# Introduction

This report presents the findings from Exploratory Data Analysis (EDA) conducted on the provided datasets: Customers, Products, and Transactions. The analysis highlights key patterns and trends to derive actionable business insights.

# Methodology

1. Data Cleaning: Handled missing values, duplicates, and ensured proper formatting.
2. Merging Datasets: Combined Customers, Products, and Transactions datasets for a comprehensive analysis.
3. Visualizations: Created bar charts, line charts, and heatmaps for deeper insights.

### ****Business Insights****

#### ****1. Regional Sales Contribution****

* The **South American region** contributes the highest sales revenue, surpassing North America, Asia, and Europe.
* Focus on maintaining South America’s performance while boosting sales in underperforming regions like **Asia and North America** through targeted campaigns.

#### ****2. Popular Product Categories****

* **Books** represent the most purchased product category, followed by **Clothing**, **Electronics**, and **Home Decor**.
* Expanding inventory for books or launching discount programs on less popular categories can drive diversification in purchases.

#### ****3. Monthly Sales Trends****

* Sales peak significantly in **January**, followed by steady growth in summer months (June-August), with dips in February and November.
* Focus marketing efforts on weaker months, especially February and November, to achieve consistent monthly revenue.

#### ****4. Top 10 Customers Contribution****

* The top 10 customers, led by **Paul Parsons**, contribute a significant share of total revenue.
* Implement loyalty programs, exclusive discounts, and personalized offers for these high-value customers to ensure retention and increased spending.

#### ****5. Correlation Between Key Metrics****

* A strong positive correlation is observed between **Total Value** and **Price** (both Price\_x and Price\_y), indicating that higher-priced products drive higher total revenue.
* Emphasizing premium product offerings can maximize revenue per transaction.

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