

# SQL

## 15 SQL questions to practice before Interview

Q1. Find the second highest salary?

```
SELECT MAX(Salary) AS SecondHighestSalary
FROM Employees
WHERE Salary < (SELECT MAX(Salary) FROM Employees);
```

Q2. Find employees hired in the last 6 months?

```
SELECT *
FROM Employees
WHERE HireDate >= DATEADD(MONTH, -6, GETDATE());
```

Q3. Retrieve top 3 employees by salary in each department?

```
SELECT DepartmentID, EmployeeID, Salary
FROM (
    SELECT DepartmentID, EmployeeID, Salary,
        ROW_NUMBER() OVER (PARTITION BY DepartmentID ORDER BY Salary DESC) AS rn
    FROM Employees
) AS t
WHERE rn <= 3;
```

Q4. Find employees who never placed an order?

```
SELECT e.EmployeeID, e.EmployeeName
FROM Employees e
LEFT JOIN Orders o ON e.EmployeeID = o.EmployeeID
WHERE o.EmployeeID IS NULL;
```

### Q5. Calculate cumulative sales by month?

```
SELECT
    FORMAT(OrderDate, 'yyyy-MM') AS OrderMonth,
    SUM(Sales) OVER
        (ORDER BY FORMAT(OrderDate, 'yyyy-MM')) AS CumulativeSales
FROM Orders;
```

### Q6. Get department-wise average salary, rounded to 2 decimals?

```
SELECT DepartmentID, ROUND(AVG(Salary), 2) AS AvgSalary
FROM Employees
GROUP BY DepartmentID;
```

### Q7. Find customers who placed more than 5 orders?

```
SELECT CustomerID, COUNT(*) AS OrderCount
FROM Orders
GROUP BY CustomerID
HAVING COUNT(*) > 5;
```

### Q8. Find the longest trip distance from Trips table?

```
SELECT TOP 1 TripID, Distance
FROM Trips
ORDER BY Distance DESC;
```

### Q9. Find all weekends orders?

```
SELECT *
FROM Orders
WHERE DATENAME(WEEKDAY, OrderDate) IN ('Saturday', 'Sunday');
```

**Q10. Find employees with salary above department average?**

```
SELECT e.EmployeeID, e.Salary, e.DepartmentID
FROM Employees e
JOIN (
    SELECT DepartmentID, AVG(Salary) AS DeptAvg
    FROM Employees
    GROUP BY DepartmentID
) d ON e.DepartmentID = d.DepartmentID
WHERE e.Salary > d.DeptAvg;
```

**Q11. Find duplicate employee names?**

```
SELECT EmployeeName, COUNT(*) AS CountOfName
FROM Employees
GROUP BY EmployeeName
HAVING COUNT(*) > 1;
```


**Q12. Rank products by sales amount?**

```
SELECT ProductID, SUM(Sales) AS TotalSales,
    RANK() OVER (ORDER BY SUM(Sales) DESC) AS SalesRank
FROM Orders
GROUP BY ProductID;
```

**Q13. Find the most frequent customer city?**


```
SELECT TOP 1 City, COUNT(*) AS OrderCount
FROM Customers
GROUP BY City
ORDER BY OrderCount DESC;
```

**Q14. Calculate variance and standard deviation of salary?**



```
SELECT
    VAR(Salary) AS SalaryVariance,
    STDEV(Salary) AS SalaryStdDev
FROM Employees;
```

**Q15. Show only first 3 characters of employee names?**



```
SELECT LEFT(EmployeeName, 3) AS ShortName
FROM Employees;
```