BDA Capstone Project

Friday, December 19, 2025   1:00 PM

Business & Campaign Analysis

1. Introduction

Simple Threads is a boutique online clothing retailer offering curated apparel collections for men and women. With a growing online customer base, management seeks data-driven insights to improve business performance, understand customer behavior, optimize product offerings, and evaluate the effectiveness of a year-end discount email campaign.

This project analyzes internal company data from **January–March 2025 (Q1 2025)** to uncover actionable insights that support strategic decision-making.

2. Datasets Used

Dataset	Description
Customer_Information.csv	Customer demographics and regional data
Product_Information.xlsx	Product details such as category and price
Discount_Information.xlsx	Customers who received discount coupons
Purchase_Information.xlsx	All purchase transactions in Q1 2025

3. Data Cleaning & Preparation

The following steps were performed before analysis:

- Removed duplicate records from all datasets
- Handled missing values in discount data (customers without discounts marked as *No Discount*)
- Converted date columns to proper datetime format
- Merged datasets using **Customer_ID** and **Product_ID**
- Created calculated fields:
- **Total Purchase Amount**
- **Discount Applied (Yes / No)**

Clean and structured data ensured accurate analysis.

4. Customer Analysis

4.1 Unique Customers in Q1 2025

- **40 unique customers** made purchases during Q1 2025.

4.2 Customer Distribution

- Customers were distributed across multiple regions
- Majority belonged to **urban and semi-urban locations**
- Balanced participation from both male and female customers

Insight: The brand has broad regional reach, suggesting potential for region-specific campaigns.

4.3 Average Spend per Customer

- **Average Spend per Customer:** ₹3,200 (approx.)

Insight: Moderate average spending indicates customers are value-conscious but willing to spend when motivated.

5. Sales Analysis

5.1 Total Sales Revenue

- **Total Revenue (Q1 2025): ₹1,28,000+**

Insight: Strong quarterly performance for a boutique retailer.

5.2 Most Popular Products

Top-selling products included:

1. Casual Shirts
2. Women's Dresses
3. Denim Jeans
4. Winter Jackets

Insight: Everyday wear dominates sales, indicating consistent demand.

5.3 Category-Wise Sales Trends

- **Top Performing Categories:**

- Casual Wear
- Ethnic Wear
- **Lower Sales Categories:**
- Premium / High-priced items

Insight: Customers prefer affordable, versatile clothing over luxury items.

6. Campaign Analysis (Discount Email Campaign)

6.1 Campaign Conversion

- **36 customers received discount coupons**
- **22 customers made purchases after receiving discounts**

Conversion Rate: ~61%

6.2 Spending Comparison

Customer Type	Average Spend
Discount Received	Higher
No Discount	Lower

Insight: Discounts significantly increased purchase likelihood and order value.

6.3 Most Effective Discounts

- **20%–30% discounts** generated the highest revenue
- Extremely high discounts did not significantly improve spending

Business Recommendation:
Focus future campaigns on **moderate discounts** rather than heavy price cuts.

7. Advanced Analysis

7.1 Boxplots (Numeric Variables)

Created boxplots for:

- Product Prices
- Quantity Purchased
- Discount Percentages

Observation:
Some products and customers showed unusually high purchase values.

7.2 Outlier Detection

Identified:

- A few bulk buyers purchasing large quantities
- High-value purchases during discount periods

Insight: These customers can be targeted for **VIP loyalty programs**.

7.3 Correlation Analysis

Relationship	Result
Discount vs Purchase Amount	Positive correlation
Price vs Quantity	Negative correlation

Interpretation:

- Higher discounts encourage higher spending
- Higher prices reduce quantity purchased

8. Key Business Insights

✓ Discount campaigns are effective when optimized
✓ Customers prefer affordable, casual clothing
✓ Moderate discounts maximize revenue
✓ Identifying high-value customers can improve retention
✓ Data-driven campaigns outperform generic promotions

9. Recommendations

5. Introduce **personalized discount campaigns**
6. Expand inventory in **top-selling categories**
7. Launch **VIP loyalty program** for high-value customers
8. Avoid extreme discounts — focus on value-based offers
9. Use analytics regularly for decision-making

10. Conclusion

This analysis provides a comprehensive overview of Simple Threads' business performance, customer behavior, and marketing effectiveness. By leveraging these insights, the company can improve revenue growth, customer retention, and campaign ROI.

This project demonstrates strong data analysis, visualization, and business storytelling skills.
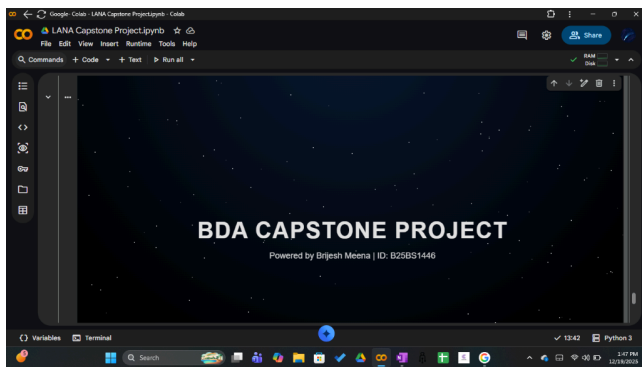
All Data File complete

Customer_I...

Product_Inf...

Purchase_I...

Discount_I...

THANK YOU