Customer Shopping Behaviour Analysis

Python • SQL • Power BI

📌 Problem Statement

The objective of this project is to analyze customer shopping behavior data to understand **revenue distribution, customer spending patterns, product performance, subscription impact, and demographic contribution to revenue**.

The project involves cleaning and transforming raw customer data using Python, exporting it into a PostgreSQL database, performing SQL-based analysis to answer business questions, and visualizing insights using Power BI.

SQL Problem Statements

1. Retrieve all customer records from the database for analysis.
2. Analyze **total revenue generated by male vs female customers** to understand gender-based spending patterns.
3. Identify customers who **used discounts but still spent more than the average purchase amount**, highlighting high-value customers despite promotional offers.
4. Determine the **top 5 products with the highest average customer review ratings** to evaluate product satisfaction.
5. Compare the **average purchase amount between Standard and Express shipping types** to assess the impact of shipping options on spending behavior.
6. Evaluate whether **subscribed customers spend more than non-subscribed customers** by comparing:
    - Customer count
    - Average purchase amount
    - Total revenue contribution
7. Analyze whether **repeat buyers (customers with more than 5 previous purchases)** are more likely to subscribe to the service.
8. Calculate the **revenue contribution of each age group** to understand demographic-driven sales performance.

📊 Power BI Dashboard Objectives

1. Visualize **total revenue, average purchase amount, and customer count** using KPI indicators.
2. Display **revenue distribution across age groups** to identify the most profitable customer segments.
3. Compare **spending behavior of subscribed vs non-subscribed customers**.
4. Analyze **sales and revenue across product categories**.
5. Highlight **top-rated products** based on average customer reviews.
6. Compare **purchase behavior by shipping type** using interactive visuals.