

DATA SCIENCE INTERN ASSIGNMENT



ZEOTAP

Report on Exploratory Data Analysis (EDA) and Business Insights

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Objective:

The major goal of this research is to analyse sales data from an e-commerce platform in order to gain insights into customer behaviour, regional trends, product performance, and seasonal effects. This analysis seeks to provide actionable recommendations for improving client retention, increasing revenues, and optimising product offers, hence influencing marketing and business strategy. The findings and recommendations will also demonstrate the candidate's ability to use data analysis methodologies to provide actionable insights, which are required for the internship position.

Key Insights:

1. **Customer Signup Trends:** The platform's popularity has increased in recent years. This shows that the platform is developing popularity and drawing new clients, which might be used to promote loyalty programs and targeted marketing methods.
2. **Revenue by Category:** Electronics earns the largest income, while Books has higher transaction volumes. This emphasises the importance of focussing on high-value products in the Electronics area, as well as promoting Books for increased transaction volumes.
3. **Regional Performance:** North America leads in total revenue and has a robust client base. North America, Europe, and Asia are the regions with the highest sales and customer counts, and they should be prioritised for targeted promotions.
4. **Sales Trends:** Monthly sales are steadily increasing, with occasional spikes from promotional events. A greater understanding of seasonal increases will aid in the development of future revenue-maximizing campaigns.
5. **Recent Customer Behaviour:** Customers who signed up recently are more likely to make high-value transactions. This information can be used to target new consumers with high-value offers and ensure their continued involvement with the platform.
6. **Customer Loyalty:** Retaining high-spending consumers is crucial as they make up a big portion of revenue. Efforts should be directed

towards fostering these ties through personalised incentives and loyalty programs.

7. Product Focus: Promoting high-selling products can enhance revenue.
8. Effective Customer Retention Strategies: Repeat customers account for a considerable share of sales. To encourage repeat business, these consumers should be given exclusive deals and loyalty benefits.
9. Seasonal Insights: While Electronics generates the most revenue, Fashion also experiences high seasonal demand, especially in Q4. Understanding these cyclical surges can help guide focused promotional campaigns during peak periods.
10. Sales Cycles: Holiday seasons see higher customer interaction and transaction volumes, reflecting consumer trends. This seasonality should be considered while developing sales campaigns.
11. Prioritise High-Value Customers: Target loyalty programs towards customers with the highest lifetime value (LTV). These customers are critical for sustaining long-term revenue growth.
12. Pricing Strategies: Products priced between \$100 and \$500 generate the highest revenue, indicating that this price range is ideal for maximising sales. Pricing strategies should target these segments.
13. Customer Behaviour by Price Sensitivity: Price-sensitive clients dominate lower price ranges, whereas rich customers prefer luxury product categories. Tailored offers based on price sensitivity will increase satisfaction and sales.
14. Weekend purchasing: Weekends typically see the largest sales, reflecting increased purchasing activity. Weekend-specific marketing can capitalise on high demand.

Conclusion:

The study concludes that understanding customer behaviour, regional patterns, product performance, and seasonality is critical for increasing sales and customer retention. By focussing on high-value consumers, giving region-

specific promotions, and capitalising on seasonal sales trends, the platform may boost revenue and customer loyalty.

Recommendations:

1. **Target New Customers:** Create marketing efforts aimed at new signups who are likely to make high-value transactions. This could include exclusive discounts for recent customers.
2. **Prioritise strong-Revenue Categories:** Focus promotional efforts on Electronics to sustain strong revenue generation, while simultaneously increasing Book sales through volume-based discounts and promotions.
3. Create personalised loyalty programs for top consumers to increase retention and income.
4. Customise marketing techniques for individual regions, such as North America, Europe, and Asia. Understanding regional tastes and popular product categories will aid in the development of locally tailored advertising.
5. **Take advantage of seasonal trends:** Plan for increased sales during Q4 and holidays. Utilise this information to improve product listings, inventory, and promotional methods.
6. **Optimise pricing strategy:** Focus on products priced between \$100 and \$500, as they generate the most money. Offering bundling discounts or promotions within this price range may result in increased sales.
7. Plan weekend sales promotions to take advantage of increased shopping activity.
8. Design tailored advertising for high-demand sectors, such as fashion, to maximise earnings during peak seasons.