

# SQL Concepts for Leetcode-Style Problems

## Combine Two Tables

-> Learn basic SQL JOIN with LEFT JOIN.

## Second Highest Salary

-> Use LIMIT, OFFSET, and DISTINCT for ranking.

## Nth Highest Salary

-> Apply DENSE\_RANK() or correlated subquery.

## Rank Scores

-> Learn RANK() window function.

## Consecutive Numbers

-> Use LEAD() or self join for sequence detection.

## Employees Earning More Than Their Managers

-> JOIN on manager-employee relation.

## Duplicate Emails

-> Find duplicates with GROUP BY HAVING COUNT > 1.

## Customers Who Never Order

-> Use NOT IN or LEFT JOIN ... IS NULL.

## Department Highest Salary

-> Combine JOIN + GROUP BY MAX.

## Department Top Three Salaries

-> Master DENSE\_RANK() + partitioning.

## Delete Duplicate Emails

-> Use DELETE with ROW\_NUMBER() or subqueries.

## **Rising Temperature**

-> Compare rows using LAG() or self join.

## **Trips and Users**

-> Filter with LEFT JOIN and conditions.

## **Game Play Analysis I**

-> Basic filtering with MIN() per player.

## **Game Play Analysis II**

-> Use DATEDIFF() and player grouping.

## **Game Play Analysis III**

-> GROUP BY player for max levels.

## **Game Play Analysis IV**

-> Conditional aggregation (CASE WHEN) and early activity.

## **Median Employee Salary**

-> Apply window functions to compute median.

## **Managers with >= 5 Direct Reports**

-> GROUP BY + HAVING COUNT >= 5.

## **Median from Frequency Table**

-> Use cumulative frequency logic.

## **Winning Candidate**

-> Find max votes using GROUP BY and ORDER BY.

## **Employee Bonus**

-> LEFT JOIN and handle NULL bonus.

## **Highest Answer Rate Question**

-> Use JOIN and max ratio calculation.

### **Cumulative Salary of Employee**

-> Use recursive CTEs.

### **Count Students per Department**

-> Combine GROUP BY and JOIN.

### **Find Customer Referee**

-> Use IS NULL and != filters.

### **Investments in 2016**

-> Use YEAR() function and conditionals.

### **Most Orders by a Customer**

-> Use COUNT() + ORDER BY DESC LIMIT 1.

### **Big Countries**

-> Simple WHERE condition filters.

### **Classes More Than 5 Students**

-> Group filtering using HAVING.

### **Friend Request Acceptance Rate**

-> Use COUNT() and compute ratios.

### **Human Traffic of Stadium**

-> Consecutive id + JOIN logic.

### **Most Friends**

-> COUNT + GROUP BY + max.

### **Consecutive Available Seats**

-> id and seat type logic.

### **Sales Person**

-> Exclude sellers with NOT IN subquery.

## **Tree Node**

-> Identify Root, Leaf, and Inner with LEFT JOIN.

## **Triangle Judgement**

-> Use condition  $a + b > c$  for triangle.

## **Shortest Distance in a Plane**

-> MIN() of distances.

## **Shortest Distance in a Line**

-> Row-wise pairwise difference.

## **Second Degree Follower**

-> Self joins and indirect follower path.

## **Avg Salary Dept vs Company**

-> Use AVG(), GROUP BY, and filtering.

## **Students Report Geography**

-> Complex joins and conditions.

## **Biggest Single Number**

-> GROUP BY HAVING COUNT = 1.

## **Not Boring Movies**

-> Multiple filters with WHERE.

## **Exchange Seats**

-> Use MOD() and conditional CASE swaps.

## **Swap Salary**

-> Use UPDATE with CASE.

## **Customers Who Bought All Products**

-> Use NOT EXISTS logic.

### **Actor-Director >= 3 Co-operations**

-> GROUP BY HAVING COUNT >= 3.

### **Product Sales Analysis I**

-> Simple JOIN query.

### **Product Sales Analysis II**

-> Aggregate and filter by product\_id.