ZEOTAP INTERNSHIP ASSIGNMENT
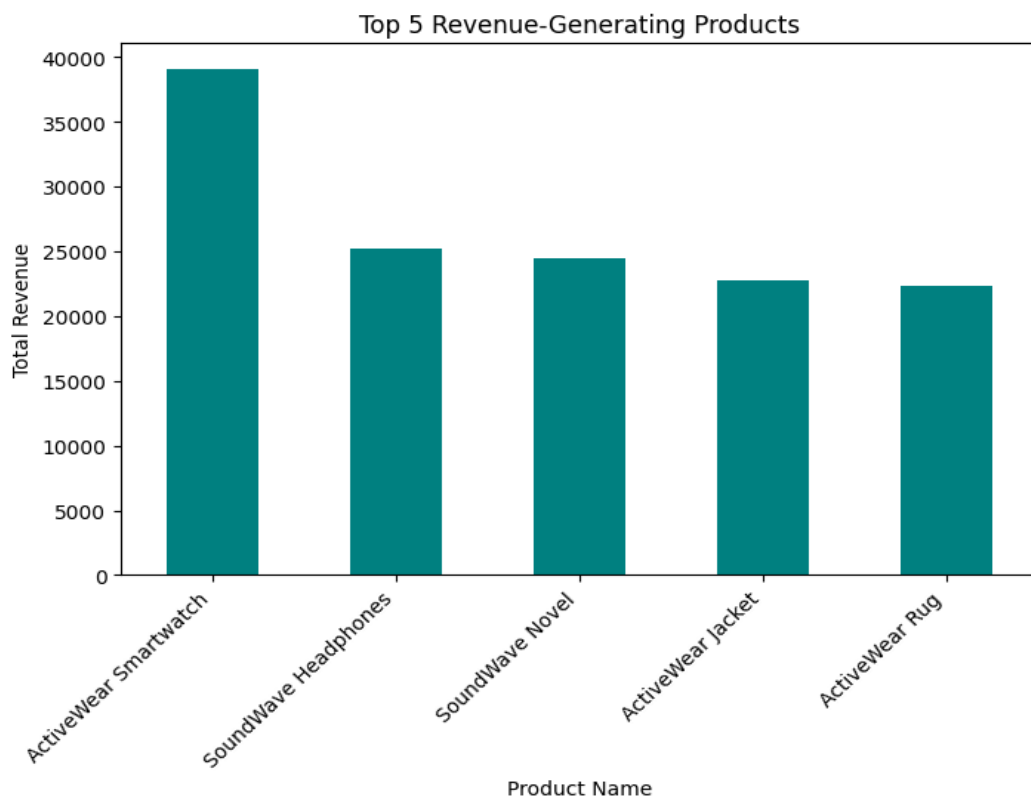## *EDA REPORT*

Five business insights derived from the Exploratory Data Analysis:

1. **Top Revenue-Generating Products**

Top 5 Revenue-Generating Products

- A list of 5 products that contributed greatly to the overall sales.
- Keeping a record of these products would enable to focus prioritization on advertising and keeping these products well-stocked in case of demand surge.
- This insight is important for improving profitability and aligning promotional efforts with customer demands.
- Understanding the top revenue-generating products will enable us to understand the preferences of the customers, helping in future product development and decision making.

2. Time-Based Sales Trends
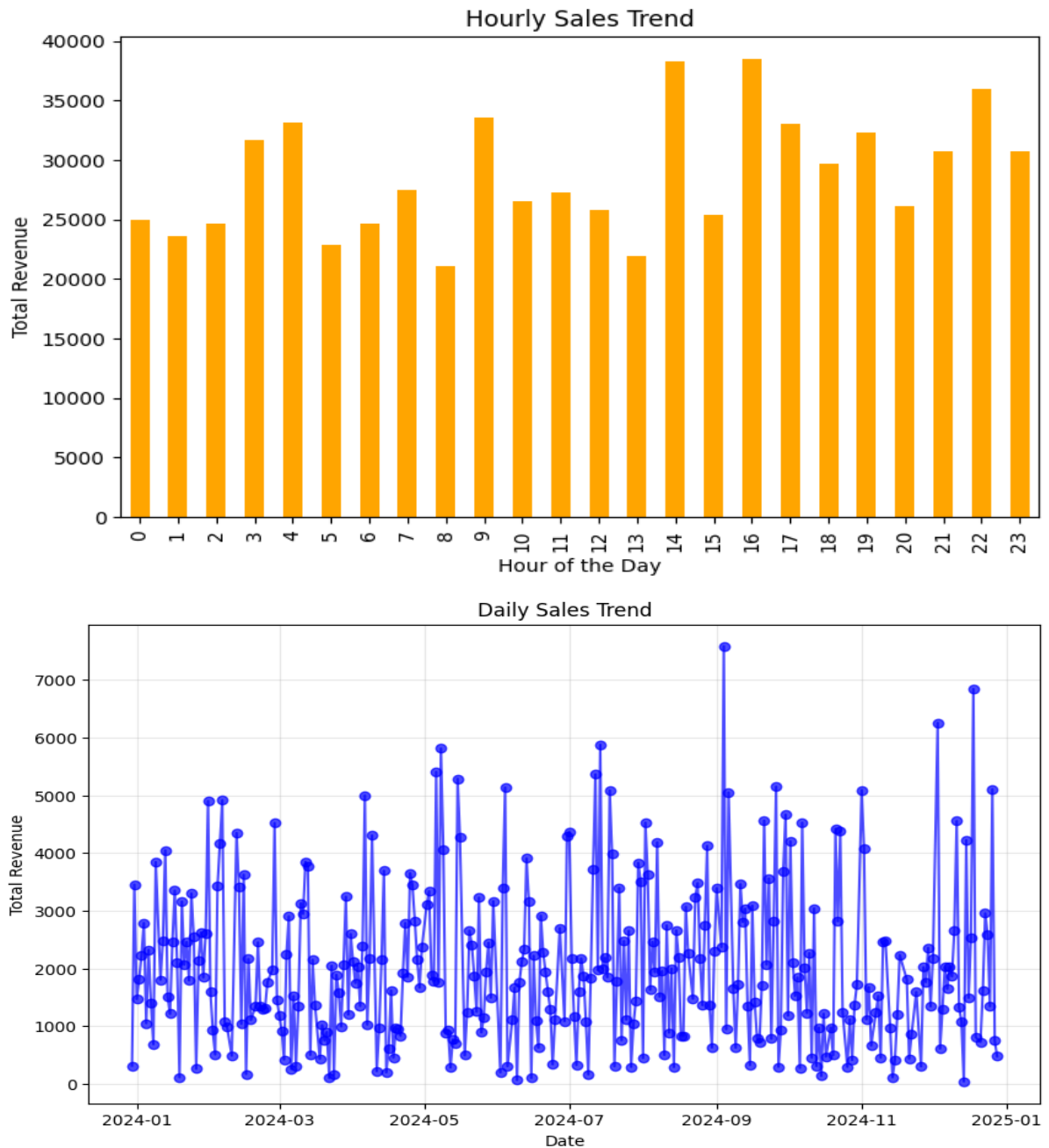
- Evaluating sales data over time reveals valuable patterns, such as peak sales months, days of the week, or times of the year.
- These trends can help businesses plan seasonal promotions or prepare for periods of high demand.
- Analysing weekday vs. weekend sales can aid in optimizing staffing and resource allocation.
- For instance, if sales peak during weekends, more staff or stock may be needed.

- By understanding time-based trends, businesses can make data-driven decisions to improve operational efficiency and enhance customer satisfaction.

3. Price Sensitivity Analysis

Top 10 Price-Sensitive Products
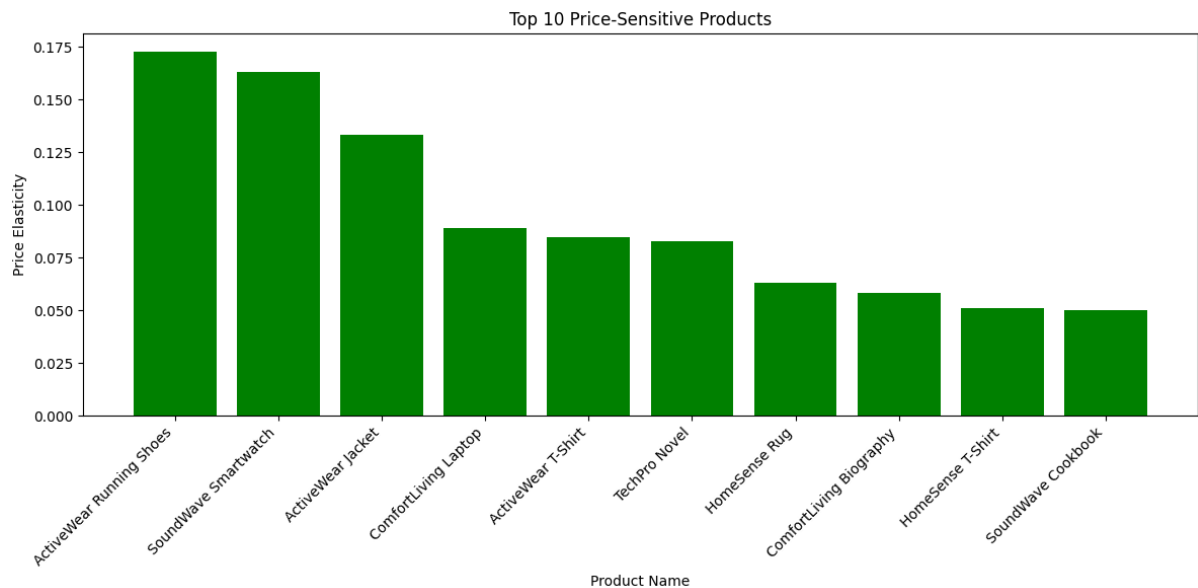
- Price sensitivity analysis examines how changes in product prices influence demand.
- It is derived using the formula: Price Elasticity = (Quantity Sold)/Price.
- By comparing product prices and quantities sold, businesses can identify which items are highly sensitive to price changes.
- Products with high sensitivity can be discounted strategically during sales events to attract more customers.
- On the other hand, low-sensitivity products can sustain higher price margins, boosting profitability.
- This insight helps businesses strike a balance between affordability and profitability, optimizing pricing strategies to match customer behaviour and market conditions effectively.

4. Region-Based Sales Patterns
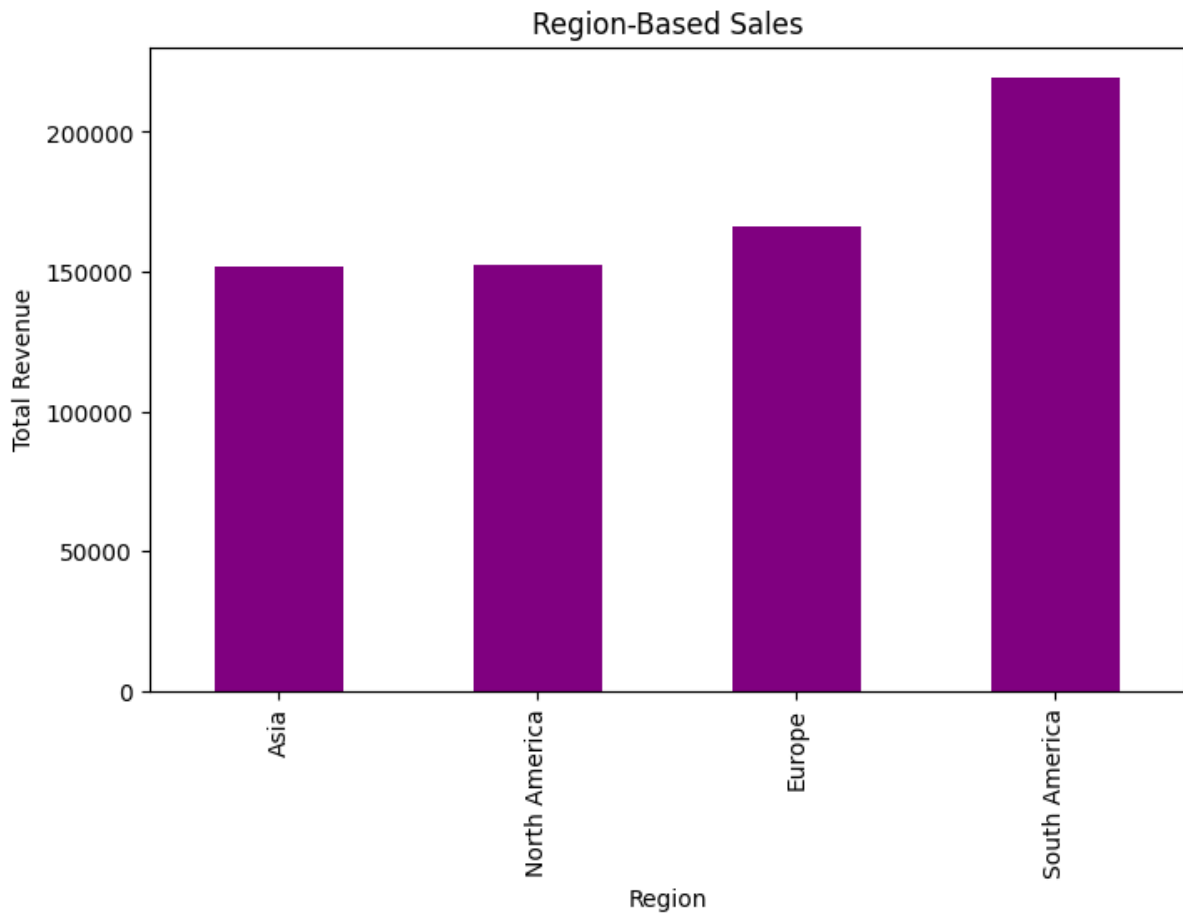
- A comprehensive representation of revenue generation in each region.
- By analysing sales data across different regions, businesses can identify areas with high performance and those needing improvement.
- High-performing regions can be further supported with additional inventory or marketing campaigns to maximize revenue.
- Conversely, underperforming regions may require localized strategies such as discounts, region-specific promotions, or targeted advertisements to attract more customers.
- Understanding regional patterns also helps in better resource allocation, ensuring that each area receives the appropriate support to enhance overall business performance and customer reach.

5. Customer Lifetime Value (CLV) Estimation

Top 10 Customers by Customer Lifetime Value

Customer Distribution by CLV Tier
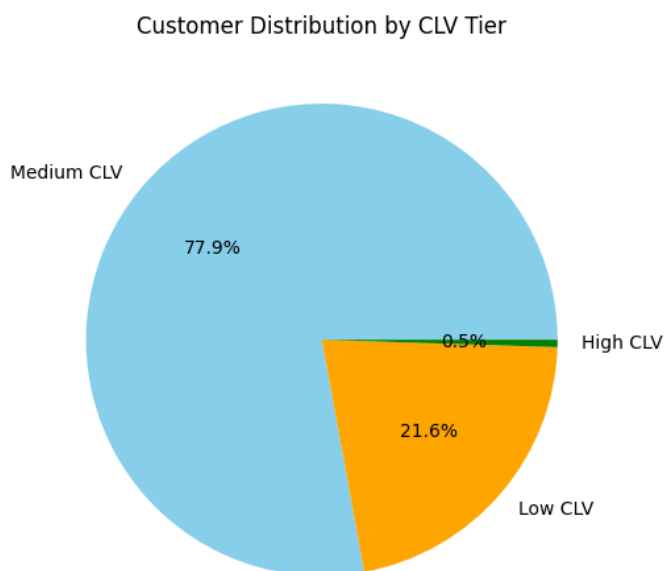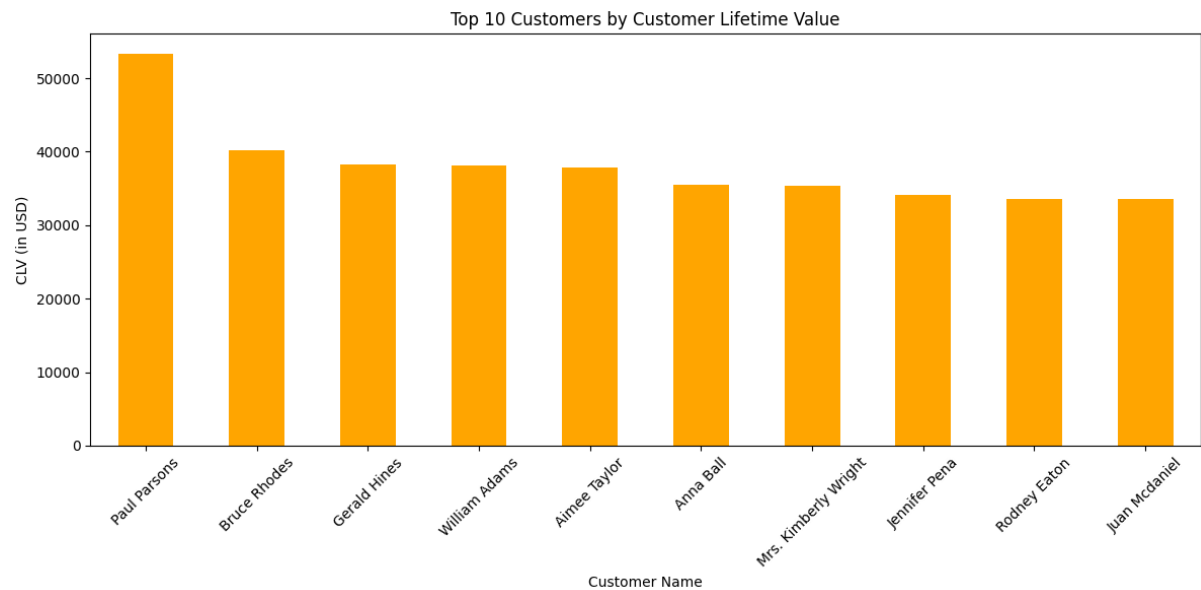
- Customer Lifetime Value (CLV) is the total revenue a business expects from a customer over their lifetime.
- CLV = (Average Purchase Value) × (Purchase Frequency) × (Customer Lifespan)
- Estimating CLV helps identify high-value customers who should be nurtured with loyalty programs or personalized offers.
- These customers can drive long-term profitability, making it crucial to prioritize their satisfaction.
- CLV also provides insights into customer retention, helping predict future revenue.

- Businesses can use this information to design strategies for retaining valuable customers and improving overall customer relationships, ensuring sustainable growth and profitability over time.