

The analysis reveals that the West region leads in both total sales and profit, indicating strong overall performance, while the Central region shows moderate sales but consistent losses—likely due to high discounting, especially in categories like Tables, which are unprofitable across all segments. Furnishings emerge as the most frequently purchased and profitable sub-category across all customer segments (Consumer, Corporate, Home Office). Chairs show the highest profit per unit, though total profit remains moderate. The preferred shipping mode is Standard Class, particularly for furnishings, suggesting a cost-effective delivery balance. Seasonal trends show sales peaking around November–December, likely due to holiday promotions, while profits remain steady with slight increases during high-sales months. Correlation analysis supports that high discounts reduce profitability, and while sales and profit per unit are strongly correlated, overall sales don't always translate into higher profits. Feature selection retained variables like Profit, Sales, Quantity, Profit_per_Unit, and Discount for modeling due to their business relevance and correlation patterns.