Exploratory Data Analysis (EDA) Report
Dataset: Customers Dataset

Insight 1: Customer Distribution by Region

- **South America**: 29.50%
- **Europe**: 25.00%
- **North America**: 23.00%
- **Asia**: 22.50%

Implication: South America has the highest customer distribution, followed by Europe and North America. Asia shows growth potential.

Insight 2: Trends in Customer Signups

- Average signups per month: 5.56
- Peak signup month: September 2024

Implication: Seasonal signup trends indicate a need for marketing campaigns during peak periods, especially in September 2024.

Insight 3: Signup Growth by Region

- **Asia**: 0.00%
- **Europe**: 0.00%
- **North America**: +55.56%
- **South America**: -36.36%

Implication: North America shows significant growth, while South America faces a decline. Asia and Europe may be saturated, requiring innovation or expansion.

Insight 4: Customer Longevity
Data not available, but businesses should focus on enhancing customer retention strategies to increase lifetime value.

Insight 5: Geographic Market Potential
North America presents expansion opportunities. South America needs corrective action to recover market share.

Exploratory Data Analysis (EDA) Report
Dataset: Products Dataset

Insight 1: Price Range by Category

- **Books**: $33.59 - $497.76
- **Clothing**: $18.82 - $481.78
- **Electronics**: $16.08 - $459.86
- **Home Decor**: $41.18 - $454.53

Implication: Categories with wide price ranges, like Books and Clothing, offer potential for targeted pricing and spending analysis.

Insight 2: Product Distribution by Category

- **Books**: 26 products
- **Electronics**: 26 products
- **Clothing**: 25 products
- **Home Decor**: 23 products

Implication: The product distribution is well-balanced, with opportunities to target each category in marketing.

Insight 3: Average Price by Category

- **Books**: $292.21
- **Clothing**: $263.72
- **Electronics**: $275.35
- **Home Decor**: $235.02

Implication: Books, with the highest average price, offer a high-margin opportunity for businesses.

Insight 4: Most and Least Expensive Products

- Most expensive: **TechPro Textbook** ($497.76)
- Least expensive: **SoundWave Smartwatch** ($16.08)

Implication: Target both premium and budget-conscious customers with tailored campaigns.

Insight 5: Revenue by Category

- **Books**: $7597.52 (28.40%)
- **Clothing**: $6593.00 (24.64%)
- **Electronics**: $7159.19 (26.76%)
- **Home Decor**: $5405.46 (20.20%)

Implication: Books and Electronics generate significant revenue, while Home Decor may need targeted marketing for growth.

Exploratory Data Analysis (EDA) Report
Dataset: Transactions Dataset

Insight 1: Top 10 Popular Products

- Most popular: P059 (19 sold), P029 (17 sold), P062 (16 sold)

Implication: These products are in high demand and should be prioritized for inventory management and promotions.

Insight 2: Top 10 Customers by Purchase Frequency

- Most frequent: C0109, C0156 (11 transactions each)

Implication: Loyalty programs can help retain these high-engagement customers.

Insight 3: Average Quantity Purchased Per Transaction

- Average: 2.54

Implication: Strategies like bundle offers or discounts can encourage larger purchases.

Insight 4: Monthly Revenue

- Peak months: January and September 2024

Implication: Focus marketing efforts during these high-revenue months to maximize profitability.

Insight 5: Top 10 Products by Revenue Contribution

- Highest revenue: P029 ($19,513.80), P079 ($17,946.91)

Implication: Prioritize these products in marketing and inventory efforts for consistent revenue.