

SQL QUERIES FOR INTERVIEW

Table - EmployeeDetails

EmpId	FullName	ManagerId	DateOfJoining
121	John Snow	321	01/31/2014
321	Walter White	986	01/30/2015
421	Kuldeep Rana	876	27/11/2016

Table - EmployeeSalary

EmpId	Project	Salary
121	P1	8000
321	P2	1000
421	P1	12000

Ques.1. Write a SQL query to fetch the count of employees working in project 'P1'.

Ans. Here, we would be using aggregate function count() with the SQL where clause-

```
SELECT COUNT(*) FROM EmployeeSalary WHERE Project = 'P1';
```

Ques.2. Write a SQL query to fetch employee names having salary greater than or equal to 5000 and less than or equal 10000.

Ans. Here, we will use BETWEEN in the 'where' clause to return the empId of the employees with salary satisfying the required criteria and then use it as subquery to find the fullName of the employee from EmployeeDetails table.

```
SELECT FullName
FROM EmployeeDetails
WHERE EmpId IN
(SELECT EmpId FROM EmployeeSalary
WHERE Salary BETWEEN 5000 AND 10000);
```

Ques.3. Write a SQL query to fetch project-wise count of employees sorted by project's count in descending order.

Ans. The query has two requirements - first to fetch the project-wise count and then to sort the result by that count. For project wise count, we will be using GROUPBY clause and for sorting, we will use ORDER BY clause on the alias of the project-count.

```
SELECT Project, count(EmpId) EmpProjectCount
FROM EmployeeSalary
GROUP BY Project
ORDER BY EmpProjectCount DESC;
```

Ques.4. Write a query to fetch only the first name(string before space) from the FullName column of EmployeeDetails table.

Ans. In this question, we are required to first fetch the location of the space character in the FullName field and then extract the first name out of the FullName field. For finding the location we will use LOCATE method in MySQL and CHARINDEX in SQL SERVER and for fetching the string before space, we will use SUBSTRING OR MID method.

MySQL- Using MID

```
SELECT MID(FullName, 0, LOCATE(' ',FullName)) FROM EmployeeDetails;
```

SQL Server-Using SUBSTRING

```
SELECT SUBSTRING(FullName, 0, CHARINDEX(' ',FullName)) FROM EmployeeDetails;
```

Also, we can use LEFT which returns the left part of a string till specified number of characters.

```
SELECT LEFT(FullName, CHARINDEX(' ',FullName) - 1) FROM EmployeeDetails;
```

Ques.5. Write a query to fetch employee names and salary records. Return employee details even if the salary record is not present for the employee.

Ans. Here, we can use left join with EmployeeDetail table on the left side.

```
SELECT E.FullName, S.Salary
FROM EmployeeDetails E LEFT JOIN EmployeeSalary S
ON E.EmpId = S.EmpId;
```

Ques.6. Write a SQL query to fetch all the Employees who are also managers from EmployeeDetails table.

Ans. Here, we have to use Self-Join as the requirement wants us to analyze the EmployeeDetails table as two different tables, each for Employee and manager records.

```
SELECT DISTINCT E.FullName
FROM EmpDetails E
INNER JOIN EmpDetails M
ON E.EmpID = M.ManagerID;
```

Ques.7. Write a SQL query to fetch all employee records from EmployeeDetails table who have a salary record in EmployeeSalary table.

Ans. Using 'Exists'-

```
SELECT * FROM EmployeeDetails E
WHERE EXISTS
(SELECT * FROM EmployeeSalary S WHERE E.EmpId = S.EmpId);
```

Ques.8. Write a SQL query to fetch duplicate records from a table.

Ans. In order to find duplicate records from table we can use GROUP BY on all the fields and then use HAVING clause to return only those fields whose count is greater than 1 i.e. the rows having duplicate records.

```
SELECT EmpId, Project, Salary, COUNT(*)
FROM EmployeeSalary
GROUP BY EmpId, Project, Salary
HAVING COUNT(*) > 1;
```

Ques.9. Write a SQL query to remove duplicates from a table without using temporary table.

Ans. Using Group By and Having clause-

```
DELETE FROM EmployeeSalary
WHERE EmpId IN (
SELECT EmpId
FROM EmployeeSalary
GROUP BY Project, Salary
HAVING COUNT(*) > 1));
```

Using rowId in Oracle-

```
DELETE FROM EmployeeSalary
WHERE rowid NOT IN
(SELECT MAX(rowid) FROM EmployeeSalary GROUP BY EmpId);
```

Ques.10. Write a SQL query to fetch only odd rows from table.

Ans. This can be achieved by using Row_number in SQL server-

```
SELECT E.EmpId, E.Project, E.Salary
FROM (
    SELECT *, Row_Number() OVER(ORDER BY EmpId) AS RowNumber
    FROM EmployeeSalary
) E
WHERE E.RowNumber % 2 = 1
```

Ques.11. Write a SQL query to fetch only even rows from table.

Ans. Using the same Row_Number() and checking that the remainder when divided by 2 is 0-

```
SELECT E.EmpId, E.Project, E.Salary
FROM (
    SELECT *, Row_Number() OVER(ORDER BY EmpId) AS RowNumber
    FROM EmployeeSalary
) E
WHERE E.RowNumber % 2 = 0
```

Ques.12. Write a SQL query to create a new table with data and structure copied from another table.

Ans. Using SELECT INTO command-

```
SELECT * INTO newTable FROM EmployeeDetails;
```

Ques.13. Write a SQL query to create an empty table with same structure as some other table.

Ans. Using SELECT INTO command with False 'WHERE' condition-

```
SELECT * INTO newTable FROM EmployeeDetails WHERE 1 = 0;
```

This can also done using mySQL 'Like' command with CREATE statement-

```
CREATE TABLE newTable LIKE EmployeeDetails;
```

Ques.14. Write a SQL query to fetch common records between two tables.

Ans. Using INTERSECT-

```
SELECT * FROM EmployeeSalary  
INTERSECT  
SELECT * FROM ManagerSalary
```

Ques.15. Write a SQL query to fetch records that are present in one table but not in another table.

Ans. Using MINUS-

```
SELECT * FROM EmployeeSalary  
MINUS  
SELECT * FROM ManagerSalary
```

Ques.16. Write a SQL query to find current date-time.

Ans. mySQL-

```
SELECT NOW();
```

SQL Server-

```
SELECT getdate();
```

Oracle-

```
SELECT SYSDATE FROM DUAL;
```

Ques.17. Write a SQL query to fetch all the Employees from EmployeeDetails table who joined in Year 2016.

Ans. Using BETWEEN for the date range '01-01-2016' AND '31-12-2016'-

```
SELECT * FROM EmployeeSalary
WHERE DateOfJoining BETWEEN '01-01-2016' AND date '31-12-2016';
```

Also, we can extract year part from the joining date (using YEAR in mySQL)-

```
SELECT * FROM EmployeeSalary
WHERE YEAR(DateOfJoining) = '2016';
```

Ques.18. Write a SQL query to fetch top n records?

Ans. In mySQL using LIMIT-

```
SELECT * FROM EmployeeSalary ORDER BY Salary DESC LIMIT N
```

In SQL server using TOP command-

```
SELECT TOP N * FROM EmployeeSalary ORDER BY Salary DESC
```

In Oracle using ROWNUM-

```
SELECT * FROM (SELECT * FROM EmployeeSalary ORDER BY Salary DESC)
WHERE ROWNUM <= 3;
```

Ques.19. Write SQL query to find the nth highest salary from table.

Ans. Using Top keyword (SQL Server)-

```
SELECT TOP 1 Salary
FROM (
    SELECT DISTINCT TOP N Salary
    FROM Employee
    ORDER BY Salary DESC
)
ORDER BY Salary ASC
```

Using limit clause(mySQL)-

```
SELECT Salary FROM Employee ORDER BY Salary DESC LIMIT N-1,1;
```

Ques.20. Write SQL query to find the 3rd highest salary from table without using TOP/limit keyword.

Ans. The below SQL query make use of correlated subquery wherein in order to find the 3rd highest salary the inner query will return the count of till we find that there are two rows that salary greater than other distinct salaries.

```
SELECT Salary
FROM EmployeeSalary Emp1
WHERE 2 = (
    SELECT COUNT( DISTINCT ( Emp2.Salary ) )
    FROM EmployeeSalary Emp2
    WHERE Emp2.Salary > Emp1.Salary
)
```

For nth highest salary-

```
SELECT Salary
FROM EmployeeSalary Emp1
WHERE N-1 = (
    SELECT COUNT( DISTINCT ( Emp2.Salary ) )
    FROM EmployeeSalary Emp2
    WHERE Emp2.Salary > Emp1.Salary
)
```