SQL Roadmap for Interviews & Online Assessments

SQL Roadmap (Covers Everything Needed for Interviews & Assessments):

1. SQL Fundamentals (quick refresh)
   - Data Types, Constraints (PK, FK, UNIQUE, NOT NULL, CHECK, DEFAULT)
   - DDL, DML, DCL, TCL

2. Basic Queries
   - SELECT, DISTINCT, WHERE, ORDER BY, LIMIT/TOP
   - Practice: Top 5 salaries, customers from multiple countries

3. Aggregations & Grouping
   - COUNT, SUM, AVG, MIN, MAX
   - GROUP BY, HAVING
   - Practice: Department-wise average salary, count customers per city

4. Joins (most important)
   - INNER, LEFT, RIGHT, FULL, SELF JOIN
   - Practice: Employees & Managers, Customers with/without orders

5. Subqueries
   - Single-row, Multi-row, Correlated
   - Practice: Employees earning above average, orders without payments

6. Set Operations
   - UNION, INTERSECT, EXCEPT
   - Practice: Customers who ordered but not paid

7. Advanced SELECT
   - CASE WHEN, COALESCE, NULLIF, EXISTS/NOT EXISTS
   - Practice: Categorize customers as Premium/Regular

8. Window Functions (interview favorite)
   - ROW_NUMBER, RANK, DENSE_RANK, PARTITION BY
   - Running totals, moving averages
   - Practice: 2nd highest salary per department

9. Complex Query Patterns
   - Top-N per group, Gaps & Islands, Duplicate detection
   - Practice: Continuous absent dates, duplicate records

10. Schema-based Queries (real-world interview style)
    - Orders-Customers-Products schema practice
    - Queries: Most sold product/month, inactive users, revenue per region

11. Optimization Awareness
    - EXPLAIN, Indexes, Avoid SELECT *