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# Master SQL Interviews

Important SQL Topics to crack any SQL Interviews

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There are plenty of people in the field of data science who are using SQL in their day-to-day life. But many of them are confused about what topics to prepare to crack any SQL interviews!

Today we will break down each topics of SQL which you need to prepare for to Ace any SQL Interviews.

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## **1. Data Retrieval**

### **1.1 SELECT Statements:**

- Syntax and basic usage.
- DISTINCT keyword.
- Aliasing columns.

### **1.2 Filtering and Sorting:**

- WHERE clause for filtering.
- ORDER BY for sorting.
- LIMIT/OFFSET for result set control.

### **1.3 Aggregations**

- GROUP BY clause.
- HAVING clause for filtering aggregated data.
- Aggregate functions (SUM, AVG, COUNT, etc.).

## **2. Joins and Relationships:**

- Different types of joins (INNER, LEFT, RIGHT).
- CROSS JOIN and self-joins.
- Understanding foreign keys and relationships.

## **3. Data Modification:**

- INSERT, UPDATE, DELETE statements.
- Transactions and COMMIT/ROLLBACK.
- Handling constraints during modifications.

## **4. Data Transformation**

- CASE statements for conditional logic.
- COALESCE and NULL handling.
- Data type conversions.
- String and date functions.

## **5. Indexes and Optimization**

- Importance of indexes.
- EXPLAIN statement for query optimization.
- Analyzing query performance.
- Avoiding unnecessary subqueries.

## **6. Normalization and Denormalization**

- Concepts of normalization (1NF, 2NF, 3NF).
- Denormalization for performance. Balancing normalization for efficient data storage.

## **7. Stored Procedures and Triggers**

- Creating and using stored procedures.
- Triggers for automating actions on data changes.
- Parameterized stored procedures.

## **8. Performance Tuning**

- Analyzing and optimizing slow queries.
- Query plan analysis.
- Proper use of indexes and statistics.

## **9. Advanced SQL Features**

- Window functions for complex aggregations.

- Common Table Expressions (CTEs).
- Recursive queries.
- Pivot and Unpivot operations.

## **10. Subqueries**

- Understanding and using subqueries.
- Correlated subqueries.
- EXISTS and NOT EXISTS.

## **11. Data Security**

- GRANT and REVOKE for access control.
- Role-based access control.
- Securing sensitive data.

## **Conclusion**

If you will learn and practice all above SQL Topics then you can crack almost all the SQL Interviews in any field like Data Engineering, Data Analytics, or Data Scientist.

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**Best of luck with your journey!!!**

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