Let's Begin Learning SQL.

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SQL with sample DDL and DML commands

(MYSQL8.X)

To improve SQL skills, one way is to install a SQL package like MySQL and start practicing with it. To give you all a positive push, I've outlined a few SQL query questions in this material.

I have selected a set of 30 SQL queries that you can use to step up you're learning. I also given SQL scripts to create the test data. So, you can use them to create a test database and tables.

I have been covering most of the SQL query questions.

Prepare Sample Data to Practice SQL Skill.

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Sample Table → Employee

EMPLOYEE_ID FIRST_NAME LAST_NAME SALARY JOINING_DATE DEPARTMENT

001 Monika Arora 100000 2014–02–20 09:00:00 HR
002 Niharika Verma 80000 2014–06–11 09:00:00 Admin
003 Vishal Singhal 300000 2014–02–20 09:00:00 HR
004 Amitabh Singh 500000 2014–02–20 09:00:00 Admin
005 Vivek Bhati 500000 2014–06–11 09:00:00 Admin
006 Vipul Diwan 200000 2014–06–11 09:00:00 Account

007 Satish Kumar 75000 2014–01–20 09:00:00 Account
008 Geetika Chauhan 90000 2014–04–11 09:00:00 Admin

Sample Table → Bonus

EMPLOYEE_REF_ID BONUS_DATE BONUS_AMOUNT
1 2016–02–20 00:00:00 5000
2 2016–06–11 00:00:00 3000
3 2016–02–20 00:00:00 4000
1 2016–02–20 00:00:00 4500
2 2016–06–11 00:00:00 3500

Sample Table →Title

EMPLOYEE_REF_ID EMPLOYEE_TITLE AFFECTED_FROM
1 Manager 2016–02–20 00:00:00
2 Executive 2016–06–11 00:00:00
8 Executive 2016–06–11 00:00:00
5 Manager 2016–06–11 00:00:00
4 Asst. Manager 2016–06–11 00:00:00
7 Executive 2016–06–11 00:00:00
6 Lead 2016–06–11 00:00:00
3 Lead 2016–06–11 00:00:00

To prepare the sample data, you can run the following queries in your database query executor or on the SQL command line. I've tested them with MySQL Server 5.7.

SQL Script to Seed Sample Data.

```
==========
CREATE DATABASE ORG;
SHOW DATABASES;
USE ORG;

CREATE TABLE Employee(
EMPLOYEE_ID INT NOT NULL PRIMARY KEY
AUTO_INCREMENT,
FIRST_NAME CHAR(25),
LAST_NAME CHAR(25),
SALARY INT(15),
JOINING_DATE DATETIME,
DEPARTMENT CHAR(25)
);
```

```
INSERT INTO Employee
(Employee_ID, FIRST_NAME, LAST_NAME, SALARY,
JOINING_DATE, DEPARTMENT) VALUES
(001, 'Monika', 'Arora', 100000, '14-02-20 09.00.00',
'HR'),
(002, 'Niharika', 'Verma', 80000, '14-06-11 09.00.00',
'Admin'),
(003, 'Vishal', 'Singhal', 300000, '14-02-20 09.00.00',
'HR'),
(004, 'Amitabh', 'Singh', 500000, '14-02-20 09.00.00',
'Admin'),
(005, 'Vivek', 'Bhati', 500000, '14-06-11 09.00.00',
'Admin'),
(006, 'Vipul', 'Diwan', 200000, '14-06-11 09.00.00',
'Account'),
(007, 'Satish', 'Kumar', 75000, '14-01-20 09.00.00',
'Account'),
(008, 'Geetika', 'Chauhan', 90000, '14-04-11 09.00.00',
'Admin');

CREATE TABLE Bonus (
Employee_REF_ID INT,
BONUS_AMOUNT INT(10),
BONUS_DATE DATETIME,
FOREIGN KEY (Employee_REF_ID)
REFERENCES Employee(Employee_ID)
ON DELETE CASCADE
);

INSERT INTO Bonus
(Employee_REF_ID, BONUS_AMOUNT, BONUS_DATE)
VALUES
(001, 5000, '16-02-20'),
(002, 3000, '16-06-11'),
(003, 4000, '16-02-20'),
(001, 4500, '16-02-20'),
(002, 3500, '16-06-11');
CREATE TABLE Title (
Employee_REF_ID INT,
Employee_TITLE CHAR(25),
```

```
AFFECTED_FROM DATETIME,
FOREIGN KEY (Employee_REF_ID)
REFERENCES Employee(Employee_ID)
ON DELETE CASCADE
);

INSERT INTO Title
(Employee_REF_ID, Employee_TITLE,
AFFECTED_FROM) VALUES
(001, 'Manager', '2016-02-20 00:00:00'),
(002, 'Executive', '2016-06-11 00:00:00'),
(008, 'Executive', '2016-06-11 00:00:00'),
(005, 'Manager', '2016-06-11 00:00:00'),
(004, 'Asst. Manager', '2016-06-11 00:00:00'),
(007, 'Executive', '2016-06-11 00:00:00'),
(006, 'Lead', '2016-06-11 00:00:00'),
(003, 'Lead', '2016-06-11 00:00:00');
```

Once above SQL would run, you'll see a result similar to the one attached below.

Q-1. Write an SQL query to fetch "FIRST_NAME" from Employee table using the alias name as <EMPLOYEE_NAME>.
Ans.

The required query is:

```
Select FIRST_NAME AS EMPLOYEE_NAME from
EMPLOYEE;
```

Q-2. Write an SQL query to fetch "FIRST_NAME" from EMPLOYEE table in upper case.
Ans.

The required query is:

Select upper(FIRST_NAME) from EMPLOYEE;

Q-3. Write an SQL query to fetch unique values of DEPARTMENT from EMPLOYEE table.
Ans.

The required query is:

Select distinct DEPARTMENT from EMPLOYEE;

Q-4. Write an SQL query to print the first three characters of FIRST_NAME from EMPLOYEE table.
Ans.

The required query is:

Select substring(FIRST_NAME,1,3) from EMPLOYEE;

Q-5. Write an SQL query to find the position of the alphabet ('a') in the first name column 'Amitabh' from EMPLOYEE table.
Ans.

The required query is:

Select INSTR(FIRST_NAME, BINARY'a') from EMPLOYEE where FIRST_NAME = 'Amitabh';
Notes.

The INSTR method is in case-sensitive by default.
Using Binary operator will make INSTR work as the case-sensitive function.

Q-6. Write an SQL query to print the FIRST_NAME from EMPLOYEE table after removing white spaces from the

right side.
Ans.

The required query is:

Select RTRIM(FIRST_NAME) from EMPLOYEE;

Q-7. Write an SQL query to print the DEPARTMENT from EMPLOYEE table after removing white spaces from the left side.
Ans.

The required query is:

Select LTRIM(DEPARTMENT) from EMPLOYEE;

Q-8. Write an SQL query that fetches the unique values of DEPARTMENT from EMPLOYEE table and prints its length.
Ans.

The required query is:

Select distinct length(DEPARTMENT) from EMPLOYEE;

Q-9. Write an SQL query to print the FIRST_NAME from EMPLOYEE table after replacing 'a' with 'A'.
Ans.

The required query is:

Select REPLACE(FIRST_NAME,'a','A') from EMPLOYEE;

Q-10. Write an SQL query to print the FIRST_NAME and LAST_NAME from EMPLOYEE table into a single column

COMPLETE_NAME. A space char should separate them.
Ans.

The required query is:

Select CONCAT(FIRST_NAME, ' ', LAST_NAME) AS 'COMPLETE_NAME' from EMPLOYEE;

Q-11. Write an SQL query to print all EMPLOYEE details from the EMPLOYEE table order by FIRST_NAME Ascending.
Ans.

The required query is:

Select * from EMPLOYEE order by FIRST_NAME asc;

Q-12. Write an SQL query to print all EMPLOYEE details from the EMPLOYEE table order by FIRST_NAME Ascending and DEPARTMENT Descending.
Ans.

The required query is:

Select * from EMPLOYEE order by FIRST_NAME asc,DEPARTMENT desc;

Q-13. Write an SQL query to print details for EMPLOYEEs with the first name as "Vipul" and "Satish" from EMPLOYEE table.
Ans.

The required query is:

Select * from EMPLOYEE where FIRST_NAME in ('Vipul','Satish');

Q-14. Write an SQL query to print details of EMPLOYEEs excluding first names, “Vipul” and “Satish” from EMPLOYEE table.
Ans.

The required query is:

```
Select * from EMPLOYEE where FIRST_NAME not in ('Vipul','Satish');
```

Q-15. Write an SQL query to print details of EMPLOYEEs with DEPARTMENT name as “Admin”.
Ans.

The required query is:

```
Select * from EMPLOYEE where DEPARTMENT like 'Admin%';
```

Q-16. Write an SQL query to print details of the EMPLOYEEs whose FIRST_NAME contains ‘a’.
Ans.

The required query is:

```
Select * from EMPLOYEE where FIRST_NAME like '%a%';
```

Q-17. Write an SQL query to print details of the EMPLOYEEs whose FIRST_NAME ends with ‘a’.
Ans.

The required query is:

```
Select * from EMPLOYEE where FIRST_NAME like '%a';
```

Q-18. Write an SQL query to print details of the EMPLOYEEs whose FIRST_NAME ends with 'h' and contains six alphabets.
Ans.

The required query is:

```
Select * from EMPLOYEE where FIRST_NAME like '_____h';
```

Q-19. Write an SQL query to print details of the EMPLOYEEs whose SALARY lies between 100000 and 500000.
Ans.

The required query is:

```
Select * from EMPLOYEE where SALARY between 100000 and 500000;
```

Q-20. Write an SQL query to print details of the EMPLOYEEs who have joined in Feb'2014.
Ans.

The required query is:

```
Select * from EMPLOYEE where year(JOINING_DATE) = 2014 and month(JOINING_DATE) = 2;
```

Q-21. Write an SQL query to fetch the count of employees working in the department 'Admin'.
Ans.

The required query is:

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

Q-22. Write an SQL query to fetch EMPLOYEE names with salaries >= 50000 and <= 100000.
Ans.

The required query is:

```
SELECT CONCAT(FIRST_NAME, ' ', LAST_NAME) As
EMPLOYEE_Name, Salary
FROM EMPLOYEE
WHERE EMPLOYEE_ID IN
(SELECT EMPLOYEE_ID FROM EMPLOYEE
WHERE Salary BETWEEN 50000 AND 100000);
```

Q-23. Write an SQL query to fetch the no. of EMPLOYEEs for each department in the descending order.
Ans.

The required query is:

```
SELECT DEPARTMENT, count(EMPLOYEE_ID)
No_Of_EMPLOYEEs
FROM EMPLOYEE
GROUP BY DEPARTMENT
ORDER BY No_Of_EMPLOYEEs DESC;
```

Q-24. Write an SQL query to print details of the EMPLOYEEs who are also Managers.
Ans.

The required query is:

```
SELECT DISTINCT W.FIRST_NAME,
T.EMPLOYEE_TITLE
FROM EMPLOYEE W
INNER JOIN Title T
ON W.EMPLOYEE_ID = T.EMPLOYEE_REF_ID
AND T.EMPLOYEE_TITLE in ('Manager');
```

Q-25. Write an SQL query to fetch duplicate records having matching data in some fields of a table.
Ans.

The required query is:

```
SELECT EMPLOYEE_TITLE, AFFECTED_FROM,
COUNT(*)
FROM Title
GROUP BY EMPLOYEE_TITLE, AFFECTED_FROM
HAVING COUNT(*) > 1;
```

Q-26. Write an SQL query to show only odd rows from a table.
Ans.

The required query is:

```
SELECT * FROM EMPLOYEE WHERE MOD
(EMPLOYEE_ID, 2) <> 0;
```

Q-27. Write an SQL query to show only even rows from a table.
Ans.

The required query is:

```
SELECT * FROM EMPLOYEE WHERE MOD
(EMPLOYEE_ID, 2) = 0;
```

Q-28. Write an SQL query to show the current date and time.
Ans.

Following MySQL query returns the current date:

SELECT CURDATE();
Following MySQL query returns the current date and time:

SELECT NOW();
Following SQL Server query returns the current date and time:

Q-29. Write an SQL query to show the top n (say 10) records of a table.
Ans.

Following MySQL query will return the top n records using the LIMIT method:

SELECT * FROM EMPLOYEE ORDER BY Salary DESC LIMIT 10;
Following SQL Server query will return the top n records using the TOP command:

Q-30. Write an SQL query to fetch three max salaries from a table.
Ans.

The required query is:

SELECT distinct Salary from EMPLOYEE a WHERE 3 >= (SELECT count(distinct Salary) from EMPLOYEE b WHERE a.Salary <= b.Salary) order by a.Salary desc;