Data Visualization – Dr. Case

Brady Monks – Final Project

* **Introduction**

I put together a storyboard that performed a sales analysis on a fictional company, FurniSure. Through the analysis, I looked through customers’ purchasing behaviors, evaluated sales across product categories, identified sales trends over time, and mapped the distribution of our sales across the U.S.. Using these insights, I highlighted potential opportunities for enhancing customer engagement, as well as finding regions and products that do well and don’t do so well.

* **Data**
  + The domain of the dataset is sales operations.
  + 
  + <https://www.kaggle.com/datasets/rohitsahoo/sales-forecasting>
  + 18 columns and 9801 rows
* **Data Cleaning Strategies**
  + No cleaning was needed.
* **Clean Dataset**
  + No cleaning was needed.
* **Visualization Tools**
  + I chose Tableau because I felt it could help me best tell the story of my findings. Tableau allowed me to create insightful visualizations to help demonstrate the trends of the company.
* **Visualization and Stories**
  + Goal 1
    - Highlight our top customers.
    - A picture containing text, screenshot, design

      Description automatically generated
    - Story
      * I identified some of our top customers based on how much they spend and how many items they purchase. I then proposed a tiered reward system that would encourage customers to spend more money and buy more products from us.
  + Goal 2
    - Identify past sales trends and forecast sales.
    - A picture containing text, handwriting, font, line

      Description automatically generated
    - Sales data reveals a clear seasonality: peaks during November and December, dips in January and February. Peaks likely correspond to increased holiday shopping and end-of-year purchases. Dips potentially reflect post-holiday spending reductions or consumer focus on New Year savings. Marketing and sales strategies need to align with these consumer behaviors. Investing in aggressive marketing during peak months could boost sales. Offering incentives and deals during slower months could help maintain revenue. Sales forecast predicts the continuation of this seasonal trend into the next year. Understanding and leveraging these patterns can optimize sales, improve customer engagement, and drive business growth.
  + Goal 3
    - Identify top selling products by quantity.
    - A picture containing text, screenshot, colorfulness, line

      Description automatically generated
    - Story
      * No item found itself in the top 15 of both graphs. This indicates a distinction between high-volume items and high-revenue items. Canon has a copier that generates more than twice as much revenue as the next closest item. After that though, there’s a steady decline. The same can be said for the top items by items sold. The top three items are Staple Envelope, Staples, and Easy-Staple Paper. After those three, there is a steep drop off, then a steady decline.
  + Goal 4
    - Identify which categories and subcategories are bringing in the most money.
    - A picture containing text, screenshot, design

      Description automatically generated
    - Story
      * I identified our best categories and subcategories. The technology category sells fewer items but generates the highest revenue. This would explain that Technology products have the highest price per product of each category. Office Supplies sell the most items, but have the least revenue, showing that they have the lowest price per item. The furniture category has a balanced performance, being in second in both quantity of items sold and total revenue. Chairs and phones claim the top two spots for revenue-generating items while binders and paper claim the top two spots for # of items sold.
  + Goal 5
    - Identify our top shipping methods based on region.
    - A screenshot of a computer

      Description automatically generated with medium confidence
    - Story
      * Looking at the heatmap, Standard Class dominates as the preferred ship mode across all regions. Standard Class also found itself at the top of every month based on total items shipped. There was a little crossover between Second and First Class over time, with Same Day at the bottom of each month. Standard Class, overall, ships the most items. However, Second Class, followed by Same Day, has the highest average sale per order.
  + Goal 6
    - Identify our top buying cities and states.
    - A map of the united states

      Description automatically generated
    - Story
      * Breaking down the map reveals that our highest sales are concentrated in California, led by LA. New York, specifically NYC, holds the second spot, followed by Texas with its sales spread across multiple cities. Surprisingly, Washington, predominantly Seattle, ranks fourth, with Illinois, led by Chicago, rounding out the top five. These regions represent our strong market penetration, while areas with lower sales volumes may indicate opportunities for business expansion.
* **Conclusions**

By analyzing our sales data, we can draw insights that guide our business decisions. The opportunities identified through this analysis provide a roadmap for increasing sales, optimizing pricing, improving customer rewards, and expanding our market reach. As we move forward, these findings will help us strategically steer our efforts to drive growth.

* Our customer base displays diverse purchasing behavior, with some customers buying more items and others spending more money. A tiered rewards system could encourage both types of customers to increase purchases.
* Our product categories show different performance levels, with Technology generating the highest revenue despite lower sales volume, Office Supplies leading in volume but lacking in revenue, and Furniture striking a balance. This presents opportunities for category-specific pricing and marketing strategies.
* Sales show a seasonal trend peaking during November and December and dipping during January and February. Tailoring our marketing efforts to these patterns could optimize sales.
* Geographical sales analysis reveals strong market presence in CA, NY, TX, WA, and IL, with potential for expansion in lower performing regions.