

# SQL FOR DATA SCIENCE & ANALYTICS

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**Sample Table – Worker**

WORKER_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		
WORKER_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

WORKER_REF_ID	WORKER_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

Write an SQL query to fetch  
“FIRST\_NAME” from Worker  
table in upper case.

The required query is:  
Select upper(FIRST\_NAME) from Worker;

Write an SQL query to fetch unique values of DEPARTMENT from Worker table.

The required query is:

```
Select distinct DEPARTMENT from Worker;
```

Write an SQL query to print the first three characters of FIRST\_NAME from Worker table.

The required query is:

```
Select substring(FIRST_NAME,1,3) from Worker;
```

Write an SQL query to find the position of the alphabet ('a') in the first name column 'Amitabh' from Worker table.

The required query is:

```
Select INSTR(FIRST_NAME, BINARY'a') from  
Worker where FIRST_NAME = 'Amitabh';
```

Write an SQL query that fetches the unique values of DEPARTMENT from Worker table and prints its length.

The required query is:

```
Select distinct length(DEPARTMENT) from Worker;
```



Write an SQL query to print details of the Workers whose FIRST\_NAME contains 'a'.

The required query is:

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

Write an SQL query to print details of the Workers whose FIRST\_NAME ends with 'h' and contains six alphabets.

The required query is:

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

Write an SQL query to fetch the no. of workers for each department in the descending order.

The required query is:

```
SELECT DEPARTMENT, count(WORKER_ID)  
No_Of_Workers  
FROM worker  
GROUP BY DEPARTMENT  
ORDER BY No_Of_Workers DESC;
```

Write an SQL query to print details of the Workers who are also Managers.

The required query is:

```
SELECT DISTINCT W.FIRST_NAME,  
T.WORKER_TITLE  
FROM Worker W  
INNER JOIN Title T  
ON W.WORKER_ID = T.WORKER_REF_ID  
AND T.WORKER_TITLE in ('Manager');
```

Write an SQL query to show only odd rows from a table.

The required query is:

```
SELECT * FROM Worker WHERE MOD  
(WORKER_ID, 2) <> 0;
```

Write an SQL query to show only even rows from a table.

The required query is:

```
SELECT * FROM Worker WHERE MOD  
(WORKER_ID, 2) = 0;
```

Write an SQL query to show the current date and time.

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:

```
SELECT getdate();
```

Following Oracle query returns the current date and time:

```
SELECT SYSDATE FROM DUAL
```

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

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

```
SELECT * FROM Worker ORDER BY Salary DESC  
LIMIT 10;
```

Following SQL Server query will return the top n records using the TOP command:

```
SELECT TOP 10 * FROM Worker ORDER BY  
Salary DESC;
```

Following Oracle query will return the top n records with the help of ROWNUM:

```
SELECT * FROM (SELECT * FROM Worker ORDER  
BY Salary DESC)  
WHERE ROWNUM <= 10;
```



Write an SQL query to determine the nth (say n=5) highest salary from a table.

The following MySQL query returns the nth highest salary:

```
SELECT Salary FROM Worker ORDER BY Salary  
DESC LIMIT n-1,1;
```

The following SQL Server query returns the nth highest salary:

```
SELECT TOP 1 Salary  
FROM (  
    SELECT DISTINCT TOP n Salary  
    FROM Worker  
    ORDER BY Salary DESC  
)  
ORDER BY Salary ASC;
```

Write an SQL query to determine the 5th highest salary without using TOP or limit method.

The following query is using the correlated subquery to return the 5th highest salary:

```
SELECT Salary
FROM Worker W1
WHERE 4 = (
    SELECT COUNT( DISTINCT ( W2.Salary ) )
    FROM Worker W2
    WHERE W2.Salary >= W1.Salary
);
```

Use the following generic method to find nth highest salary without using TOP or limit.

```
SELECT Salary
FROM Worker W1
WHERE n-1 = (
    SELECT COUNT( DISTINCT ( W2.Salary ) )
    FROM Worker W2
    WHERE W2.Salary >= W1.Salary
);
```

Write an SQL query to fetch the list of employees with the same salary.

The required query is:

```
Select distinct W.WORKER_ID, W.FIRST_NAME,  
W.Salary  
from Worker W, Worker W1  
where W.Salary = W1.Salary  
and W.WORKER_ID != W1.WORKER_ID;
```

Write an SQL query to show the second highest salary from a table.

The required query is:

```
Select max(Salary) from Worker  
where Salary not in (Select max(Salary) from  
Worker);
```

Write an SQL query to fetch the first 50% records from a table.

The required query is:

```
SELECT *  
FROM WORKER  
WHERE WORKER_ID <= (SELECT  
count(WORKER_ID)/2 from Worker);
```

Write an SQL query to fetch the departments that have less than five people in it.

The required query is:

```
SELECT DEPARTMENT, COUNT(WORKER_ID) as  
'Number of Workers' FROM Worker GROUP BY  
DEPARTMENT HAVING COUNT(WORKER_ID) <  
5;
```

Write an SQL query to print the name of employees having the highest salary in each department.

The required query is:

```
SELECT t.DEPARTMENT,t.FIRST_NAME,t.Salary  
from(SELECT max(Salary) as  
TotalSalary,DEPARTMENT from Worker group by  
DEPARTMENT) as TempNew  
Inner Join Worker t on  
TempNew.DEPARTMENT=t.DEPARTMENT  
and TempNew.TotalSalary=t.Salary;
```

# Thanks

