

57 SQL interview questions and answers to assess applicants

Questions

1. What is a primary key, and why is it important in a database?
2. Can you explain the differences between INNER JOIN and LEFT JOIN?
3. What is normalization, and why is it important in database design?
4. How would you handle a situation where you need to retrieve unique records from a database?
5. What are indexes, and how do they improve database performance?
6. Can you explain what a foreign key is and its role in a database?
7. Describe a scenario where you would use a JOIN operation in SQL.
8. What is a subquery, and how is it used in SQL?
9. How would you explain SQL to someone who has never used a database before?
10. Can you describe the difference between DELETE and TRUNCATE commands?
11. What is the purpose of the GROUP BY clause in SQL?
12. How would you retrieve the first 5 records from a table?
13. Explain the difference between WHERE and HAVING clauses.
14. What is the purpose of the LIKE operator in SQL?
15. How would you combine data from two tables without using JOIN?
16. What is the difference between COUNT(*) and COUNT(column_name)?
17. Explain the concept of NULL values in SQL.
18. How would you find duplicate records in a table?
19. What is the purpose of the DISTINCT keyword?
20. How would you convert a string to uppercase in SQL?
21. Explain the difference between UNION and UNION ALL.
22. What is a self-join and when would you use it?
23. How would you calculate the average of a column, excluding NULL values?
24. What is the purpose of the ORDER BY clause?
25. How would you insert multiple rows into a table with a single SQL statement?
26. Explain the concept of data integrity in SQL.
27. How would you retrieve the current date and time in SQL?
28. What is the difference between a view and a table in SQL?
29. Can you explain the concept of database transactions and why they are important?
30. How do you handle performance optimization in SQL queries?
31. Can you describe a time you had to troubleshoot a deadlock issue in a database?
32. What are the differences between OLTP and OLAP systems?
33. How would you approach database schema design for a new application?
34. What methods do you use to ensure data security in SQL databases?
35. How do you handle database migration from one system to another?
36. What is your approach to backup and disaster recovery for SQL databases?
37. Can you explain the difference between horizontal and vertical scaling in databases?
38. Can you explain what a query execution plan is and how you would use it to optimize a query?
39. What are some common methods for optimizing SQL queries?
40. How would you approach indexing a large table to improve query performance?
41. Can you describe what a covering index is and how it can benefit query performance?
42. What is query caching and how can it improve performance?
43. How would you identify and resolve a slow-running query?
44. Can you explain the concept of a query optimizer and its role in SQL query execution?
45. What are the differences between clustered and non-clustered indexes in terms of performance?
46. How would you handle a situation where a query is causing a lock contention issue?
47. What are some best practices for writing efficient SQL queries?
48. Can you explain the concept of query statistics and how they are used for optimization?
49. How would you optimize a query that involves multiple JOIN operations?
50. How would you approach designing a database schema for a social media platform?
51. Can you explain the concept of database normalization and when you might choose to denormalize?
52. How would you design a database to handle time-series data efficiently?
53. Explain the concept of database sharding and when you might use it.
54. How would you design a database to support multi-tenancy in a SaaS application?
55. Can you explain the concept of eventual consistency in distributed databases?
56. How would you design a database to handle hierarchical data structures efficiently?