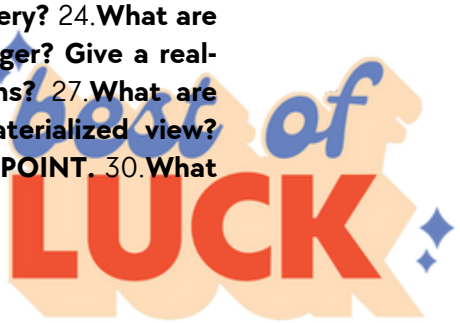
TOP 50 INTERVIEW QUESTIONS FOR SQL

1. **What is SQL? Howis it different from MySQL or PostgreSQL?**
2. **What are the different types of SQL statements?**
3. **Explain the difference between WHERE and HAVING.**
4. **What are PRIMARY KEY, FOREIGN KEY, UNIQUE, and CHECK constraints?**
5. **What is the difference between DELETE, TRUNCATE, and DROP?**
6. **What is normalization? Explain different normal forms.**
7. **What is denormalization and when is it useful?**
8. **Explain the difference between CHAR and VARCHAR.**
9. **What are ACID properties in databases?**
10. **What is the difference between INNER JOIN, LEFT JOIN, RIGHT JOIN, and FULL JOIN?**
11. **Write a query to find the second highest salary from an Employee table.**
12. **Write a query to get the department-wise average salary.**
13. **How would you retrieve duplicate records from a table?**
14. **How do you update a column with a calculation (e.g., 10% tax added)?**
15. **How would you delete only duplicate rows from a table?**
16. **Write a query to list customers who have placed more than 5 orders.**
17. **Write a query to join three or more tables.**
18. **What is a subquery? How is it different from a JOIN?**
19. **What is a correlated subquery? Give an example.**
20. **How do you filter data based on a date range?**
21. **What are WINDOW FUNCTIONS? Name a few.**

22. **What is the use of RANK(), DENSE_RANK(), and ROW_NUMBER()?** 23. **What is a Common Table Expression (CTE)? How is it different from a subquery?** 24. **What are stored procedures? When should they be used?** 25. **What is a trigger? Give a real-world example.** 26. **What is a VIEW? What are its pros and cons?** 27. **What are indexes? How do they improve performance?** 28. **What is a materialized view?** 29. **What are transactions? Explain COMMIT, ROLLBACK, and SAVEPOINT.** 30. **What are aggregate functions? List a few with examples.**



31. **How can you optimize a slow-running SQL query?**
32. **What is the EXPLAIN or EXPLAIN PLAN statement used for?**
33. **How does indexing affect INSERT, UPDATE, and DELETE performance?**
34. **What is a composite index and when should it be used?**
35. **What is normalization overhead and how do you deal with it?**
36. **How do you avoid Cartesian products in JOINs?**
37. **What is partitioning in SQL?**
38. **What causes a deadlock in SQL, and how can you prevent it?**
39. **What is the difference between clustered and non-clustered indexes?**
40. **What tools do you use to monitor SQL query performance?**
41. **You are asked to design a student-course grading system. What tables and relationships would you create?**
42. **How would you store and retrieve attendance for employees in a scalable way?**
43. **In a library system, how would you track overdue books and fines using SQL?**
44. **What would you do if a production database is missing some records due to a failed update?**
45. **How would you implement role-based access to sensitive information in SQL?**
46. **You are given a raw CSV with dirty data. How would you load and clean it using SQL?**
47. **How would you calculate monthly retention from a user login dataset?**
48. **What measures would you take to secure a database with sensitive data?**
49. **How do you create daily backup and restore plans for a SQL database?**

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