

# Business Analytics

Introducing Business Analysis to UrbanStitch Boutique Retail Company

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# Introduction

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- UrbanStitch Boutique, a distinctive retail company renowned for its fashion-forward and urban-inspired clothing, has been facing a decline in sales.
- Despite its reputation for offering stylish and on-trend products, the company has encountered difficulties that demand a closer examination.
- Recognizing the need for a comprehensive understanding of the issues at hand, a strategic business analytics approach will be employed to investigate the root causes of the losses.
- This analytical initiative aims to delve into various facets of the business, including sales performance, inventory management, customer trends, and operational efficiency, to identify areas of improvement and formulate data-driven strategies that will guide UrbanStitch Boutique toward financial recovery and sustainable growth

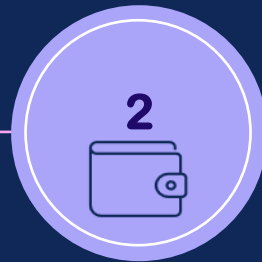
# Business Analysis Structure

## Define the Problem



- Using Business Analytics tools to identify factors for deteriorating sales
- Understand the available data

## Data Collection



- Use of provided Data on Sales figures, Customer Demographics and Product types

## Data Cleaning



- Standardize and format Data using Data Cleaning Tools such as Excel, Python, SQL and Open refine
- Normalize the data set at this stage

## Key Analytical tools and analysis



- Apply Data Analytics tools such as Predictive, Prescriptive, Diagnostic,
- Perform Data modeling using python and R.
- Exploratory Data analytics is conducted.

## Evaluation and Deployment



- Create dashboards and Visualization reports using Business Intelligence tools and pandas library.
- Demonstration on effectiveness of Analytic tools and models employed

# Steps Taken To Conduct Data Analysis

## Data Mining

- The initial step involves gathering relevant data from various sources within UrbanStitch Boutique, encompassing sales records, product types and demographics. This ensures a comprehensive dataset for a thorough analysis.
- Microsoft SQL is used to perform Extraction transaction and Loading

## Data Cleaning

- Data cleaning is a crucial step in ensuring the accuracy and reliability of the available data. Below are Data Cleaning tools that can be used at this stage.
  - i) Microsoft Excel
  - ii) Python(pandas and numpy)
  - Iii) OpenRefine
  - Power BI

## Key Performance Indicators ( KPI's)

- Identifying and defining specific Key Performance Indicators (KPIs) is crucial to measuring the success of UrbanStitch Boutique.
- Metrics such as sales conversion rates, average transaction values, and inventory turnover will provide insights into different aspects of the business
- Tableau and Power BI are tools that can be used to measure these indicators.

# Steps Taken To Conduct Data Analysis

## Segmentation and Profiling

- The collected data will be segmented and profiled to identify trends and patterns within customer demographics, purchasing behavior, and geographic locations.
- This step aids in understanding the target audience and tailoring strategies accordingly.

## SWOT Analysis

- Conducting a SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) provides a holistic view of UrbanStitch Boutique's internal and external factors influencing its performance.
- This analysis aids in strategy formulation by leveraging strengths and addressing weaknesses.

## Exploratory Data Analysis

- Conduct EDA to explore relationships between variables. Use statistical techniques to identify correlations between customer demographics, product types, and sales figures. Tools like Python (seaborn, matplotlib) or Excel can aid in visualization.

# Steps Taken To Conduct Data Analysis

## Statistical Modelling

- This is used to identify patterns, relationships, and trends within datasets
- R and Python are preferred tools to conduct this modeling.
- This will depend on the complexity and the size of the datasets.

## Key Findings

- Use prescriptive analytics to identify key factors influencing sales decline. Analyze model outputs and recommend specific actions based on insights. For example, the model may reveal that certain product categories or customer segments are underperforming.

## Interpretation and communication of results

- Use dashboards and charts to communicate the results of the analysis.
- Interactive dashboards can be created using Power BI and Tableau.

# Descriptive Analytics

- Used at initial exploration of sales figures and customers demographics
- Used to describe what happened in the organization over the last couple of years based on data given
- It summarizes historical data to provide insights into the past performance and trends.
- This will show the trend in the decline in sales for the company.
- Variation and trends on monthly, quarterly can easily be determined.
- Based on the available data, recommended tools to be used are: Tableau, Power BI, Google analytics and Excel
- For UrbanStitch boutique, sales of individual products can be evaluated, to identify top selling and underperforming for the last couple of months/years.

# Diagnostic Analytics

- This will be used to explain why sales is declining for the retail company.
- Dives deeper to identify root cause or factors contributing to the observed trends or specific outcomes.
- From the given sales records, a drill down into the data will identify factors such as product performance, external market influence and customers behavior.
- Analyzing customers feedback will be used to understand reason behind decline in sales.
- Recommended tools to conduct this analysis include Tableau, Microsoft Power BI and google analytics due to their interactive nature.



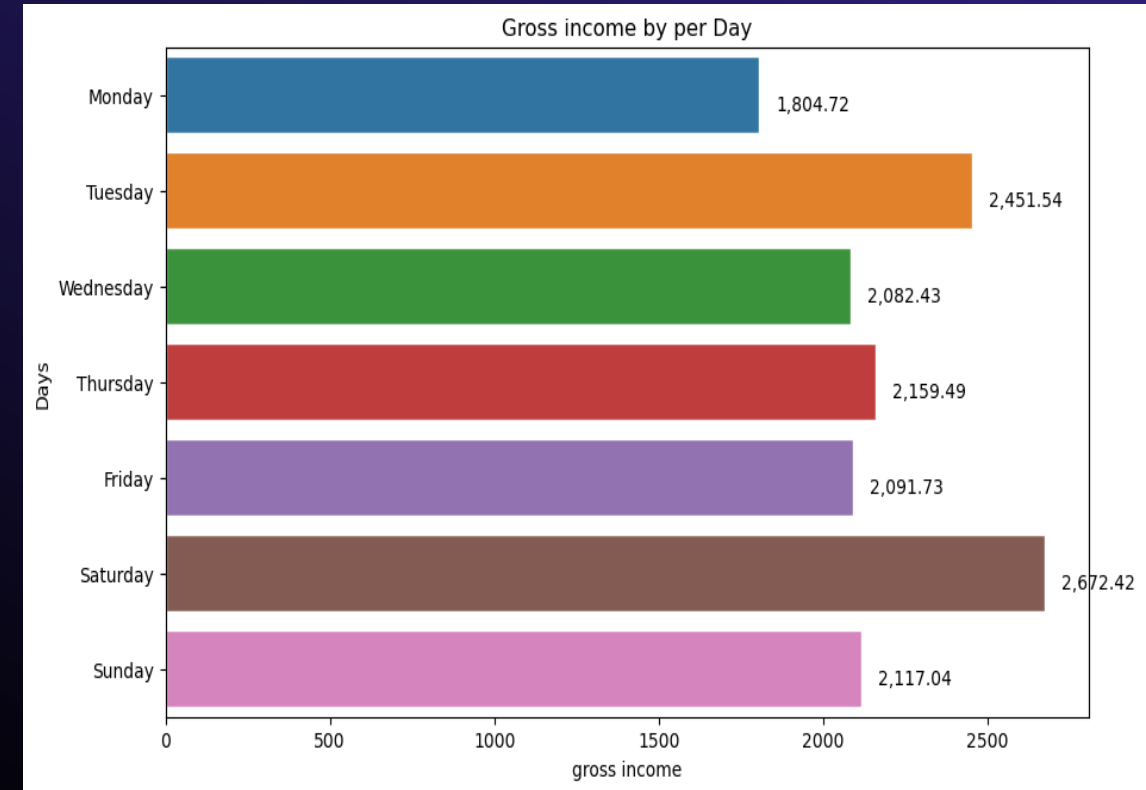
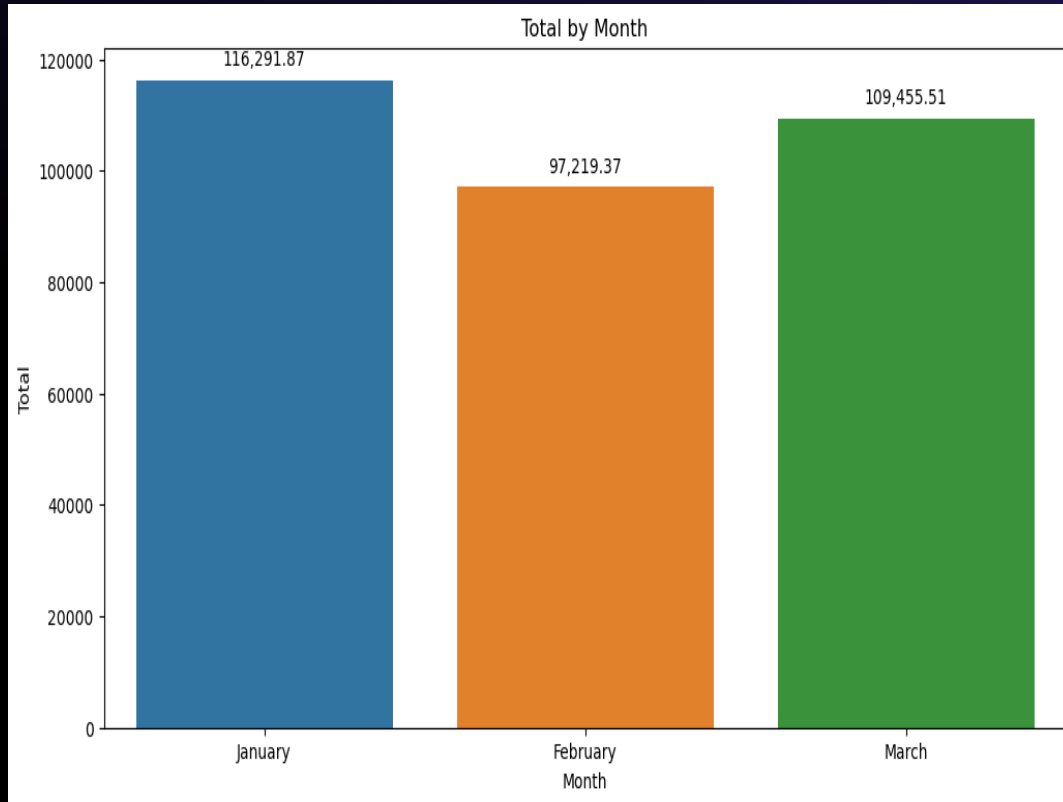
# Predictive Analytics

- This is used to describe what is likely to happen in the future.
- Statistical algorithms and Machine Learning techniques will be used at this stage to forecast future sales trends and outcomes.
- It will analyze future shifts and trends on demographic data based on past trends, on what population are likely to shift into
- Python and R are the best tool to be employed to perform this analysis.

# Prescriptive analytics

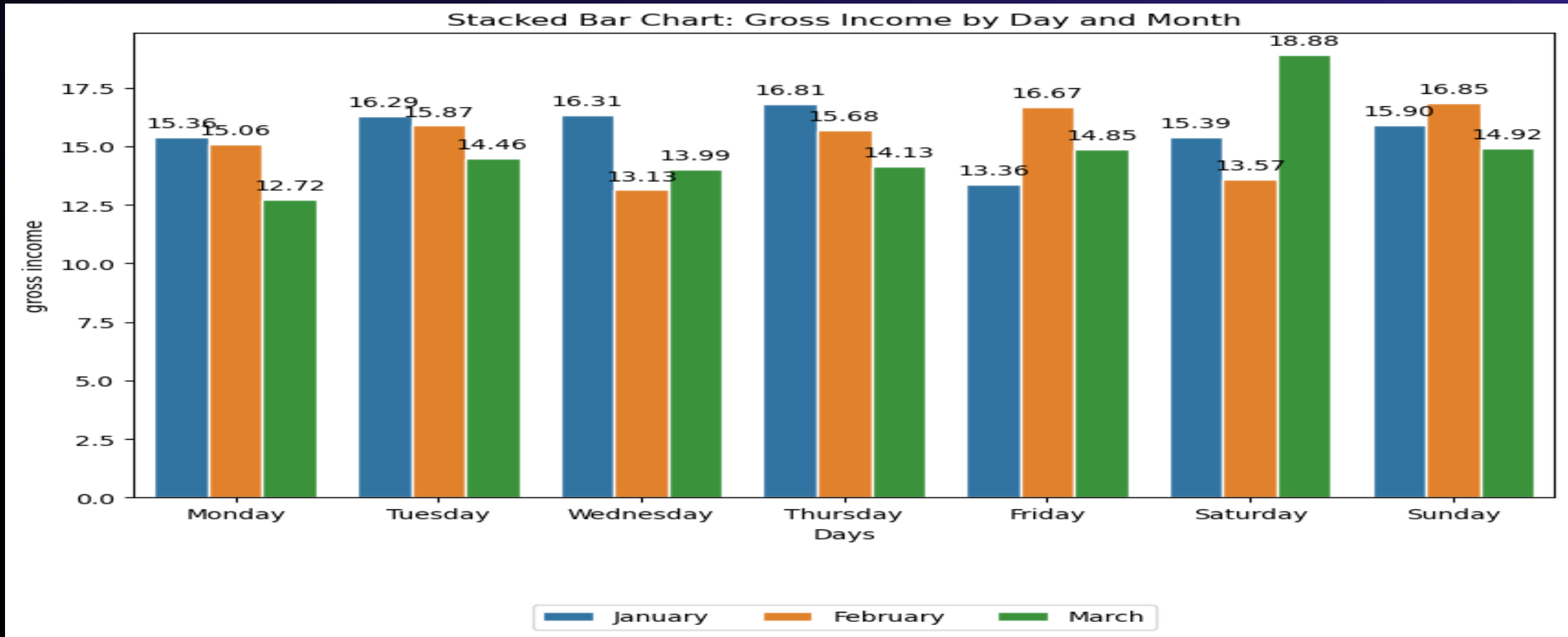
- This is employed to recommend what actions that needs to be taken to achieve a desired sales outcome.
- It goes beyond predicting future trends by suggesting optimal actions to be taken to maximize desired results.
- Example, from the analysis, after establishing effective and less effective sales channels, e.g. in store and online, will lead to providing actionable insights on sales channels to focus on.
- Based on predictive models, some marketing strategies can be recommended to retain customers.
- Microsoft Azure Machine learning can be used at this stage.

# Real Life Retail Scenario – Supermarket Sales figures



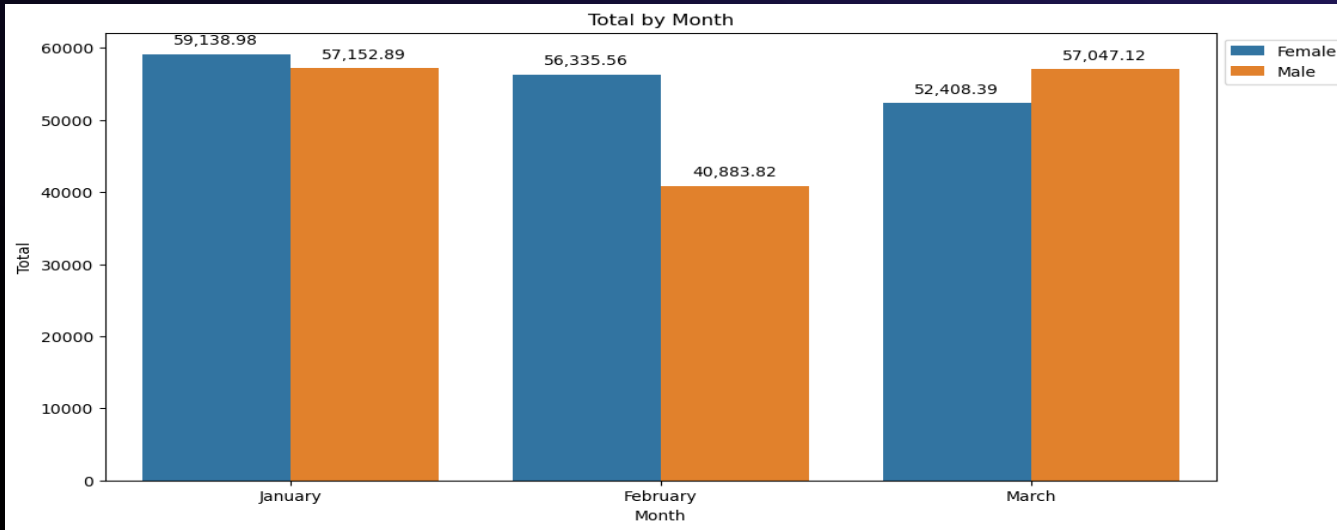
- This is a real life scenario of supermarket sales for the year 2019 from January to March. Analysis was done using Jupyter notebook.
- From the descriptive analysis, there is a downward trend in sales figures for the 3 months, February being the lowest month of sales.
- Reviewing the diagnostic review, it is evident that Monday is the day with the lowest income in the days of the week, which has contributed to the decline.

# Weekly trends for the 3 months



- On further analysis on the trends per the days of the week, there was a significant decline from Sunday to Thursday, while on Friday and Saturday shown an upward trend.
- Recommendations could be to analyze on the customers behavior on Fridays and Saturdays to see what led to increase in sales, and analyze its applicability on other days. For the period and to do further investigation on the days when sales were low and take appropriate measures.

# Real Life Retail Scenario – Analysis of Demographics



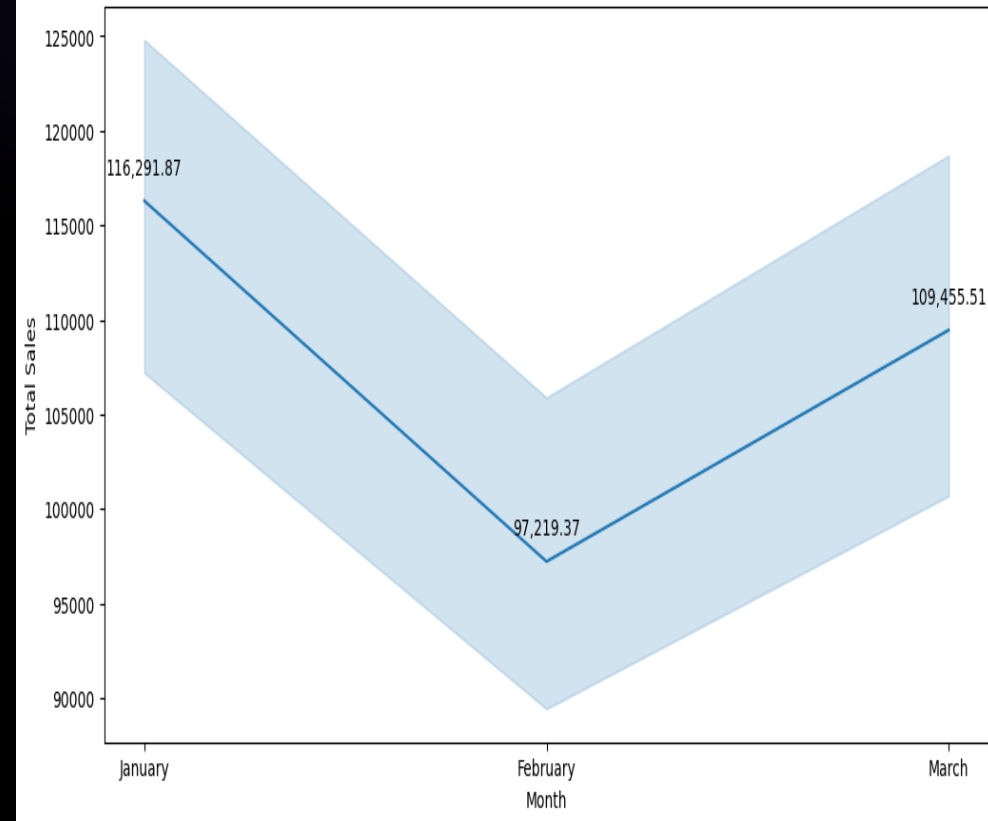
- The sales for female customers have been consistently decreasing over the past three months.
- Meanwhile, sales for male customers experienced a decline for two months but displayed an upward trend leading into March.
- It is recommended to develop targeted surveys tailored to each gender.



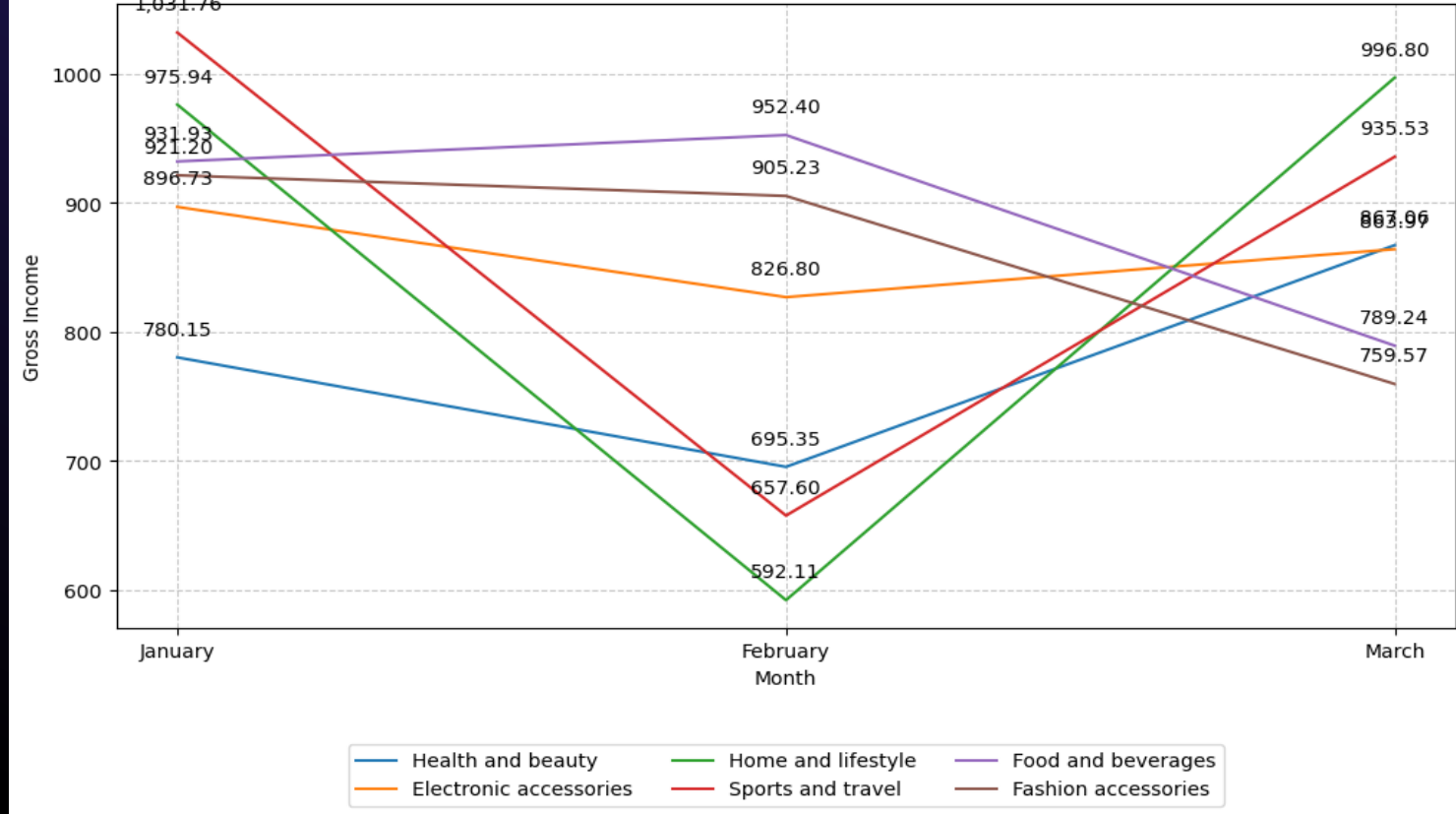
- After analyzing various cities, it has been observed that there is a decrease in total sales across all cities.
- The month that exhibits a significant decline is February.

# Declining income for different products

Declining Sales for the 3 months



Monthly Gross Income trends for Different Product Lines



- The sales data reveals a notable decline across various products, with February standing out as the month experiencing the most significant decrease in sales.
- This decline is evident in all product categories, indicating a general reduction in the overall income generated from these offerings.
- To address this decline, it is crucial to conduct a thorough analysis of the factors contributing to the decrease in sales, such as changes in market demand, competitor activities, or internal operational issues.

# Presenting findings

- Use dashboards to communicate findings to management. Make it interactive and easy to follow.
- Identify and explain the factors that contributed to the decline in sales based on your data analysis and visualization.
- Provide evidence and examples to support your claims and arguments, and solution should touch on:

## **Short-Term Solutions:**

- Immediate actions to address pressing issues.

## **Long-Term Strategies:**

- Sustainable plans for continuous improvement.

## **Monitoring and Adjusting:**

- Ongoing assessment and adjustment of strategies.

# References

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Aung Pyae. (2019). Supermarket Sales. Kaggle.

<https://www.kaggle.com/datasets/aungpyaeap/supermarket-sales/data>