

Exploratory Data Analysis by Atharva Shetty

A lot of insights can be derived from this EDA. But the most prominent ones are mentioned below which can really peak the profits or customer satisfaction.

- **Customer Registration Trends:** Customer registrations in August and October 2024 were of the heights, with a marginal spike also registered by January 2024, especially in North America. After the dip in 2023, registrations jump by 48% in 2024. It's either better marketing or the time of year that could have resulted in this betterment. Understanding these spikes can enable the recreation of accomplished strategies and the development of future marketing strategies.
- **Regional Insights:** South America is the leader in registration, Europe is in the second position, while Asia comes in the last place. This gives the chance to market this area specifically. The meagre retention levels in various areas accentuate the urgency of tailored customer fidelity programs, the main objective being the improvement of long-term customer retention.
- **Product Performance:** The Jewel product category is the best-selling and the most revenue generated, with the top product in this category being the ActiveWear Smartwatch. Stocking up on this product will help meet demand and minimize the risk of overstock. SoundWave Headphones, the brand, also do well. However, they reach only 80% of the amount that SmartWatch gets. Books are the ones that are most rapidly sold and thus earn the highest profit, so that area could be expanded to include more variety. On the other hand, the Home Decor class performed the worst in terms of revenue, which indicates that it is not a main resource for revenues at the moment.
- **Price Sensitivity and Revenue:** The TechPro Textbook and BookWorld Cookbook, two expensive items, are in the primary position for the most revenue generated. Nonetheless, it is the Books and Clothing department

that tends to have more significant fluctuation in prices urging the need for optimizing the pricing strategies so as to be able to capture more value. A specialized review of the expenditure behavior in these segments could distribute useful insights that inform the future pricing strategy, in a way that combines the best value for customers while maximizing the company's net profit.

- **Retention Strategies:** The inconsistent retention rates suggest a need for improvement in customer loyalty strategies. Impersonally engaging and reaching the customers through separate occasions with loyalty packages and campaigns can be one way to reduce the wavering of loyalty. Identifying at-risk customers and rectifying their queries can lead to better retention and better lifetime value.

Conclusion: In summary, the business should focus on stocking key products like ActiveWear Smartwatch, expanding the book catalog, refining pricing strategies, and improving customer retention. By leveraging regional performance and customer behavior insights, the company can drive sustained growth and profitability.