Match_Col;

SELECT Student.NAME, Student.Course.
 COURSE_ID FROM Student RIGHT
 JOIN StudentCourse ON Student.
 ROLL_NO = StudentCourse.ROLL_NO;

4) Full JOIN :-

full Join creates a result set by combining result of both LEFT JOIN and RIGHT JOIN

The result-set will contain all the rows from both tables.

The rows for which nothing is matching, the result-set will contain null

Syntax :-

SELECT Student.NAME, Student.Course.
 COURSE_ID FROM Student
 FULL JOIN StudentCourse ~~TO~~
 ON StudentCourse.ROLL_NO =
 Student.ROLL_NO;

Sql-views

Views :-

- Views are kind of virtual tables.
- A view also has Rows and Columns as they are in real table
- We can create views from by Selecting fields from one or more tables present in the database.
- A view can either have all the Rows of a table or Specific rows based on certain Condition.

CREATE, UPDATE, DELETE views

→ We use CREATE VIEW Statement

Syntax :

```
CREATE VIEW view_name AS
SELECT Column1, Column2 ...
FROM table-Name
WHERE Condition;
```