

That's great! SQL is an essential skill for data analysis and data science. Here's a roadmap to help you learn SQL with a focus on data analytics and data science:

1. Basic SQL Commands

- SELECT: Retrieve data from a database.
- WHERE: Filter records.
- ORDER BY: Sort data.
- LIMIT: Limit the number of records returned.
- DISTINCT: Get unique values.
- GROUP BY: Group rows sharing a property so aggregate functions can be applied.
- HAVING: Filter groups of records.

2. Working with Joins

- INNER JOIN: Retrieve records that have matching values in both tables.
- LEFT JOIN: Get all records from the left table and matched records from the right table.
- RIGHT JOIN: Get all records from the right table and matched records from the left table.
- FULL OUTER JOIN: Get all records when there is a match in either left or right table.

3. Aggregating Data

- COUNT(): Count the number of rows.
- SUM(): Sum values.
- AVG(): Calculate the average.
- MIN() and MAX(): Find the minimum and maximum values.

4. Subqueries and Nested Queries

- Write queries inside other queries for advanced filtering or data aggregation.

5. Advanced SQL Functions

- CASE: Perform conditional operations.
- COALESCE: Return the first non-null value.
- STRING FUNCTIONS: e.g., `CONCAT()`, `SUBSTRING()`, `TRIM()`, etc.

6. Window Functions

- ROW_NUMBER(): Assign a unique row number to each row.
- RANK(): Rank rows with gaps in ranking.
- PARTITION BY: Divide the result set into partitions.

7. Data Manipulation

- INSERT: Add new records to a table.
- UPDATE: Modify existing records.
- DELETE: Remove records from a table.

8. Working with Views

- Create and use views for simplifying complex queries or joining multiple tables.

9. Performance Tuning

- Indexes: Speed up the querying process.
- EXPLAIN: Analyze how a query runs and optimize it.

10. SQL for Data Science

- Data Extraction: Use SQL to extract relevant data for analysis.
- Data Cleaning: Handle missing or inconsistent data using SQL.
- Data Transformation: Use SQL to reshape and prepare data for analysis.

Tools You Can Use:

- MySQL, PostgreSQL, or SQL Server: Popular relational databases.
- Jupyter Notebooks: Use ``SQLAlchemy`` or ``%sql`` magic for querying within Python.

You can practice these concepts by working on real-world datasets and building your analytical skills step-by-step.