

ZEOTAP DATA SCIENCE ASSIGNMENT

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My EDA Analysis -

1. This study examines customer activity and regional patterns using transaction and signup records. Customer data uncovers key insights, such as the longest tenure (1061 days), average customer lifetime value (\$3467.31), and geographic distribution. South America stands out as the best-performing region, generating the highest total transaction value. The typical monthly expenditure across all customers is \$865.69, with an average transaction amount of \$690. Visual representations illustrate engagement trends, aiding in segment-specific targeting. Key analyses include customer tenure vs. total value, lifetime value distribution, and regional performance over time. These insights support strategic decisions, such as focusing on high-value customers and investing in regions with strong performance.
2. This report assesses sales patterns and category performance across various regions. Major findings highlight the top-selling categories per region: Clothing leads in Asia, Books in Europe, Electronics in North America, and Books in South America. Home Decor exhibits the lowest sales fluctuation, indicating stable demand. Electronics emerges as the fastest-growing category, reflecting increasing consumer interest. The regional category breakdown identifies the three highest-selling categories per region, providing insight into market preferences. Visual analytics display category trends, sales composition, and regional comparisons, facilitating targeted marketing and product positioning strategies.
3. This analysis uncovers shopping behaviors through transaction data from different regions. Key takeaways show that the busiest shopping hour overall is 14:00, with Tuesday being the most active shopping day. However, regional peak hours differ: Asia sees its highest activity at 3:00, Europe at 16:00, North America at 1:00, and South America at 14:00. The hour with the highest average transaction value is 16:00. Monthly shopping patterns vary across regions, with peak months occurring in January for Asia and Europe, April for North America, and July for South America. Detailed visualizations break down hourly, daily, and monthly shopping trends per region.
4. The study identifies key product performance insights, showcasing top-selling items based on quantity and revenue. The five best-selling products by units sold include the ActiveWear Textbook and ActiveWear Smartwatch, both selling 38 units and generating notable revenue. SoundWave Headphones also performed well, with 37 units sold. Category leaders include the ActiveWear Smartwatch in Electronics, HomeSense T-Shirt in Clothing, ActiveWear Textbook in Books, and ActiveWear Rug in Home Decor. Regionally, the top-selling product in Europe is the ActiveWear Rug, in Asia it is the HomeSense T-Shirt, in South America it is the ActiveWear Textbook, and in North

America, the best-selling product is SoundWave Headphones. This analysis offers a comprehensive perspective on product and regional sales trends, delivering actionable insights on top-performing items across categories and markets.

5. The customer purchase frequency analysis reveals important behavioral patterns. The dataset includes 199 customers, categorized into three groups based on buying frequency: Scarce, Regular, and Frequent shoppers. Scarce buyers, totaling 67, complete an average of 4 transactions, spending \$2,757.52, with a low purchase frequency of 0.44 purchases per month and an average gap of 72.3 days between purchases. Regular buyers (65 customers) make 5.5 transactions, spend \$3,865.77, and buy 0.68 times monthly, with a 44.8-day interval between purchases. Frequent buyers (67 customers) are the most active, making 5.6 transactions, spending \$3,790.54, and purchasing 6.47 times per month, with only 23.3 days between purchases. Purchase frequency percentiles show that most customers fall within the lower frequency range, with the 95th percentile at 30 purchases per month, indicating the presence of highly active shoppers. Additionally, total spending per segment reveals that frequent buyers contribute the most (\$253,966.30), followed by regular buyers (\$251,275.31), while scarce buyers account for \$184,753.95. These findings provide meaningful insights into customer purchasing behavior.