Customer Purchase Behavior Analysis Retail Fashion

1. Business Problem Statement

A retail fashion company wants to analyze customer purchase behavior to improve marketing, inventory planning, and product recommendations. The goal is to understand:

- Which customer segments contribute the most revenue
- Trends across product categories, seasons, and purchase frequency
- How shipping types, discounts, and promo codes impact purchases
- Customer preferences based on location, subscription status, and payment method

This analysis will help the company make **data-driven business decisions** and optimize sales strategies.

2. Objective

Perform an end-to-end **Excel data analysis** with the following steps:

1. Data Loading
2. Data Cleaning
3. Data Preprocessing
4. Dashboard building (PivotTables and PivotCharts)
5. Insight generation based on observed patterns

3. Dataset Description

Dataset :- Customer Purchase Dataset

The dataset contains **customer-level purchase data** with the following columns:

Column Name	Description
Customer ID	Unique identifier for each customer
Age	Age of the customer
Gender	Gender of the customer (Male/Female)
Item Purchased	Name of the product purchased
Category	Product category (Clothing, Footwear, Accessories, Outerwear)
Purchase Amount (USD)	Amount spent per purchase (used as revenue)
Location	State of the customer

Column Name	Description
Size	Size of the product purchased
Color	Color of the product
Season	Season in which the purchase occurred (Winter, Spring, Summer, Fall)
Review Rating	Customer rating for the product (1–5)
Subscription Status	Whether the customer has a subscription (Yes/No)
Shipping Type	Shipping method chosen (Express, Free Shipping, Standard, etc.)
Discount Applied	Whether a discount was applied (Yes/No)
Promo Code Used	Whether a promo code was used (Yes/No)
Previous Purchases	Number of previous purchases made by the customer
Payment Method	Payment method used (Cash, Credit Card, PayPal, Venmo, Bank Transfer)
Frequency of Purchases	How often the customer purchases (Weekly, Fortnightly, Monthly, Annually)

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4. Approach / Methodology

Step 1: Data Loading

- Import the dataset into Excel
- Verify column names, data types, and structure

Step 2: Data Cleaning

- Standardize text fields (Location, Size, Color, Season)
- Ensure numeric fields (`Age`, `Purchase Amount (USD)`, `Previous Purchases`, `Review Rating`) are consistent
- Ensure binary fields (`Yes/No`) are uniform
- Remove duplicates based on `Customer ID + Item Purchased`
- Convert the dataset into an Excel Table for easy analysis

Step 3: Data Preprocessing

- Create **derived columns** for better insights:
    - **Age Group:** Young (≤25), Adult (26–50), Senior (>50)
    - **Revenue:** Use `Purchase Amount (USD)`
    - **Subscription Flag:** 1 for Yes, 0 for No
- Verify all data is ready for PivotTables

Step 4: Dashboard & Visualization

Using **PivotTables and PivotCharts**, build the following visualizations:

Dashboard / Chart	Fields to Use	Measure / Notes
Revenue by Product Category	Rows: `Category` Values: `Purchase Amount (USD)` (Sum)	Total revenue per product category
Revenue by Season	Rows: `Season` Values: `Purchase Amount (USD)` (Sum)	Sum of purchase amount by season
Revenue by Age Group and Gender	Rows: `Age Group` Columns: `Gender` Values: `Purchase Amount (USD)` (Sum)	Age Group = Young ≤25, Adult 26–50, Senior >50
Purchase Amount vs. Shipping Type	Rows: `Shipping Type` Values: `Purchase Amount (USD)` (Sum)	Revenue by shipping type
Purchase Amount vs. Payment Method	Rows: `Payment Method` Values: `Purchase Amount (USD)` (Sum)	Revenue by payment method
Impact of Discounts and Promo Codes	Rows: `Discount Applied` / `Promo Code Used` Values: `Purchase Amount (USD)` (Sum)	Compare revenue with/without discounts or promo codes
Review Ratings Distribution	Rows: `Review Rating` Values: `Customer ID` (Count)	Count of purchases per rating
Purchase Frequency Analysis	Rows: `Frequency of Purchases` Values: `Purchase Amount (USD)` (Sum)	Revenue by purchase frequency
Customer Loyalty	X-axis: `Previous Purchases` Y-axis: `Purchase Amount (USD)` (Sum)	Use scatter plot to analyze repeat customers

6. Insights and Findings

After completing the dashboard using PivotTables and charts, provide insights based on the patterns and visual trends observed

Next Steps

1. Push the Project to GitHub

- Create a repository titled **"Amazon-Sales-Analysis-Excel-Dashboard"**.
- Upload the dataset, cleaned file, Pivot tables, and final dashboard.

- Add a clear README with the problem statement, workflow, dashboard screenshots, insights, and recommendations.
- This helps showcase your practical data analysis skills to recruiters and organizations.

2. Post the Project on LinkedIn

- Share your project as a professional post.
- Include:
    - A short summary of the project
    - Skills used (Excel, Data Cleaning, Data Analysis, Dashboarding, Business Insights)
    - Key insights you discovered
    - Dashboard snippets
- Tag relevant communities such as **Innomatics Research Labs**, mentors, and your network to increase visibility and engagement.