

## **Exploratory Data Analysis (EDA) and Business Insights**

### **1. Yearly Sales Performance**

- Sales in 2024 surged significantly to 2,525 units compared to just 12 units in 2023.
- The sharp growth in 2024 reflects strong market traction, possibly due to product launches, marketing efforts, or partnerships.
- Minimal sales in 2023 indicate early market penetration or the setup phase.
- The data suggests a scalable growth trend, positioning the company for future expansion.
- Monthly or quarterly sales monitoring will provide deeper insights into growth factors and inform strategic decisions.

### **2. Customer Distribution by Region**

- Customers are distributed as follows: Asia (44), Europe (50), North America (46), and South America (59).
- South America leads in customer count, followed closely by Europe and North America.
- Asia represents a smaller share, indicating potential growth opportunities.
- Diverse regional presence suggests the need for tailored strategies for customer acquisition.
- Focused marketing in regions with lower engagement, like Asia, can balance customer distribution and enhance the global footprint.

### **3. Customer Engagement in 'Books' Category**

- The 'Books' category has 154 unique customers, reflecting strong demand and a loyal customer base.
- This category contributes significantly to revenue, highlighting its importance in the product portfolio.
- Expanding the category through exclusive offers, targeted promotions, and personalized recommendations could drive growth.
- Tracking customer behavior within this category will enable more effective strategies for retention and revenue generation.

### **4. Correlation Analysis**

- The correlation matrix reveals relationships between numeric variables like Quantity, TotalValue, and TransactionRevenue.
- Strong correlations, such as between Quantity and TotalValue, suggest that increased sales volume boosts revenue.
- These insights aid in refining strategies for pricing, inventory management, and revenue optimization.
- Further analysis can support predictive models for forecasting and segmentation.

### **5. Repeat Customers and Their Revenue Contribution**

- An impressive 93.97% of customers are repeat buyers, contributing 99.21% of total revenue.
- This demonstrates high customer retention and satisfaction levels.
- Loyalty programs and incentives have been effective in fostering repeat purchases.
- Expanding retention efforts and enhancing personalized experiences can solidify long-term relationships.
- Repeat customers provide a stable and reliable revenue stream for sustained growth.

## **6. Revenue Contribution by Category**

- Revenue distribution by category: Books (27.94%), Electronics (25.37%), Clothing (24.58%), and Home Decor (22.10%).
- Books and Electronics are the leading revenue generators, driving business profitability.
- Clothing and Home Decor also contribute significantly to the revenue mix.
- Strategies should focus on reinforcing high-performing categories like Books and Electronics.
- Further analysis of product-specific trends can optimize inventory and marketing efforts for all categories.