

## **REPORT ON ANALYSIS OF SUPERMARKET SALES DATASET**

### **INTRODUCTION**

This dataset contains 1000 rows of data capturing detailed transaction data from a supermarket, including product categories, unit prices, quantities, and gross income.

It also records customer demographics like gender, payment method, and membership type. The dataset is ideal for analysing sales trends, customer behaviour, and revenue performance. It offers valuable insights for optimizing promotions and product management strategies.

### **DATA SOURCES**

The primary data source for this analysis existed as 'supermarket\_sales.csv' file, capturing detailed transaction data from a supermarket, including product categories, unit prices, quantities, and gross income.

### **TOOLS**

1. Python – Data Cleaning and EDA
2. Power BI – Data visualization, Creating of report and Dashboard

### **EXPLORATORY DATA ANALYSIS (EDA)**

EDA involved exploring the supermarket sales dataset to answer key questions, such as

1. What is the overall total profit?
2. What is the total profit by city?
3. What is the total profit by branch?
4. What is the revenue generated by each product line?
5. Revenue generated by gender?
6. Which gender purchased which product line most?
7. Average quantity of products purchased by each product line.
8. What is the customers average satisfaction rate of various product lines purchased?

### **RESULTS / FINDINGS**

After the analysis of the supermarket sales dataset, the following are my findings

1. The number of sales made by each of the 3 branches is similar.

<b><u>Branch</u></b>	<b><u>Count of sales</u></b>
A	340
B	332
C	328

2. The count of sales from the three cities are also similar

<u>City</u>	<u>Count of sales</u>
Yangon	340
Mandalay	332
Naypyitaw	328

3. The 'Member' customer type exceeded the 'Normal' customer type with just two counts of purchases.

<u>Customer type</u>	<u>Count of sales</u>
Member	501
Normal	499

4. The females also exceeded the males with just two counts of purchases.

<u>Gender</u>	<u>Count of sales</u>
Female	501
Male	499

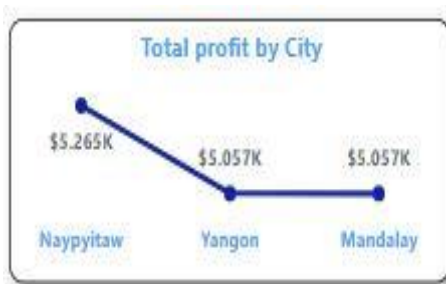
5. The number of customer with the various payment option is as follows

<u>Payment</u>	<u>Count</u>
Ewallet	345
Cash	344
Credit card	311

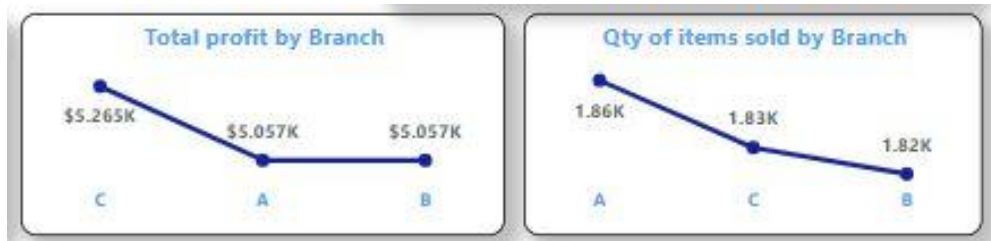
6. The count of purchases of the different product lines are below

<u>Product line</u>	<u>Counts</u>
Fashion accessories	178
Food and beverages	174
Electronic accessories	170
Sports and travel	166
Home and lifestyle	160
Health and beauty	152

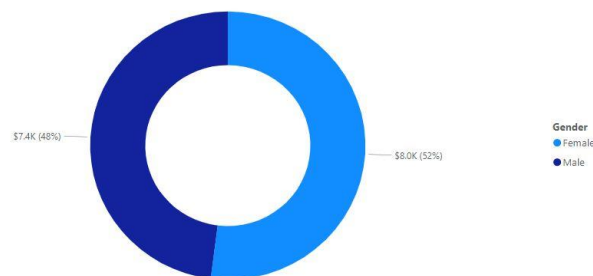
7. Naypyitaw city generated the highest revenue in profit, followed by Yangon and then Mandalay, but the quantity of products sold at Naypyitaw was lower than Yangon. This could possibly be due to the fact that prices of items purchased at supermarkets in Naypyitaw may be higher than prices of items purchased Yangon.



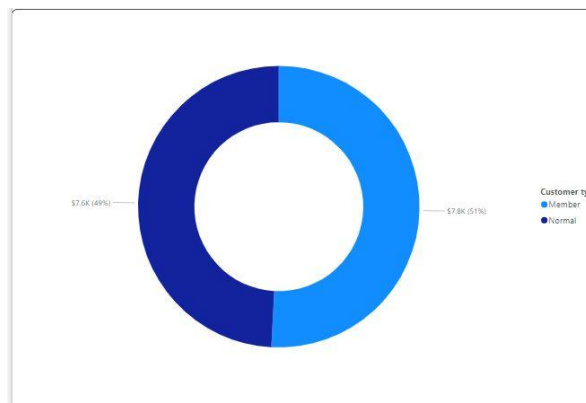
8. Again, it was realised that branch 'C' has the highest profit in sales followed by branch 'A', but the quantity of products sold at branch 'C' was lower than branch 'A'. This also could possibly be due to the fact that prices of items purchased at branch 'C' may be higher than prices of items purchased at branch 'A'.



9. Females generated \$8,000 out of the total profit in sales representing 52% while males generated \$7,400 also representing 48% of the total profit generated.



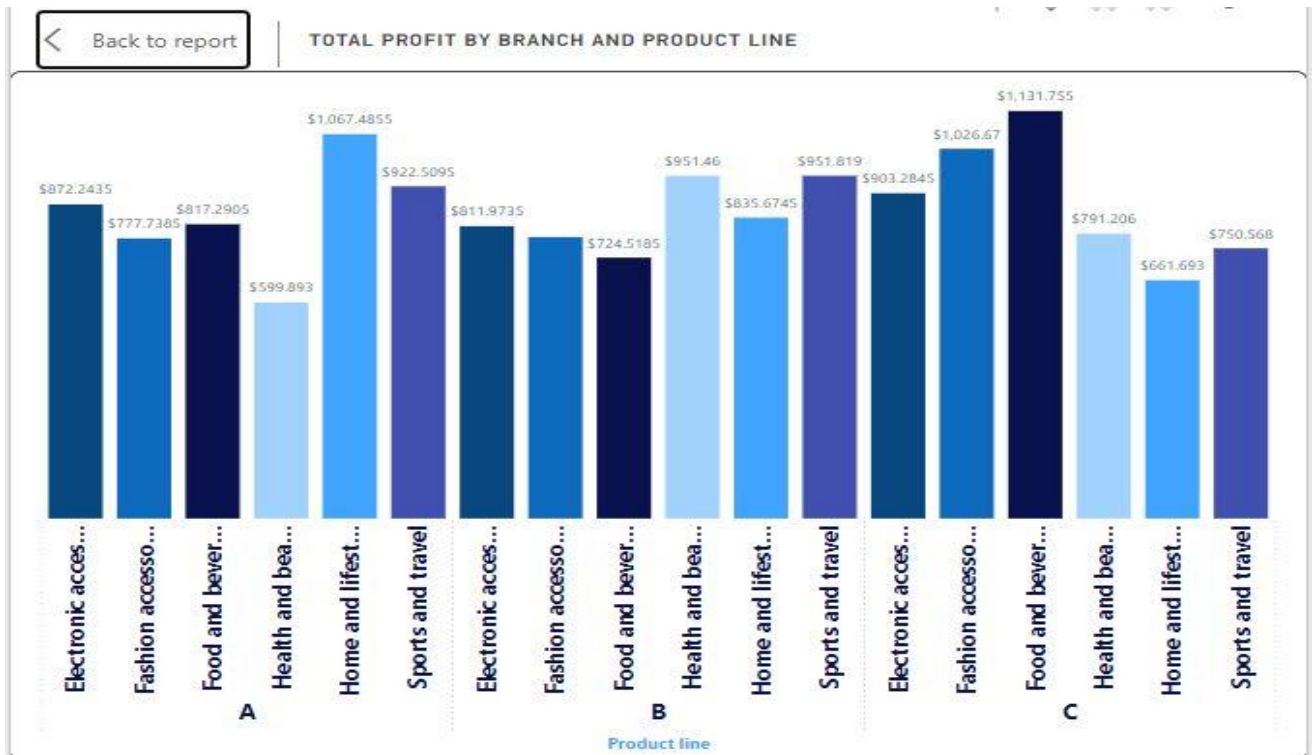
10. Members slightly exceeded Normal customers in purchases.



11. In branch 'A', Home and lifestyle product line made the highest profit (\$1,067.48), followed by Sports and travel product line(\$ 922.51) and the least amount of profit was made the Health and beauty product line(\$599.89).

12. In branch 'B', the highest profit was made by the 'Sports and travel' product line making \$951.82 closely followed by Health and beauty product line, making \$951.46; Food and beverages made the least profit (\$724.52).

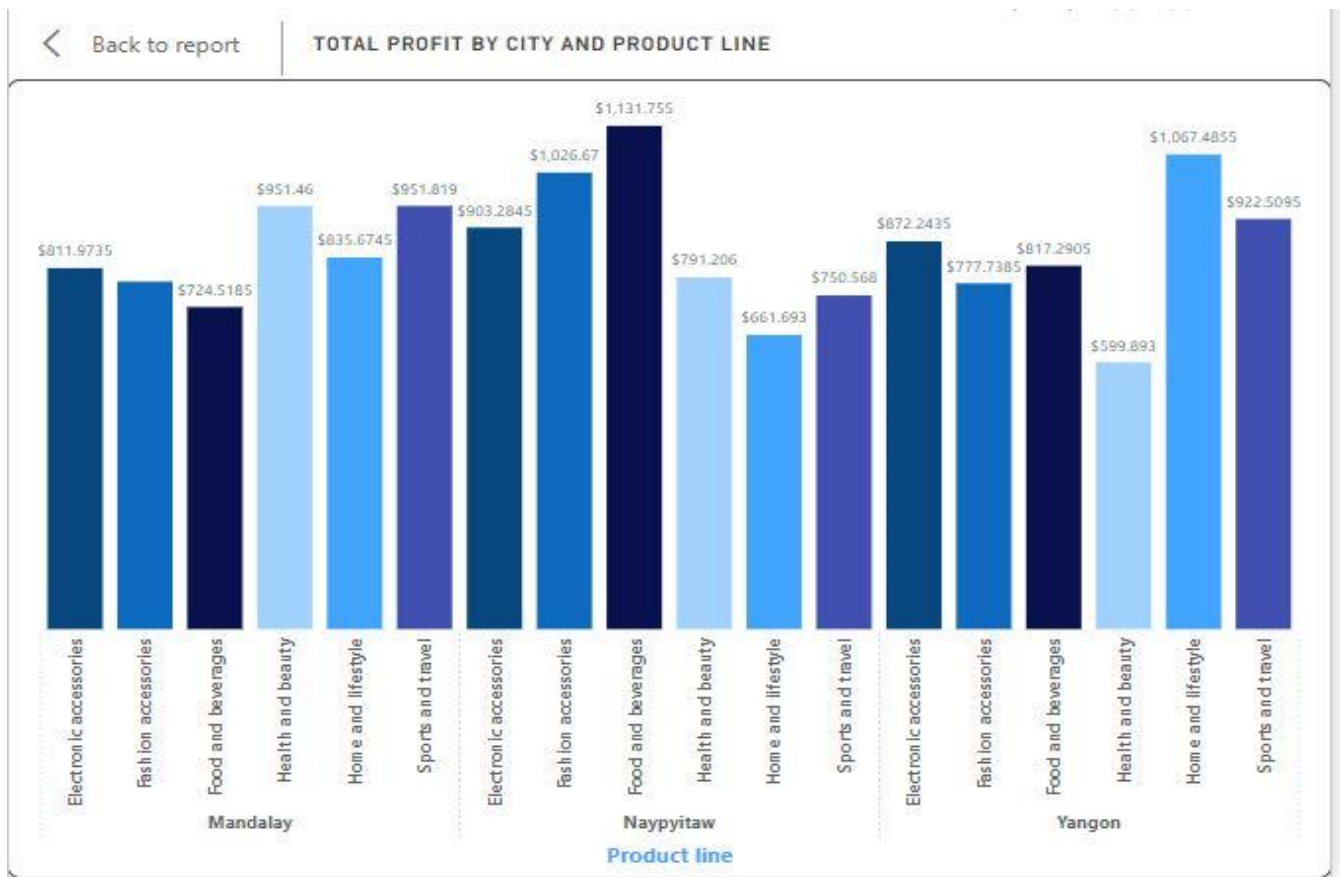
13. In branch 'C', Food and beverages made the highest profit (\$1,131.755), followed by Fashion accessories, also making (\$1,026.67), while Home and lifestyle product made the least profit(\$661.69)



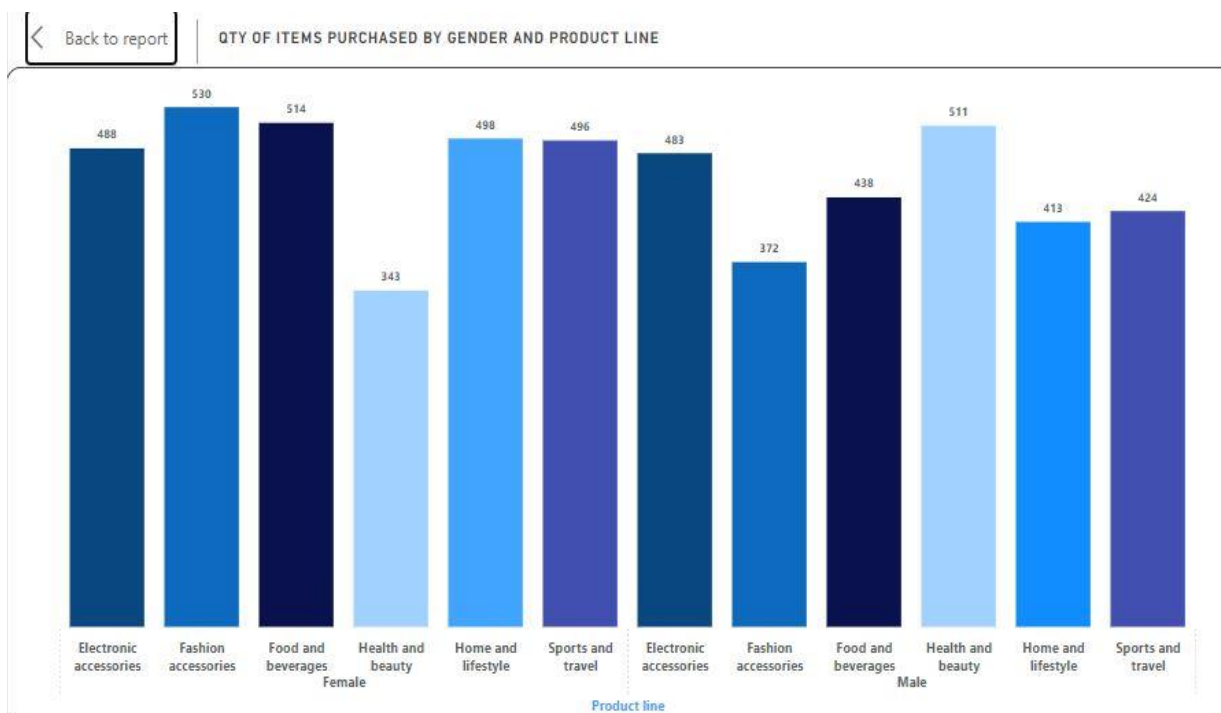
14. In Mandalay, 'Sport and travel' product line made the highest profit of \$951.82, closely followed by 'Health and beauty' product line also making \$951.46, while Food and beverages made the least profit (\$ 724.52)

15. In Naypyitaw, 'Food and beverages' made the highest profit of \$1,131.75, followed by 'Fashion accessories' making\$ 1,026.67 while, 'Home and lifestyle' product line made the least profit of \$661.69.

16. In Yangon, 'Home and lifestyle' product line made the highest profit of \$1,067.48 followed by \$922.51 made by 'Sports and travel' product line while 'Health and beauty' product line made the least profit of \$599.89.

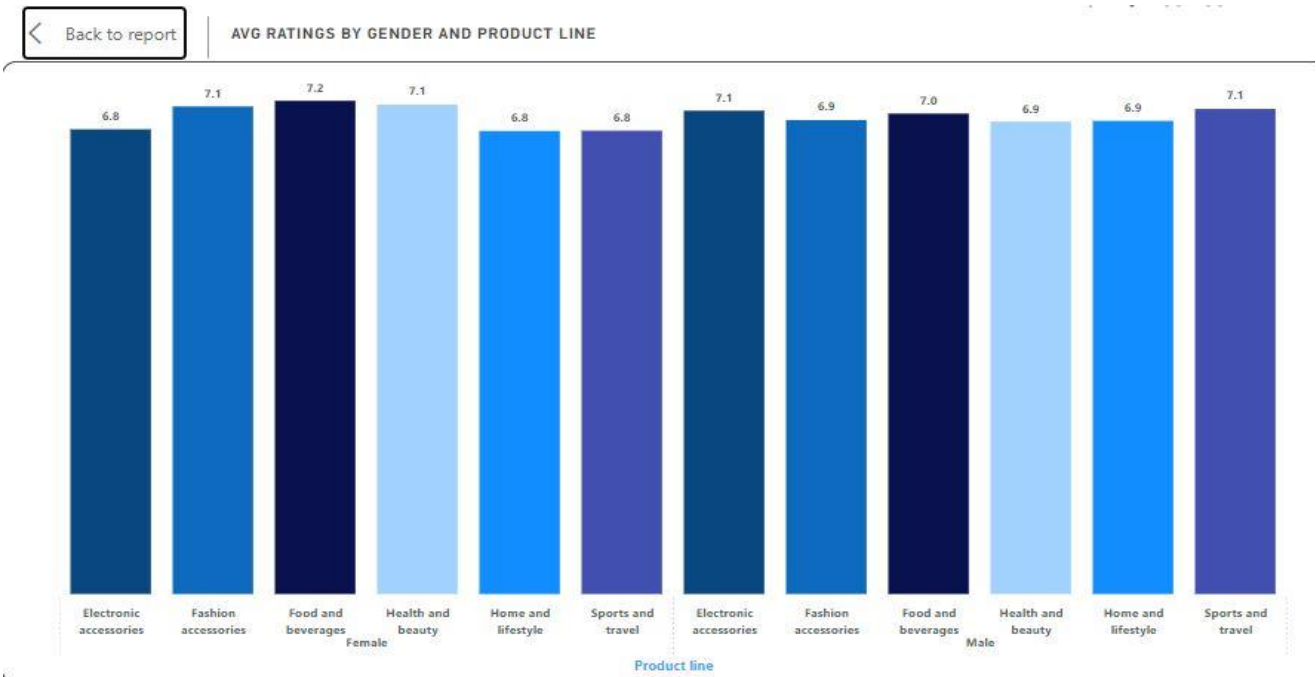


17. The female purchased 'Electronic accessories', 'Fashion accessories', 'Food and beverages', 'Sports and travel' and 'Home and lifestyle' products more than males while the males exceeded the females in the purchase of Health and beauty product lines.



18. But the male happens to appreciate the products purchased in the ‘Electronic accessories’ and ‘Sports and travel’ product lines more than the females by having a higher average rating for them than the females, the reason may be that the males have maximized the use of these products and have found it more useful than their female counterparts .

However, the few females who purchased the ‘Health and beauty’ products also appreciated them more than the majority of the males who purchased them by having a higher ratings for them than males. The females may also have maximized the use of these products than their male counterparts.



19. The month of January made the highest amount of sales with a total profit of \$5,540.00, 1970 total items sold and an average unit price of \$56.12.



20. The month of March made the second highest amount of profit (\$ 5,210), with a total of 1890 of items sold and \$ 54.37 average unit price of an item.



21. The month of February made the least amount of sales, with a profit of \$4,630, 1650 of items sold and an average unit price of \$ 56.63.



### **Recommendations**

1. Customers should be education on how to maximize the use of various products purchased.
2. In branch 'A', Health and beauty product line made almost 50% less in profit than the highest profit made for the branch (Home and lifestyle product line = \$1,067.48), I recommend that Health and beauty products should be made more visible and accessible in the supermarket; perhaps 'passing-through' customers could not search and locate the 'Health and beauty' products shelf or some customers may assume certain 'Health and beauty' products are not available in the supermarket just because they could not spend time to search for them.
3. More advertisement should be made for less popular 'Health and beauty' products in branch 'A' to increase customers' awareness and their availability in the supermarket.
4. Varieties of 'Health and beauty' products should be made available in the supermarket for customers to choose from.
5. Varieties of 'Fashion accessories' and 'Food and beverages' products should be made available and consciously displayed in branch 'B' for customers to easily see and choose from them.
6. Varieties of 'Health and beauty', 'Home and lifestyle' and 'Sports and travel' products should be made available and consciously displayed in branch 'C' for customers to easily see and also choose from them.
7. Product lines that are doing well in profit in the various branches should be expanded, more varieties should be added and advertisements intensified to further increase their profit margins.
8. In Mandalay, customers are more inclined to purchasing 'Sport and travel' and 'Health and beauty' products so the shelves for these products should be expanded to accommodate more varieties of them to increase customers range of choice of these products.
9. Other less purchased products in Mandalay should be made more accessible to customers.
10. Advertisements and awareness for 'Health and beauty', 'Home and lifestyle' and 'Sports and travel' products should be intensified in shops at Naypyitaw to increase their sales margin and the capacities for 'Food and beverages', 'Fashion accessories' and 'Electronic accessories' be increased.
11. In Yangon, capacities for product lines that are not generating much profit should be reduced but should be situated where it will visible and easily accessible to customers ; and the products

that are doing well in profit should have their capacities increased and directional posts should be available in the supermarket to show customers where the shelves of these products are located.

Thank you.