

PostgreSQL for Data Science – Full Roadmap

1. Basics (Database Foundation)

- PostgreSQL Introduction & Installation
- Database, Table, Schema concepts
- CREATE, INSERT, SELECT, UPDATE, DELETE
- Data Types & Constraints (PRIMARY KEY, FOREIGN KEY)

2. Querying & Filtering

- WHERE, ORDER BY, LIMIT, DISTINCT
- Aggregate Functions: COUNT, SUM, AVG, MAX, MIN
- GROUP BY, HAVING
- CASE & Conditional Logic

3. Joins & Subqueries

- INNER, LEFT, RIGHT, FULL JOIN
- Self Join
- Subqueries (IN, EXISTS, ANY, ALL)
- Set Operations: UNION, INTERSECT, EXCEPT

4. Data Functions

- String: UPPER, TRIM, SUBSTRING, REPLACE
- Date & Time: AGE, EXTRACT, DATE_PART
- Math: ROUND, CEIL, FLOOR

5. Advanced SQL (Analytics Level)

- Window Functions: ROW_NUMBER, RANK, LAG, LEAD