Exploratory Data Analysis (EDA)

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Through the creation of visualisations like bar charts and scatter plots I was able to glimpse into the processes that underline Walmart's business.

I discovered that:

1) Most of Walmart's shipements are made via Standard shipping followed by Second class shippping.

2) The East and West regions of the US generate more than 50% of Walmarts profit followed closely by the Central region and South generating the least profit.

3) Consumer markets are Walmart's biggest sales generators generating ~ 45% of total quantity sold.

4) Unsurprisingly, Profit and Sales share a strong positive correlation at 0.8.

Recommendations

1) I would recommend that Walmart positions itself strongly as having ""great value" to their Central region since it has promising growth prospects and

may be a potential star or cash cow if invested into early enough.

2) Diversification of markets- Walmart should invest heavily into their home office markets as it lags behind its other two markets to help provide growth opportunites

as Walmart gains a larger and larger percentage of the saturated consumer market share.

Data Mining

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I followed EDA with delving deeper to uncover hidden insights through visualisation methods such as boxplots and time-series line graphs.

Here, I discovered that:

1) The ineterquartile range for sales across regions are all very similar but there are many outliers across regions that skew the data to the right and indicate

large discrepancies in purchases between customers from as high as $17,000 to as low as $0.90.

2) Walmart is receiving growing profit over time indicating successful sales strategies with their largest profit spikes in the year-end holiday months (October- December).

3) All market segments; customer, corporate and home office, have shown steady growth.

4) The customer segment had a large increase of 500 units sold per month in Q4 of 2024 as compared to the corporate semgent that had a decrease of 10 and

home office with a decrease of 100 units sold per month.

Recommendations

1) I would recommend Walmart practice retentions strategies like membership rewards on their heaviest spenders in order to extract their client lifetime value (CLV).

2) Additonally, target the lowest spenders with promorional campaigns such as discounts to reduce the range of sales generted within regions.

3) Re-evaluate value proposition in the the corporate and home office segments- the Q4 decline in quantity soldfor both regions indicates that Walmart needs to asssess their

position in these markets and differentiate themselves to earn customer sales and loyalty back. This may also include effective rebranding and targeted marketing at

these segments.

4) Holiday deals and events- track consumer purcahses and offer grouped bundles as "holiday deals", provide winter discounts and sales and make common winter gifts

and products more affordable to encrouage even greater holidays spending.

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Overall, these recommendations I bleive would make a large impact in Walmart and help smooth out its customers spending habits and improve the longevity across market segments.

Looking to the future:

If I had access to greater data I would also have loved to conduct correlation tests to investigate correlated numerical variables.

Recommendation engines-I also would use Machine learning (ML) algorithms in order to predict the next purchase based on features of a custmer like city, region and

past purchasing history.

Finally, I would use these ML algorothms to predict the evolution of profits and sales given current strategies.