Task-4

Objective:

Learn to summarize and analyze tabular data by using SQL aggregate functions like `SUM`, `COUNT`, `AVG`, etc., along with **GROUP BY** and **HAVING** clauses.

Tools:

You can use:

- **DB Browser for SQLite**
- **MySQL Workbench**

These tools allow you to write and run SQL queries on sample or real databases.

What We'll Practice:

1. **Aggregate Functions**:
   - `SUM(column)` – total value
   - `COUNT(column)` – number of records
   - `AVG(column)` – average value
   - `MAX(column)` / `MIN(column)` – highest/lowest value
2. **GROUP BY**:
   - Used to group rows that share a common value in one or more columns.
3. **HAVING**:
   - Filters groups based on conditions (similar to WHERE, but used *after* GROUP BY).

Examples:

1. Total Sales by Product

```
sql
CopyEdit
SELECT product_id, SUM(sale_amount) AS total_sales
FROM sales
GROUP BY product_id;
```

2. Number of Orders per Customer

```
sql
CopyEdit
SELECT customer_id, COUNT(order_id) AS total_orders
FROM orders
GROUP BY customer_id;
```

3. Average Salary per Department with Condition

```
sql
CopyEdit
SELECT department, AVG(salary) AS avg_salary
FROM employees
GROUP BY department
HAVING AVG(salary) > 50000;
```

☑ Outcome

We will gain the ability to:

- **Summarize large datasets**
- **Identify trends or patterns**
- **Perform analytics** like "top-selling products" or "departments with high average salaries"
