Walmart Sales Analysis

Reflective Note

by

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Challenges Faced in the Project:

During our Business Intelligence project, we faced several challenges with data cleaning and visualization in Tableau. One of the initial tasks was to handle missing values in the dataset, which we achieved through the technique of filling in null values. We also used the technique of filling null values with the average value of the respective column, wherever appropriate.

We also needed to reformat the date format in the dataset to facilitate better analysis and visualization. To achieve this, we used the technique of changing the date format to a more standardized format. Additionally, we had to replace the binary values of 1 and 0 with more meaningful labels like "Yes" and "No" to make the data more understandable. Furthermore, we found it necessary to change the format of the month column from numeric to text. This was done to make it easier to analyze and visualize the data in Tableau. Another challenge was identifying the most relevant variables and features that would help us gain meaningful insights into Walmart's sales patterns and trends. We had to use our domain knowledge and analytical skills to select the most relevant variables and use them for the analysis. Creating geographical maps, trend lines, box-and-whisker plots, and scatterplot was easy, but selecting the dimensions and measures for these visualizations which best suited and gave the most insight was a challenge. Selecting the appropriate visualizations in dashboards that were linked to make it interactive was difficult as well.

In the end, These data-cleaning techniques helped us to transform the raw dataset into a more usable and meaningful form, enabling us to create more informative and actionable visualizations, interactive dashboards, and descriptive storytelling in Tableau.

What I Learned from the Project:

Through this project, I learned how to use Tableau for exploratory, descriptive data analysis, and data visualization. I also gained insights into the retail industry and how data analysis can be used to improve sales and profitability. I learned how to identify key factors that influence sales.

In this project, we used various data-cleaning techniques, such as filling in null values, changing date formats, and converting numerical values to categorical values to make the data more usable for analysis. We also used various visualization techniques to represent the data in a meaningful way Additionally, Creating visualizations in Tableau helped me to understand the data better and discover new insights. By creating geographical maps, trend lines, box-and-whisker plots, and scatterplots, we were able to identify patterns and trends in the data that were not immediately apparent from the raw data. I learned how to communicate data insights effectively through data visualizations and reports.

How I Plan to Apply this for Future:

working on this business intelligence project has provided me with hands-on experience with data cleaning, visualization, creating dashboards, writing storytelling, and interpretation, which will be valuable in my future role as a data analyst. The skills and knowledge I gained from this project will be very valuable in my future career. I plan to apply the techniques and tools I learned in this project to other real-world datasets and use data analysis to solve business problems. Specifically, I plan to use Tableau, Python, and other data visualization tools to create meaningful visualizations and Insights that can help stakeholders and decision-makers understand complex data and make informed decisions.

Interesting Takeaways from the Project:

One of the most interesting takeaways from this project was the importance of descriptive analysis in gaining an overall understanding of a dataset. Through descriptive analysis, we were able to identify key characteristics of Walmart's sales and profitability trends, such as the distribution of sales and profits, the most popular product categories, and the top-performing stores and regions. The project revealed that Texas and Illinois were the states with the highest sales volume, and the Consumer segment was the most profitable. The most discounted product subcategories were Appliances and Machines, while the most profitable subcategory was Labels, which received very few discounts. Based on these findings, it was suggested that Walmart should focus its efforts on promoting bundles or discounts of Labels instead of Machines, which had the most discounted products but resulted in a loss of money. Another interesting takeaway was that The correlation between product quantity and discount offered is not clear, which meant that further analyzing the relationship between these two factors was important to optimize sales and profitability. We were able to find the sales trends and identify factors that influence sales.

Anything I Would Have Done Differently:

I would have spent more time on feature engineering and creating new variables that could have been more relevant to the analysis. I would have also tried to incorporate external data sources, such as weather and economic data, to see how they influence Walmart's sales patterns. Additionally, I would have tried to improve more on building better interactive dashboards and writing short but crip storytelling techniques.

References

1. A Step by Step Guide for Data Visualization using Tableau

   Gourav Singh Published On October 8, 2021 and Last Modified On October 14th, 2021

   https://www.analyticsvidhya.com/blog/2021/10/step-by-step-guide-data-visualization-tableau/

2. Best Practices for Telling Great Stories

   https://help.tableau.com/current/pro/desktop/en-us/story_best_practices.htm