

131 SQL Interview Questions to Hire Top Engineers

Questions

1. Imagine you have a box (table) of toys (data) with labels (columns) like 'toy_name' and 'color'. How do you list all the toys that are blue?
2. You have two boxes of toys: one with toy names and another with toy prices. How do you combine them to see each toy's name and its price in one list?
3. If you want to know how many toys of each color you have, how would you find that out?
4. Suppose you have a list of students and their scores. How would you find the student with the highest score?
5. Let's say you have a table of orders. How would you retrieve all orders placed in the last week?
6. You have a list of products. How do you find all products that cost more than \$20?
7. If you have a table of customers and their addresses, how do you find all customers who live in 'New York'?
8. Given a table of employees, how do you find the average salary of all employees?
9. Suppose you have a table of songs and their artists. How do you list all the songs by a specific artist?
10. Imagine you need to find customers whose names start with the letter 'A'. How do you do it?
11. If you have a table of books and their authors, how do you count how many books each author has written?
12. Given a table of students and their grades, how do you find all students who passed (grade >= 60)?
13. Let's say you have a table of events and their dates. How do you find all events that happened in January?
14. You have a list of movies. How do you find all movies that are longer than 2 hours?
15. If you have a table of users and their registration dates, how do you find the oldest user?
16. Suppose you have a table of products and their categories. How would you retrieve all products from a specific category, like 'Electronics'?
17. Imagine you need to update the price of a specific product in your product table. How do you do it?
18. Let's say you need to remove a specific order from your orders table. How do you delete that order?
19. You have a table of users. How do you find the names of users without any duplicates?
20. You have two tables: one with customer information and another with order details. How do you find the customers who have not placed any orders?
21. If you have a table of blog posts, how do you retrieve the most recent five posts?
22. Given a table of employees, how do you find the second highest salary?
23. Suppose you have a table of transactions. How would you calculate a running total of all transactions based on their dates?
24. If you have a table of products and their prices, how do you find the product with the lowest price?
25. Given two tables representing students and courses, respectively, write a SQL query to find the names of all students who are enrolled in a particular course.
26. Suppose you have an 'employee' table. Write a SQL query to retrieve all employees whose salary is above the average salary of all employees. Also, order the result by salary in descending order.
27. Imagine you have a table of students and their test scores. How do you find the student with the highest score?
28. If you have a table of products with their prices, how do you find the average price of all products?
29. You've got two tables: one with customer info and another with their orders. How do you combine them to see each customer's information alongside their orders?
30. Let's say you have a table of employees and their salaries. How do you list employees who earn more than a specific amount?
31. If you have a table of items and their categories, how do you count how many items are in each category?
32. Suppose you have a table of transactions with dates. How do you find all transactions that happened within a certain date range?
33. You have a table showing which students are enrolled in which courses. How do you find all students enrolled in a specific course?
34. If you have a table of blog posts, how would you retrieve the most recent post?
35. Imagine a table of songs and artists. How do you find all songs by a specific artist?
36. You have a table of customer support tickets with their status. How would you count the number of open tickets?
37. Consider a table of books with their titles and authors. How do you find books with a specific word in their title?
38. If you have a table tracking website visits, how do you find the number of visits from a specific country?
39. How do you select all the unique values from a column in a table?
40. If you wanted to sort the results of a query, how would you do it?
41. Explain how to retrieve data from a table where a specific column is empty.
42. Suppose there is a table with 'name' and 'age' columns. How can you select all people older than 25, and sort them by name?
43. If you have a table of products with names and prices, how do you show only the top 5 most expensive items?
44. Imagine you have a table tracking users and when they last logged in. How do you find users who haven't logged in the last 30 days?
45. You have two tables: One with customer information and the other with order information. How would you find the customer name and total amount spent for each customer?
46. If you have a 'products' table with price information, how can you calculate the difference between the highest and lowest price?
47. There's a table containing user's sign up dates and their last login dates. How would you find users whose last login date is the same as their sign up date?
48. If you have a table of employees, how would you find the oldest employee in each department?
49. How do you select data from one table that does not exist in another table, based on a common column?
50. If you wanted to update multiple columns in a table at once, what SQL command would you use?
51. Imagine you have a table of customer orders. How would you find the customer who placed the most orders this month?
52. Let's say you have two tables: one with employee info and another with their department info. How can you retrieve the employee's name along with their department name?
53. You have a table with product sales. How would you calculate the rolling average of sales over the last 7 days?
54. Given a table of user activity logs, how can you identify users who have been inactive for more than 30 days?
55. You have a table with transaction data, including transaction date and amount. How would you find the month with the highest total transaction amount?
56. Suppose you have a table of students and their exam scores. How can you determine the rank of each student based on their score?
57. If you have a table of website traffic data, how would you identify the top 5 most visited pages?
58. Let's say you have a table of employees with their salaries. How can you calculate the difference between each employee's salary and the average salary?
59. Given a table of customer data, how would you segment customers based on their spending habits (e.g., low, medium, high spenders)?
60. You have a table with product inventory levels. How would you identify products that are below a certain reorder point?
61. Suppose you have a table of events with start and end times. How can you find events that overlap in time?
62. If you have a table of sales data with date and region, how would you calculate the year-over-year growth for each region?
63. Imagine a table of user subscriptions with start and end dates. How do you find active subscriptions on a specific date?
64. You have a table of items and their categories. Find the category with the most number of items.
65. How can you retrieve records from one table that don't exist in another, based on a common field?
66. Given a table of employees with hierarchy (manager/employee relationship), how do you find all direct and indirect reports of a given manager?
67. You have sales data with order date and amount. How would you calculate the cumulative sales for each day?
68. Suppose you have a table of users with signup date. How do you calculate the number of new users who signed up each month?
69. If you're given a table of articles with view counts. How can you find the articles with view counts greater than the average view count?
70. You have a table with customer ID and purchase date. Determine the number of customers who made their first purchase in the last quarter.
71. Imagine you're given a log table with timestamps. How can you identify consecutive failed login attempts from the same IP address?
72. Consider that you have a table with appointment schedules. How can you find available time slots between appointments?
73. You have a table of survey responses. How would you compute the percentage of respondents who answered a specific question in a certain way?
74. If you have a table of customer reviews. How would you find the top 5 most frequently used words in the reviews?
75. Let's say you have a table of cities and their populations. How would you find the median population across all cities?
76. Suppose you have a table of stock prices. How would you identify the days with the largest price fluctuations?
77. Given two tables, one with user information and another with subscription details, how would you identify users whose subscription is about to expire within the next 7 days?
78. How would you optimize a slow-running query without adding indexes?
79. Describe your experience with different SQL dialects (e.g., MySQL, PostgreSQL, SQL Server) and how you adapt your code for each.
80. Explain how you would design a database schema for an e-commerce platform, considering scalability and performance.
81. How do you handle data migration between different database systems?
82. Describe a time you had to troubleshoot a deadlock situation in SQL Server. What were the steps you took?
83. Explain how you would implement a custom windowing function if it wasn't available in your SQL dialect.
84. How would you ensure data consistency when performing multiple updates across related tables?
85. Describe your experience with performance tuning SQL queries using execution plans.
86. How do you approach identifying and resolving performance bottlenecks in a database system?
87. Explain how you would design a system to prevent SQL injection attacks.
88. Describe your experience with database replication and its benefits.
89. How do you monitor database performance and identify potential issues proactively?
90. Explain how you would optimize a database for read-heavy vs. write-heavy workloads.
91. Describe your experience with different types of database backups and recovery strategies.
92. How would you implement a system to track changes to data over time (e.g., auditing or versioning)?
93. Explain how you would handle large data sets (e.g., millions or billions of rows) in SQL queries.
94. Describe your experience with using Common Table Expressions (CTEs) for complex queries.
95. How would you implement a full-text search functionality in your database?
96. Explain how you would design a data warehouse schema for business intelligence reporting.
97. Describe your experience with database security best practices.
98. How do you approach testing SQL code to ensure its correctness and performance?
99. Explain the trade-offs between different isolation levels in SQL transactions.
100. Describe a time you had to debug a complex stored procedure. What tools and techniques did you use?
101. How would you design a system for handling user authentication and authorization in a database application?