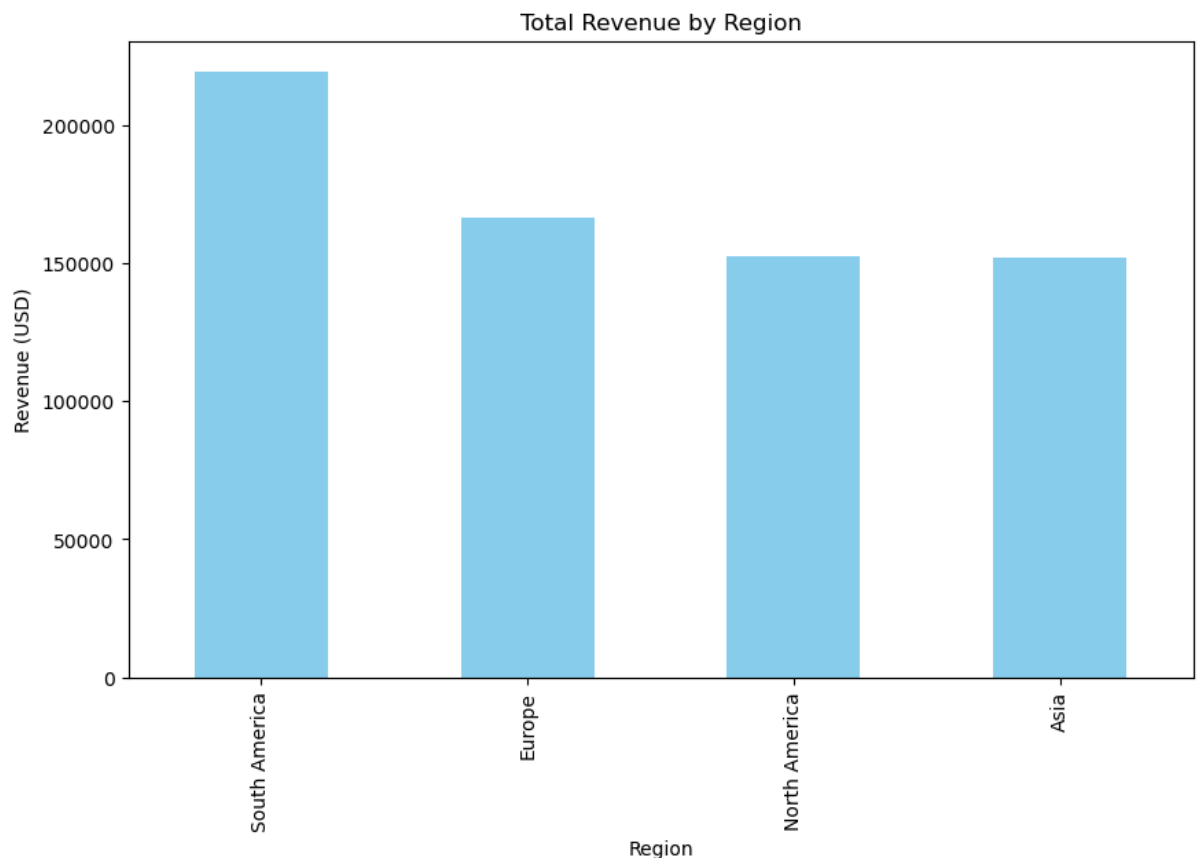# Exploratory Data Analysis and Business Insights

### 1) Total revenue by region



The graph shows revenue by region, with **South America** leading at over **200,000 USD**, making it the top performer. **Europe** ranks second, contributing around **175,000 USD**. **North America** and **Asia** generate similar revenue, approximately **150,000 USD** each.

South America's strong performance highlights it as a key area for further investment. Europe's steady revenue suggests it is a reliable market. North America and Asia, while lower in revenue, present growth opportunities through better strategies like targeted marketing and partnerships.

 Overall, South America stands out, but all regions have potential for improvement.

## 2) Monthly revenue trend
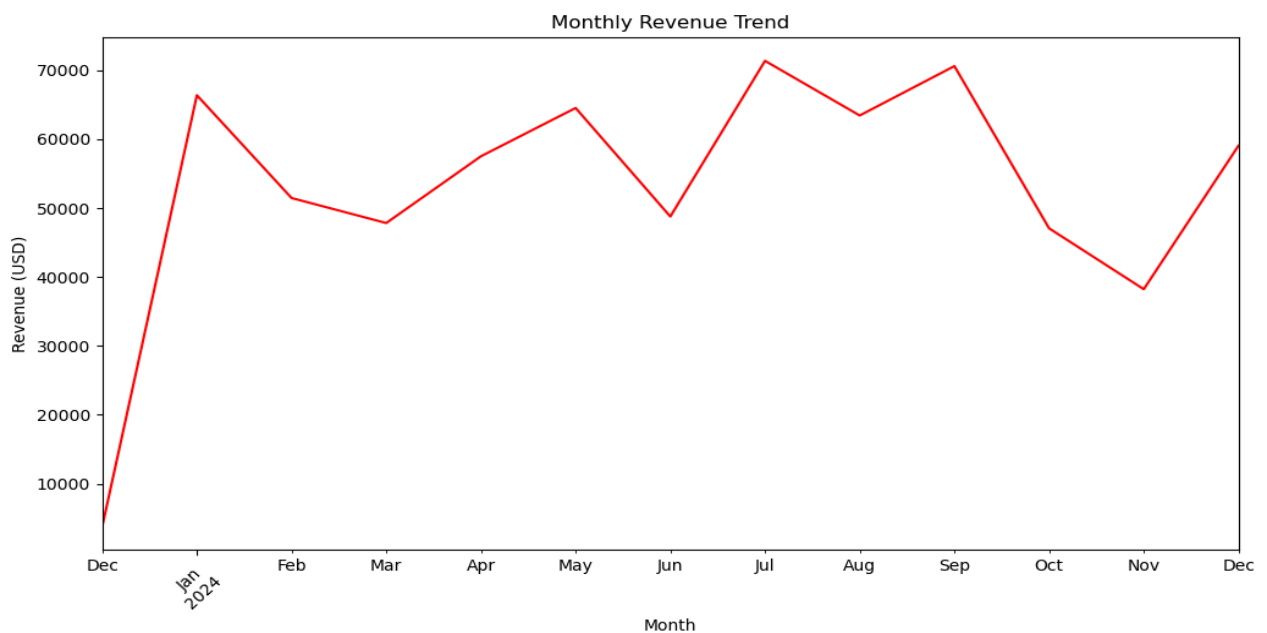


The graph shows how revenue changes each month. **January** had the highest revenue at **70,000 USD**, making it the strongest month. From **February to June**, revenue stayed steady between **50,000 and 60,000 USD**.

 There was another peak in **August**, but revenue dropped in **September and October**. By **November and December**, revenue started to rise again.

This pattern suggests some months perform better than others, possibly due to seasonal factors.

To improve overall performance, efforts should focus on boosting revenue during slow months like **September and October** while maintaining strong performance in peak months.

## 3) Top 10 Products by Total Revenue
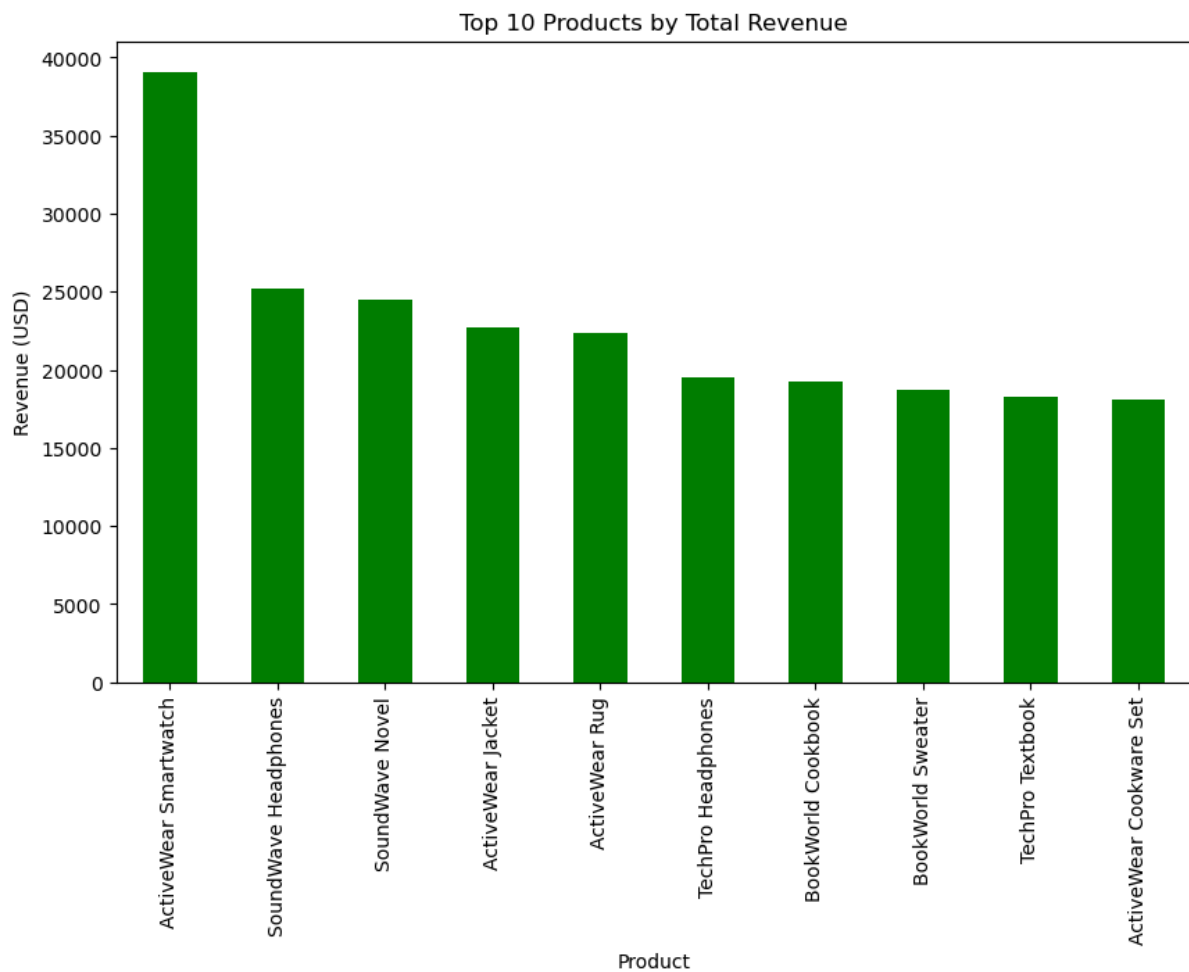


The chart shows the top 10 products based on revenue. The **ActiveWear Smartwatch** earns the most, making over $40,000. **SoundWave Headphones** and **SoundWave Novel** follow, earning between $25,000 and $30,000. Other popular items, like the **ActiveWear Jacket**, **ActiveWear Rug**, and **TechPro Headphones**, earn around $20,000 to $25,000. Products like the **BookWorld Cookbook**, **BookWorld Sweater**, **TechPro Textbook**, and **ActiveWear Cookware Set** also perform well.

This shows a mix of best-selling products across categories.

## 4) Revenue by Product Category



**Revenue by Product Category**
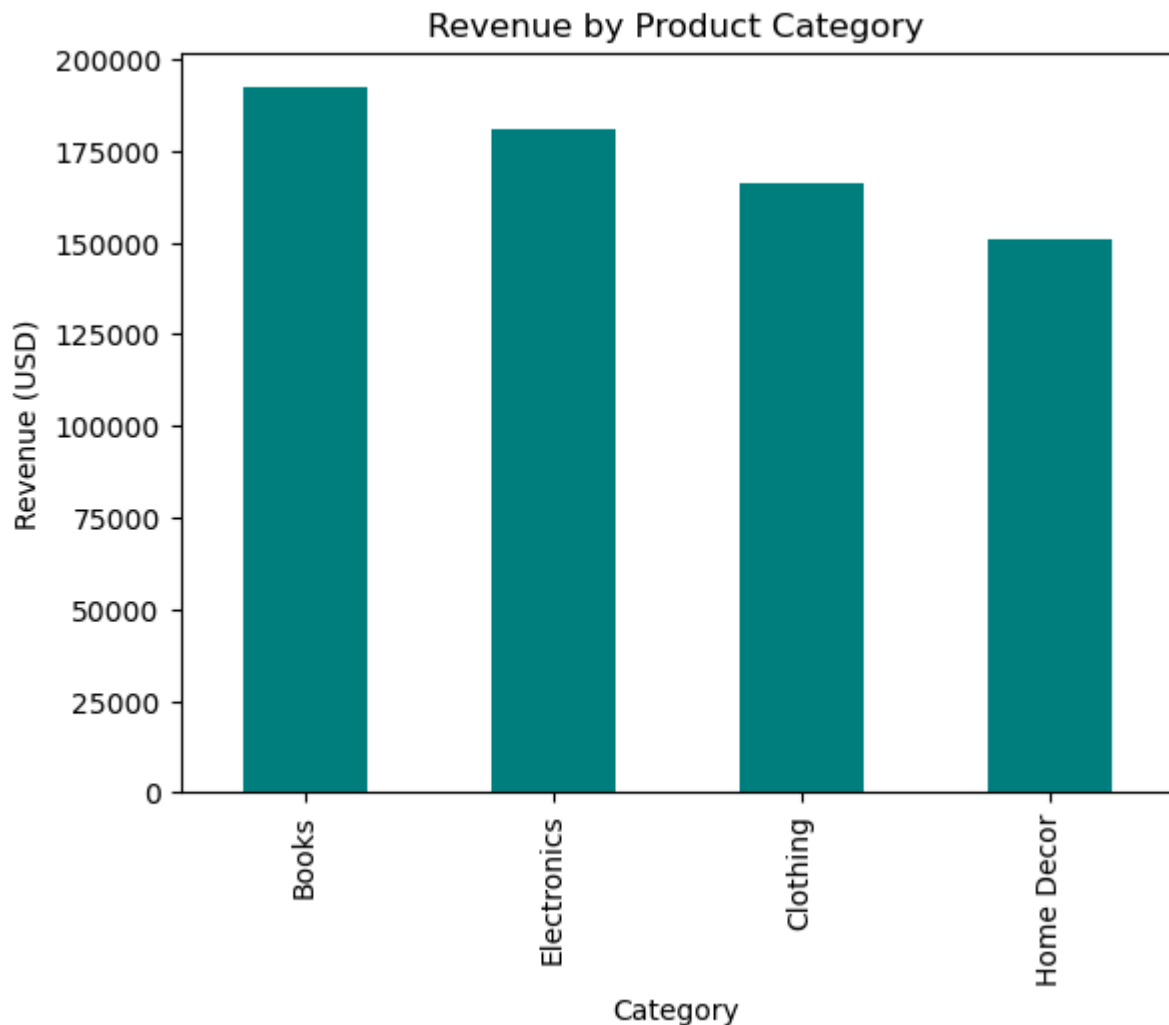
The chart shows revenue across categories. **Books** lead with nearly $200,000, driven by popular items like the **SoundWave Novel**. **Electronics** follow closely at $180,000, with strong performers like the **ActiveWear Smartwatch**. **Clothing** generates $160,000, supported by items like the **ActiveWear Jacket**, while **Home Décor** earns $150,000 with products like the **ActiveWear Rug**.

To grow, focus on expanding books and electronics, strengthen marketing for home décor, and create bundles across categories (e.g., books with rugs). Diversifying products and promoting innovative offerings can balance revenues and enhance overall business performance.

## 5) Product Price vs Quantity Sold
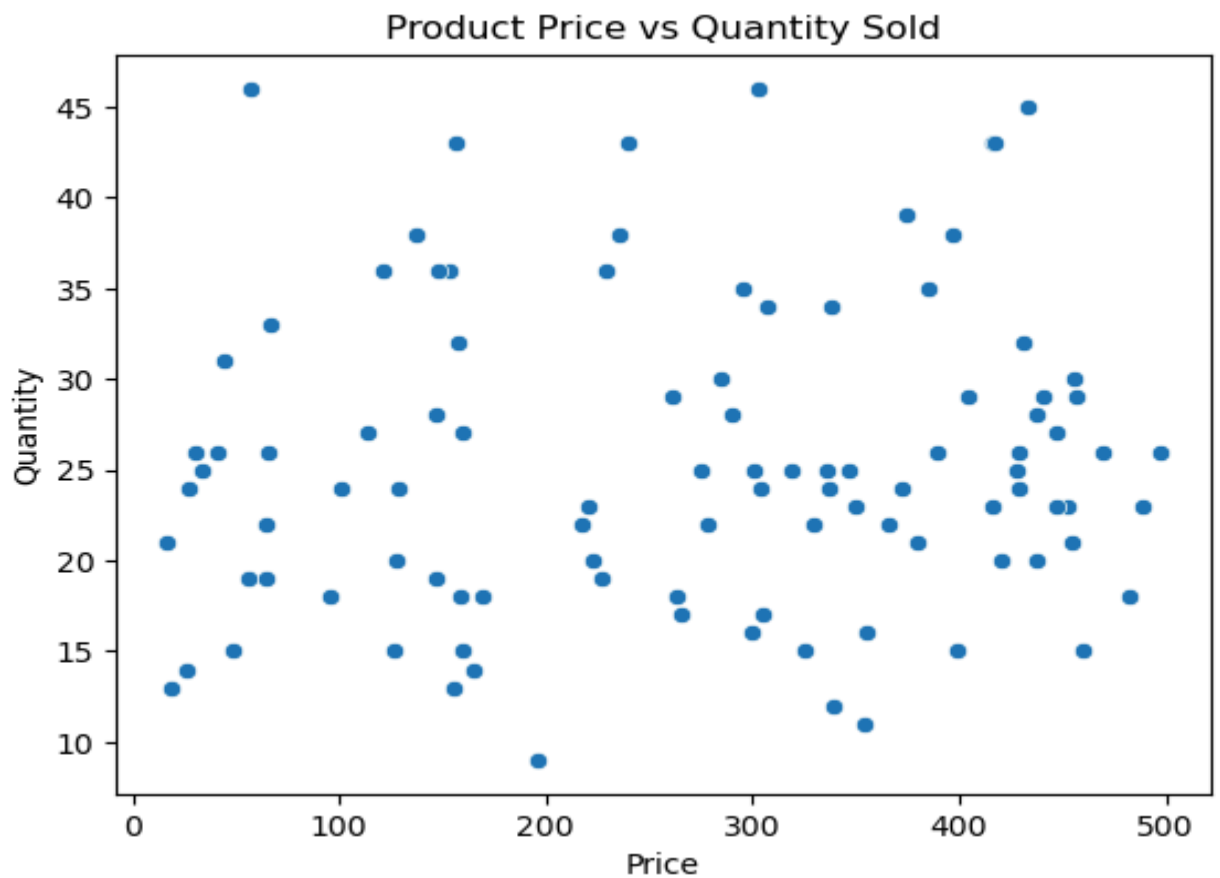


The scatterplot reveals no strong correlation between price and quantity sold, indicating that factors like product value, quality, or branding may significantly influence sales.

To boost sales, analyze specific price ranges to identify high-performing products and ensure pricing matches customer expectations. For higher-priced products, emphasize value through targeted marketing. Additionally, offer discounts or bundles for slower-moving products to increase their appeal.

Understanding customer preferences and market trends can help refine pricing and promotional strategies, ultimately improving sales across all price points.

# Recommendations for Business Growth:

1. **Focus on High-Performing Regions**:
   - Invest more in South America to maximize returns.
   - Enhance marketing efforts in Europe to leverage its steady demand.
   - Tailor strategies to grow North American and Asian markets.
2. **Seasonal Revenue Optimization**:
   - Boost marketing and promotions during slower months (e.g., September and October).
   - Launch campaigns or discounts in these periods to stabilize revenue.
3. **Expand Product Categories**:
   - Strengthen book and electronics offerings with new products or bundle deals.
   - Promote home décor through targeted advertising and cross-category bundles.
4. **Refine Pricing and Promotions**:
   - Analyze pricing tiers to identify profitable ranges.
   - Use discounts or value-added bundles for underperforming products.
   - Highlight product value and branding for high-ticket items.