

## Unlocking E-commerce: Analyzing User Behavior and Segmenting Customers for Strategic Insights

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**Abstract :** Rapid growth has given e-commerce platforms a lot of client behavior and spending data. To maximize their strategy, businesses must understand how customers utilize online shopping platforms and what influences their purchases. Our research focuses on e-commerce user behavior and purchasing trends. This extensive study examines spending and user behavior. Regression and grouping disclose relevant data from the dataset. We can understand user spending trends via multilevel regression. We can analyze how pricing, user demographics, and product categories affect customer purchase decisions with this technique. Clustering groups consumers by spending. Important information was found. Purchase habits vary by user group. Our analysis illuminates the complex world of e-commerce consumer behavior and purchase trends. Understanding user behavior helps create effective e-commerce marketing strategies. This market can benefit from K-means clustering. This study focuses on tailoring strategies to user groups and improving product and price effectiveness. Customer buying behaviors across categories were shown via K-means clusters. Average spending is highest in Cluster 4 and lowest in Cluster 3. Clothing is less popular than gadgets and appliances around the holidays. Cluster spending distribution is examined using average variables. Our research enhances e-commerce analytics. Companies can improve customer service and decision-making with this data.

**Keywords :** e-commerce, regression, clustering, k-means

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