Super Market Sales Analysis
Business Report

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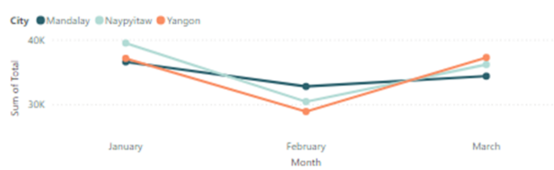
1 Introduction

The Gradient Boosting Model built in this project would proof very helpful to the supermarket as they will be able to predict the supermarket sales accurately This would ensure that the company is able to build strategies on improving the product, launching new products, increasing the payment options, increasing the quantity of the most popular and highly demanded products or manage the unit price of different types of products and offer different schemes on periodic intervals to different types of customers whether member or normal and male or female. The higher the sales are generated, means higher profitability for the firm and more customer base and better reputation of the supermarket in the retail market. The model also depicts that there is a direct causal relationship between Quantity, Unit price and Customer type, this will definitely provide a useful insight to the business where they can make strategies to improve their customer base by providing better offers and schemes as well as build pricing and supply strategies for different types of products in different branches and locations and based on customer preferences.

2 Customer Distribution

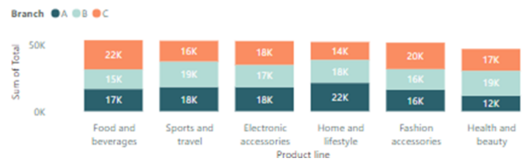
- **Total Customers:** There are 973 customers in total, with a balanced gender split. Females account for 466 customers, while males account for 507.
- **Customer Types:** Normal customers slightly outnumber members, with 513 (52.72%) normal customers and 460 (47.28%) members. This suggests a balanced distribution of casual customers versus loyal members, indicating potential for converting more normal customers to members

3 Month-Over-Month Performance



1. **Mandalay:** Experienced the most significant decline, with a sharp drop from January to February followed by a slight increase in March.
2. **Naypyitaw:** : Showed a consistent decline throughout the three months, though the decrease was less steep than Mandalay
3. **Yangon:** While also showing a decline, Yangon's performance was more stable compared to the other two cities.

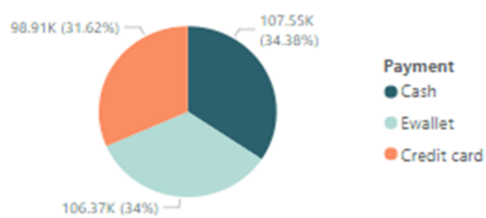
4 Branch Performance Across Product Lines:



- The branches (A, B, C) show varying performance across different product lines.
- **Branch A** appears to perform well in the **Home and Lifestyle** category, generating **22K** sales, while **Branch C** leads in **Food and beverages** with **22K** sales.
- **Branch B** shows strong sales in **Electronic Accessories** and **Sports and travel and Health and beauty** , indicating specialization or market advantage in those areas

The company can further tailor their product offerings or marketing efforts for each branch based on local preferences

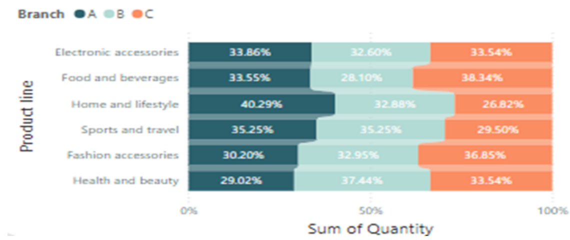
5 Payment Method Distribution



- The payment method data indicates that **the most preferred payment method is Cash**, accounting for **34.38% (107.55K)** of sales, followed by **Ewallet at 34% (106.37K)**, and **Credit Card** usage at **31.62% (98.91K)**.
- This balanced mix of payment methods highlights the importance of offering diverse payment options to accommodate customer preferences. The growth of ewallets suggests a rising trend in digital payments, which the business may want to promote further through incentives or partnerships with payment providers.

Encourage ewallet and digital payments further, as they are growing in popularity. Offer discounts or cashback incentives for customers who choose ewallets

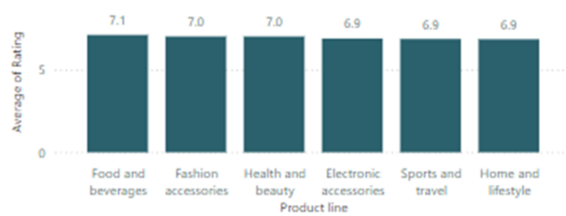
6 Product Line Quantity Distribution by Branch



- **Branch A:** Shows a relatively balanced distribution across all product lines, with no significant outliers.
- **Branch B:** Exhibits a slight preference for Electronic Accessories and Home and Lifestyle, with lower quantities in Food and Beverages and Fashion Accessories.
- **Branch C:** Demonstrates a clear focus on Electronic Accessories and Health and Beauty, with lower quantities in Sports and Travel and Fashion Accessories.

Key Observation: : The sales pattern suggests that certain days or weeks perform better than others, which could be due to external factors such as marketing campaigns or customer behavior. Understanding these peak days and planning marketing strategies around them could help boost sales during slower periods.

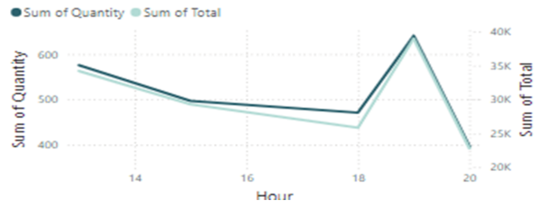
7 Average Ratings for Different Product Lines



- Food and Beverages and Fashion Accessories both enjoy the highest average ratings at 7.1 and 7.0, respectively, indicating high customer satisfaction in these categories.
- Health and Beauty and Home and Lifestyle are also well-rated, both at 7.0 and 6.9, respectively.
- Electronic Accessories, Sports and Travel, and Home and Lifestyle have slightly lower but still positive ratings at 6.9 each.

Key Observation: Customer satisfaction is relatively high across all product lines, but Food and Beverages and Fashion Accessories stand out as categories with especially favorable reviews. These high ratings suggest strong customer approval, and the business could capitalize on this by promoting these products further or expanding the range of offerings in these categories.

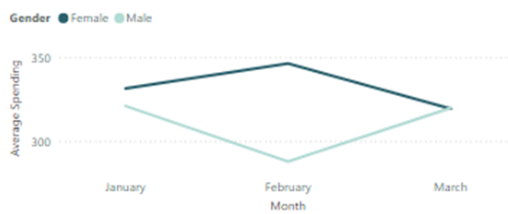
8 Top Time Periods for Sales

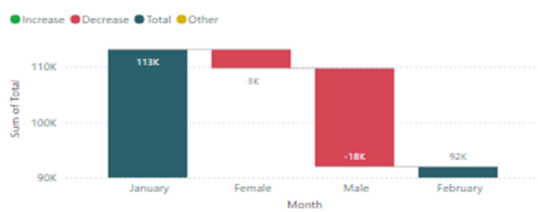


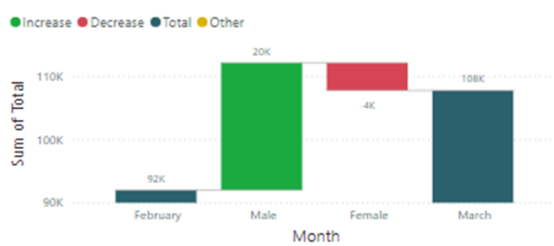
- Hour 19 (7 PM) sees the highest sales activity, with 641 transactions, followed by Hour 13 (1 PM) with 576 transactions.
- Other peak times include Hour 15 (3 PM), Hour 18 (6 PM), and Hour 20 (8 PM), indicating consistent sales in the afternoon and early evening.

Key Observation: The most active time for sales is in the evening, particularly around 7 PM, followed by lunchtime sales at 1 PM. This suggests that customers tend to shop after work or during meal breaks. Promotional efforts or flash sales can be strategically scheduled during these peak hours to maximize sales impact.

9 Average Spending by Gender Over Time



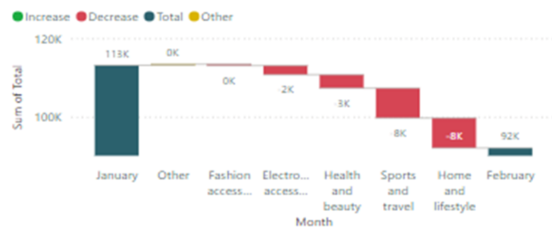


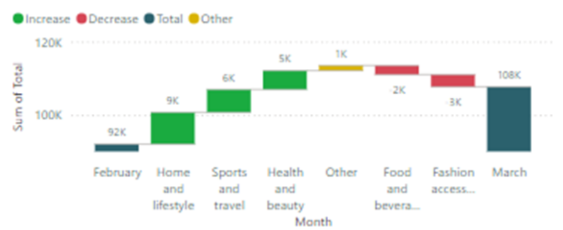


- **Female Spending:** Increased significantly from January to February, surpassing male spending. However, in March, female spending saw a sharp decline, falling below male spending.

- **Male Spending:**Increased moderately from January to February, but not as dramatically as female spending. In March, male spending remained relatively stable or showed a slight increase compared to February.

10 Monthly Sales Trends by Product





January to February:

- **Food and Beverages:** Showed a significant increase in sales from January to February.
- **Fashion Accessories:** Experienced a moderate increase during this period.
- **Electronics Accessories:** Saw a slight increase but then declined in February.
- **Health and Beauty:** Had a mixed performance, with an increase in January followed by a decrease in February.
- **Sports and Travel:** Experienced a decline from January to February.
- **Home and Lifestyle:** Showed a significant decrease in February.

February to March:

- **Home and Lifestyle:** Saw a significant increase in sales from February to March.
- **Sports and Travel:** Experienced a moderate increase during this period.
- **Health and Beauty:** Showed a slight increase but then declined in March.
- **Other:** Had a mixed performance, with an increase in February followed by a decrease in March.

- **Food and Beverages:** Experienced a decline from February to March.
- **Fashion Accessories:** Showed a significant decrease in March.

11 Summary

The Gradient Boosting Model offers valuable insights for predicting supermarket sales and improving strategies related to products, pricing, and customer engagement. With 973 total customers, there's a balanced distribution between genders and customer types, with potential to convert more normal customers into members. Sales peaked in January at 113.13K, driven by key product lines like Food & Beverages and Health & Beauty. Branch A leads in Food & Beverages, while Branch C dominates in Sports & Travel. Payment methods are well distributed, with credit cards preferred, but ewallet use is growing, signaling potential for further promotion of digital payments. Sales fluctuate significantly throughout the month, with spikes around promotions and paydays. High customer satisfaction ratings for Food & Beverages and Fashion Accessories indicate an opportunity for focused marketing efforts. Peak sales hours at 7 PM and 1 PM suggest optimal times for targeted promotions