**Learn SQL from basic to advanced level in 30 days**

**Week 1: SQL Basics**

*Day 1: Introduction to SQL and Relational Databases*

Overview of SQL Syntax

Setting up a Database (MySQL, PostgreSQL, or SQL Server)

*Day 2: Data Types (Numeric, String, Date, etc.)*

Writing Basic SQL Queries:

SELECT, FROM

*Day 3: WHERE Clause for Filtering Data*

Using Logical Operators:

AND, OR, NOT

*Day 4: Sorting Data: ORDER BY*

Limiting Results: LIMIT and OFFSET

Understanding DISTINCT

*Day 5: Aggregate Functions:*

COUNT, SUM, AVG, MIN, MAX

*Day 6: Grouping Data: GROUP BY and HAVING*

Combining Filters with Aggregations

*Day 7: Review Week 1 Topics with Hands-On Practice*

Solve SQL Exercises on platforms like HackerRank, LeetCode, or W3Schools

**Week 2: Intermediate SQL**

*Day 8: SQL JOINS:*

INNER JOIN, LEFT JOIN

***Day 9: SQL JOINS Continued:***

RIGHT JOIN, FULL OUTER JOIN, SELF JOIN

***Day 10: Working with NULL Values***

Using Conditional Logic with CASE Statements

***Day 11: Subqueries: Simple Subqueries (Single-row and Multi-row)***

Correlated Subqueries

***Day 12: String Functions:***

CONCAT, SUBSTRING, LENGTH, REPLACE

***Day 13: Date and Time Functions:***

NOW, CURDATE, DATEDIFF, DATEADD

***Day 14: Combining Results:***

UNION, UNION ALL, INTERSECT, EXCEPT

*Review Week 2 Topics and Practice*

**Week 3: Advanced SQL**

***Day 15: Common Table Expressions (CTEs)***

WITH Clauses and Recursive Queries

***Day 16: Window Functions:***

ROW_NUMBER, RANK, DENSE_RANK, NTILE

***Day 17: More Window Functions:***

LEAD, LAG, FIRST_VALUE, LAST_VALUE

***Day 18: Creating and Managing Views***

Temporary Tables and Table Variables

***Day 19: Transactions and ACID Properties***

Working with Indexes for Query Optimization

***Day 20: Error Handling in SQL***

Writing Dynamic SQL Queries

*Day 21: Review Week 3 Topics with Complex Query Practice*

Solve Intermediate to Advanced SQL Challenges

**Week 4: Database Management and Advanced Applications.**

***Day 22: Database Design and Normalization:***

1NF, 2NF, 3NF

***Day 23: Constraints in SQL:***

PRIMARY KEY, FOREIGN KEY, UNIQUE, CHECK, DEFAULT

***Day 24: Creating and Managing Indexes***

Understanding Query Execution Plans

***Day 25: Backup and Restore Strategies in SQL***

Role-Based Permissions

***Day 26: Pivoting and Unpivoting Data***

Working with JSON and XML in SQL

***Day 27: Writing Stored Procedures and Functions***

Automating Processes with Triggers

***Day 28: Integrating SQL with Other Tools (e.g., Python, Power BI, Tableau)***

SQL in Big Data: Introduction to NoSQL

### *Day 29: Query Performance Tuning:*

Tips and Tricks to Optimize SQL Queries

### *Day 30: Final Review of All Topics*

Attempt SQL Projects or Case Studies (e.g., analyzing sales data, building a reporting dashboard)