Starting SQL Interviews Preparation in 2025?

1. What is a database, and how is it different from a DBMS?

2. How does MySQL differ from other relational database management systems?

3. What are the main data types available in MySQL?

4. What is the difference between INT and DECIMAL data types?

5. How is DATE different from DATETIME in MySQL?

6. What is a foreign key, and how would you use it in databases?

7. What are the differences between INNER JOIN, LEFT JOIN, RIGHT JOIN, and FULL JOIN?

8. What is the difference between DELETE, TRUNCATE, & DROP in MySQL?

9. How do you create and modify a table in MySQL? Provide examples.

10. What is a temporary table in SQL?

11. What is a subquery in MySQL? Explain with an example.

12. How would you use an INSERT statement in MySQL to add data to a table? Also, do you have some best practices for this?

13. What is the significance of the AUTO\_INCREMENT attribute in MySQL?

14. What is a view in MySQL?

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15. What are system-versioned tables, and how do they work?

16. What are MySQL transactions, and how do you use them?

17. What is a default constraint in MySQL? How do you set a default value for a column?

18. How would you use string functions in SQL to manage text?

19. How would you update a specific row in a database with SQL?

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20. What is a trigger in MySQL? How do you implement it?

21. Why does adding an index make SQL queries faster?

22. What data type do we use for the product's weight and price in an SQL table, and why?

23. How do you find duplicate rows in SQL with a window function?

24. How do you create and use a stored procedure with parameters in MySQL? Explain with an example.

25. Why is referential integrity important in a database?

1. Find the second-highest salary in a table without using LIMIT or TOP.

2. Write a SQL query to find all employees who earn more than their managers.

3. Find the duplicate rows in a table without using GROUP BY.

4. Write a SQL query to find the top 10% of earners in a table.

5. Find the cumulative sum of a column in a table.

6. Write a SQL query to find all employees who have never taken a leave.

7. Find the difference between the current row and the next row in a table.

8. Write a SQL query to find all departments with more than one employee.

9. Find the maximum value of a column for each group without using GROUP BY.

10. Write a SQL query to find all employees who have taken more than 3 leaves in a month.

**Here are the answers to these questions:**

1. SELECT MAX(salary) FROM table WHERE salary NOT IN (SELECT MAX(salary) FROM table)

2. SELECT e1.\* FROM employees e1 JOIN employees e2 ON e1.manager\_id = (link unavailable) WHERE e1.salary > e2.salary

3. SELECT \* FROM table WHERE rowid IN (SELECT rowid FROM table GROUP BY column HAVING COUNT(\*) > 1)

4. SELECT \* FROM table WHERE salary > (SELECT PERCENTILE\_CONT(0.9) WITHIN GROUP (ORDER BY salary) FROM table)

5. SELECT column, SUM(column) OVER (ORDER BY rowid) FROM table

6. SELECT \* FROM employees WHERE id NOT IN (SELECT employee\_id FROM leaves)

7. SELECT \*, column - LEAD(column) OVER (ORDER BY rowid) FROM table

8. SELECT department FROM employees GROUP BY department HAVING COUNT(\*) > 1

9. SELECT MAX(column) FROM table WHERE column NOT IN (SELECT MAX(column) FROM table GROUP BY group\_column)

10. SELECT \* FROM employees WHERE id IN (SELECT employee\_id FROM leaves GROUP BY employee\_id HAVING COUNT

**🔴 25 Key Python Differences for Data Engineers! 🔴**

Master these crucial concepts to ace your next Python interview:

1️⃣ Interpreter vs Compiler - How Python executes code.

2️⃣ Mutable vs Immutable - Data types and their behavior.

3️⃣ Serialization vs Deserialization - Storing and retrieving data.

4️⃣ List vs Tuple - Which is faster and why?

5️⃣ Dict vs Set - Key-value vs unique items.

6️⃣ Set vs Frozenset - Mutable vs immutable sets.

7️⃣ List vs Array - Python lists vs traditional arrays.

8️⃣ Deep Copy vs Shallow Copy - Copy methods and impacts.

9️⃣ Map vs Filter vs Reduce - Functional programming tools.

🔟 Append vs Extend - Adding elements to lists efficiently.

1️⃣1️⃣ Is vs == - Identity vs value comparison.

1️⃣2️⃣ For vs While - Picking the right loop.

1️⃣3️⃣ Break, Continue, Pass - Loop controls made easy.

1️⃣4️⃣ Function vs Lambda - Named vs anonymous functions.

1️⃣5️⃣ Range vs Enumerate - Efficient iteration techniques.

1️⃣6️⃣ Yield vs Return - Generators vs regular functions.

1️⃣7️⃣ Len vs Count - Measuring vs counting.

1️⃣8️⃣ Split vs Partition - String manipulation tools.

1️⃣9️⃣ Sort vs Sorted - In-place vs new list sorting.

2️⃣0️⃣ Try Except vs Finally - Exception handling essentials.

2️⃣1️⃣ Positional vs Keyword Args - Function call flexibility.

2️⃣2️⃣ Zip vs Enumerate - Combining or tracking sequences.

2️⃣3️⃣ Iterator vs Generator - Iteration strategies explained.

2️⃣4️⃣ Local vs Global Variables - Variable scope demystified.

2️⃣5️⃣ Pickle vs Unpickle - Saving and loading objects.