UNIVERSITI MALAYSIA PAHANG
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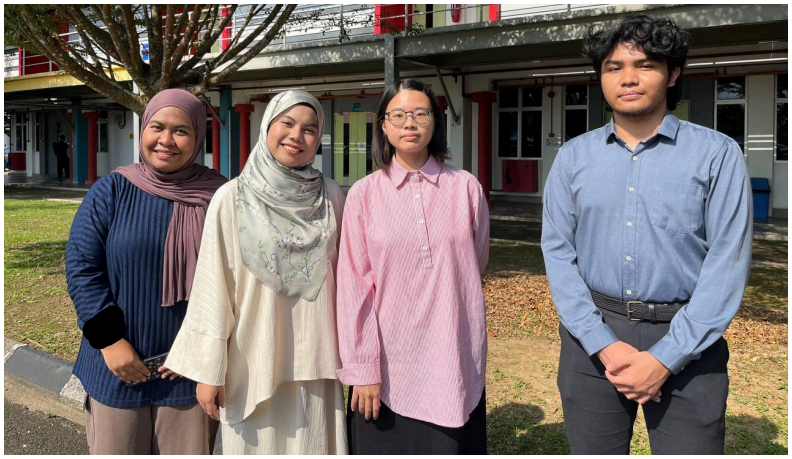
BSD2223 DATA SCIENCE PROGRAMMING LANGUAGE II



GROUP 2 (01G)

PROJECT TITLE: SALES OF SUPERMARKET

SDG8 - DECENT WORK AND ECONOMIC GROWTH

PREPARED BY:

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Abstract

This project focuses on analysing the sales data from a supermarket in Myanmar which consists of three different branches located in Mandalay, Naypyitaw, and Yangon. The project aims to uncover important insights in several key areas, such as finding out which branches are the most popular, figuring out the best times for selling, and identifying the branches that make the most money. The user-friendly interactive dashboard is a key part of this project, aiming to make data analytics accessible to store managers and marketing teams who might not be tech experts. The interactive dashboard will help people gain a better understanding of how sales patterns and customer behaviour work. The primary goal is to empower supermarket entrepreneurs with the necessary insights and tools they need to make smart decisions based on data.

TABLE OF CONTENTS

1.0 Introduction

In today's highly competitive retail world, supermarkets are always looking for new and creative ways to improve their operations and make their customers happier. This project focuses on analysing the sales data from a supermarket in Myanmar which consists of three different branches located in Mandalay, Naypyitaw and Yangon. The analysis covers a wide range of factors, including things like invoice ID, branch location, city, customer type, gender, product type, price per unit, quantity, tax, total price, date, time, payment method, cost of goods sold, gross margin percentage, gross income, and customer ratings.

The business sales performance dashboard will include indicators such as total sales, type of product, month and customer rating. Sales information can be visual by product type and gender to highlight gender trends and areas where sales may not be doing well. Furthermore, staff members can understand the relationship between customer rating and sales performance by tracking both. High sales figures do not always mean satisfied consumers. This knowledge can be used to develop tactics that improve both sales and customer experience.

We are concentrating on creating a sales performance dashboard for the company that will help staff and managers. This dashboard will make it easier to discover patterns and factors of decreasing sales and identify improvement areas by displaying this information in a graph, chart or table. It provides visual data to help managers and employees understand the state of their company.

By using advanced data analytics, the project aims to discover important insights in several key areas, such as finding out which branches are the most popular, figuring out the best times for selling, and identifying the branches that make the most money.

1.1 Questions To Answer

1. Which category of products are purchased most by each gender of the customers?

2. Which branch has achieved the highest total sales?

3. Which category of products contributes the highest total sales?

1.2 Objective

1. To determine the category of products purchased most by each gender of the customers

2. To identify the branch that achieves the highest total sales

3. To determine the product category that contributes to the highest total sales

2.0 Project Description

Based on our case study, there is an example of a study about a big supermarket that used data analytics to understand customer behaviour and buying patterns. This project aims to replicate and build upon those accomplishments. The primary goal is to help future store managers and marketing teams become more knowledgeable to improve decision-making and enhance strategies through the use of data analytics. By analysing this dataset, we plan to open a new branch due to the high population in Myanmar, specifically Naypyitaw, Yangon, and Mandalay which refers to branches A, B and C respectively.

The significance of this project lies in bridging the gap between customer satisfaction and sales performance. It enables aspiring store managers and marketing teams without extensive technical knowledge to make informed decisions, identify opportunities, and optimise their strategies. The project's innovative values lie in developing a user-friendly and interactive dashboard that simplifies data analysis and provides valuable insights to business owners. Through the interactive dashboard, users can explore different attributes, compare sales and income, and access recommendations based on the analysis. Overall, the project aims to empower supermarket entrepreneurs with the necessary insights and tools to navigate the dynamic retail industry and make data-driven decisions for success.

3.0 Data Description

This dataset contains statistics on the sales of supermarkets in Myanmar with three different branches over three months. There are 17 columns in the dataset representing various metrics and qualities of the sales. The timeframe of the sales data starts from Jan to March 2019. The dataset consists of 1001 rows and 17 columns.

No	Title	Explanation	Type
1	InvoiceID	Computer-generated sales slip invoice identification number	Qualitative
2	Branch	The branch of supermarkets are identified by A, B and C	Qualitative
3	City	Location of each branch of supermarkets	Qualitative
4	CustType	The type of customers can be categorised as Members and Normal. Member indicates customers using member cards whereas Normal for those without member cards	Qualitative
5	Gender	The gender of the customer	Qualitative
6	ProductType	Categories of product include Electronic accessories, Fashion accessories, Food and beverages, Health and beauty, Home and lifestyle, and Sports and travel	Qualitative
7	Price	The price of each product is the dollar ($)	Quantitative
8	Quantity	Number of products purchased by customers	Quantitative

9	Tax	5% tax fee for customer buying	Quantitative
10	TotalPrice	Total price including tax	Quantitative
11	Date	Date of purchase (Record available from January 2019 to March 2019)	Qualitative
12	Time	Purchase time (10 am to 9 pm).	Quantitative
13	Payment	Type of payment used by customers for purchasing products. It consists of three methods available for making payment including cash, credit card and e-wallet	Qualitative
14	Cogs	Cost of goods sold.	Quantitative
15	GMP	Gross margin percentage.	Quantitative
16	GIncome	Gross income.	Quantitative
17	Ratings	Customer stratification rating on their overall shopping experience. The range of ratings is from 1 to 10	Qualitative

4.0 Data Preparation

In this section, we will clean the obtained data to gain a better understanding for future analysis. Firstly, we rename the column to ensure that the column name accurately describes the data. It can allow the audience to have an early summary of the data corresponding to the specific column. To make the column look better, we rename it and delete any unwanted characters or symbols. In this dataset, there are about eight columns we renamed which are Tax 5% to Tax, Invoice ID to InvoiceID, Customer type to CustType, Product line to ProductType, Unit Price to Price, gross margin percentage to GMP and gross income to GIncome.

Next, we change the decimal place for certain numerical columns to ensure consistency for datasets. We round 6 numerical columns to 2 decimal places which are Tax, Price, TotalPrice, cogs, GMP, and GIncome. We also round column Ratings to one decimal place. Then, we modify the data type for Date. Since the data type for Duration was char when we first extracted it, we changed it to datetime. This is to ensure that the data is in the form of time and will avoid incorrect analysis in the following section. After that, we check for missing values in the data. Missing values or NA can have an impact on data interpretation when analysis begins and we found that our dataset had no missing values.

Finally, we identify outliers using boxplot visualization. Outliers can be detected by identifying points outside whiskers. We carefully evaluate these outliers to see if they are actual data points or errors. If they are valid, they may provide fascinating insights or usual patterns in the data. However, if they contain errors or noise, we may need to remove or correct them to ensure the accuracy of our research. In this project, the outliers will be considered in our analysis because we want to identify the relationship between the variables.

5.0 Data Analysis, Results and Discussion

Figure 1: Cover Page of the Dashboard

Our dashboard is divided into five sections including the cover page, demographic analysis, sales analysis, gross income analysis and summary. Demographic analysis analyses the number of products purchased by gender and sales pattern based on payment methods, membership status and gender. For sales analysis, it analyses the total sales based on each product type and branch. Gross income analysis analyses the overall distribution of gross income, the gross income earned by each branch and gross income by each month. The summary page contains a whole table of the sales of the supermarket dataset.

Demographic Analysis:

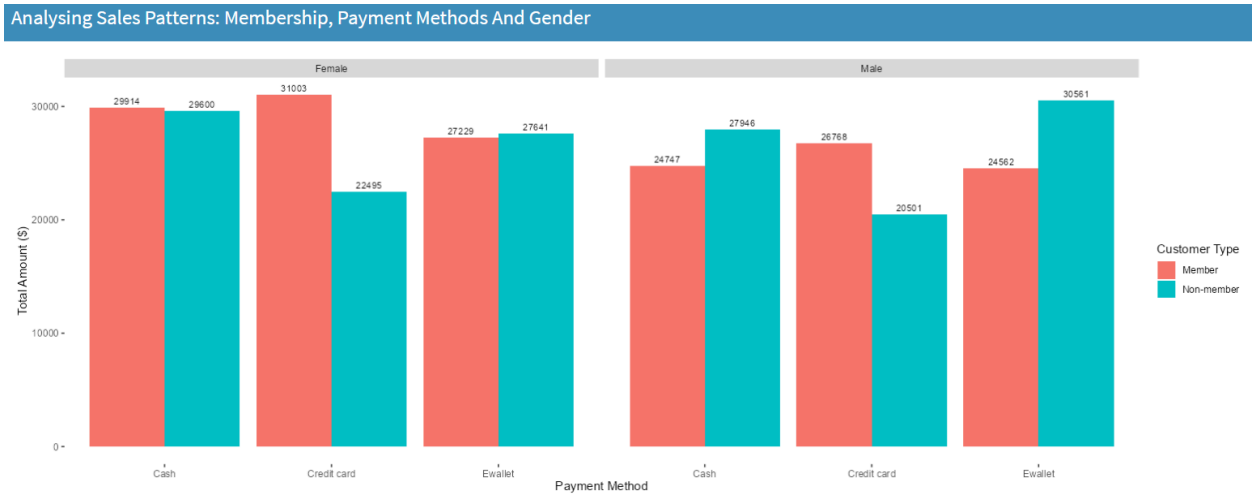


Figure 2: Analysing Sales Patterns: Membership, Payment Methods And Gender

Result:

The figure above shows patterns of sales that were contributed by females and males using different payment methods and membership status. We start by focusing on female output. Females who have membership cards tend to shop more compared to men who are members. Only a little bit of difference in the total amount spent using cash and Ewallet between the membership status of females but focusing on credit card usage there is a huge gap with $8508.

Focusing on male output, we can see that males with no membership card tend to spend more on shopping. Moreover, men with membership cards tend to spend more using credit cards with $6267 different from men with no membership card. The highest male spending is using Ewallet.

Discussion:

We can say that it is the nature of women to spend more than men and traditionally women in Myanmar are the ones who buy the groceries for the family does explains the output of females spending more than men. Furthermore, we can assume with membership they can get more points that can benefit them with more spending based on the data that shows higher

spending for females on cash and credit cards, and only slightly different on Ewallet spending compared to non-members. Lastly, we can say that maybe there is an extra benefit if they pay using a credit card with a membership card since there is a very huge gap between membership and non-membership.

Focusing on male output, we can see that males with no membership card tend to spend more on shopping. We can say that the nature of men is that they do not care about the benefit of membership status. The highest male spending is using Ewallet, since Ewallet can be used by phone and we can say that there is increasing phone usage in Myanmar, they couldn't care less to bring their wallet everywhere, they just need their phone to make payments. By focusing on males with membership, they spend more on credit cards. With membership cards and credit cards, we can assume there is an extra benefit that explains the output.

Conclusion:

Based on the female and male output, we can say that it does have benefits to spend using a credit card along with a membership card since both of the genders show the same pattern on spending using a credit card with membership. We can conclude that highlighting the benefit gained from using a credit card along with a membership card can attract more female customers and making Ewallet payments accepted in all of the stores can attract more male customers.

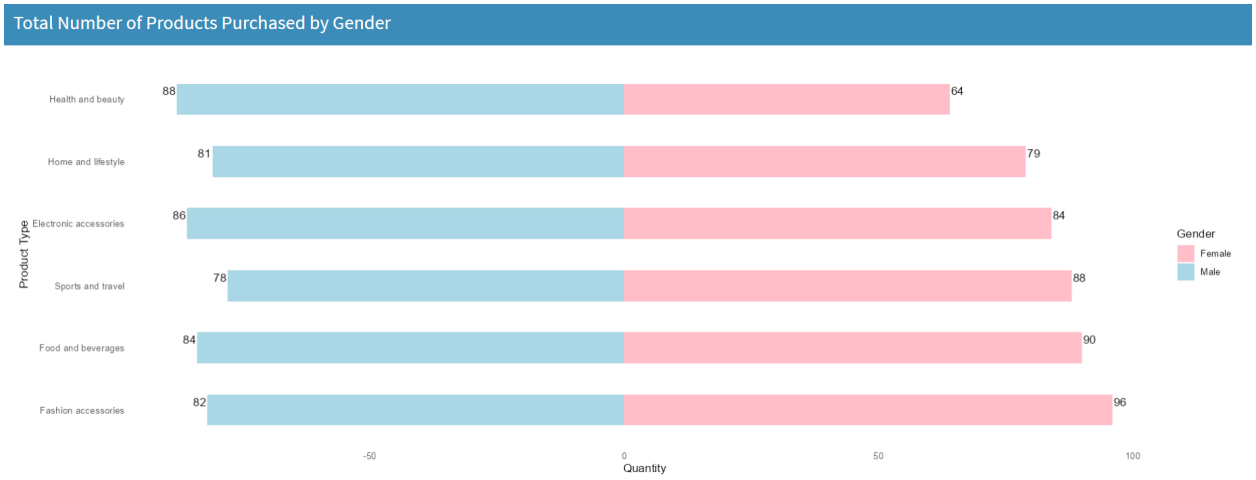


Figure 3: Total Number of Products Purchased by Gender

Result:

The figure above shows the total number of products purchased by gender. The highest number of products purchased by females is fashion accessories while the lowest number of products purchased by females is the health and beauty category. Besides, the highest number of products purchased by males is the health and beauty category while the lowest number of products purchased by males is the sport and travel category. Furthermore, females have purchased more fashion accessories, food and beverages and sports and travel products than males. The male has purchased more electronic accessories, home and lifestyle and health and beauty products compared to females.

Discussion:

Females prefer to spend on fashion accessories due to social trends. The fashion accessories trend changes frequently and it is often promoted heavily on social media. This encourages females to purchase new fashion accessories to stay fashionable. Besides, some fashion accessories such as scarves, jewellery and wallets can be easily mixed and matched with different outliers which leads females to purchase more frequently. These fashion accessories also can be considered cheaper compared to health and beauty products. The figure above shows that females are less likely to purchase health and beauty products. This may be because products such as skincare and health supplements are long-lasting leading to fewer purchases over time.

Besides, the functionality and quality of health and beauty are very important, so females will less frequently purchase them.

In recent years, the cosmetics business has focused more on male consumers by promoting skincare products through advertising campaigns and product innovations. This helps to increase the awareness of males about the importance of haircare and skincare. As a result, more males invest in personal care items. Sports and travel are popular activities for many males however males less purchase sports and travel products. This may be due to sports equipment can last for a long time reducing the need for frequent replacements.

Most of the married women in Myanmar are responsible for the management of household chores. Therefore, they have to plan the meals and cooking for their family leading to purchasing more food and beverage products. Besides, males have more interest in gadgets and technologies leading them to purchase more electronic accessories products such as laptops, smartphones and other electronic devices than females. Males may earn more than females because they can purchase more home lifestyle products such as furniture.

Conclusion:

Females prefer to purchase fashion accessories products whereas males prefer to purchase health and beauty products.

Sales Analysis:

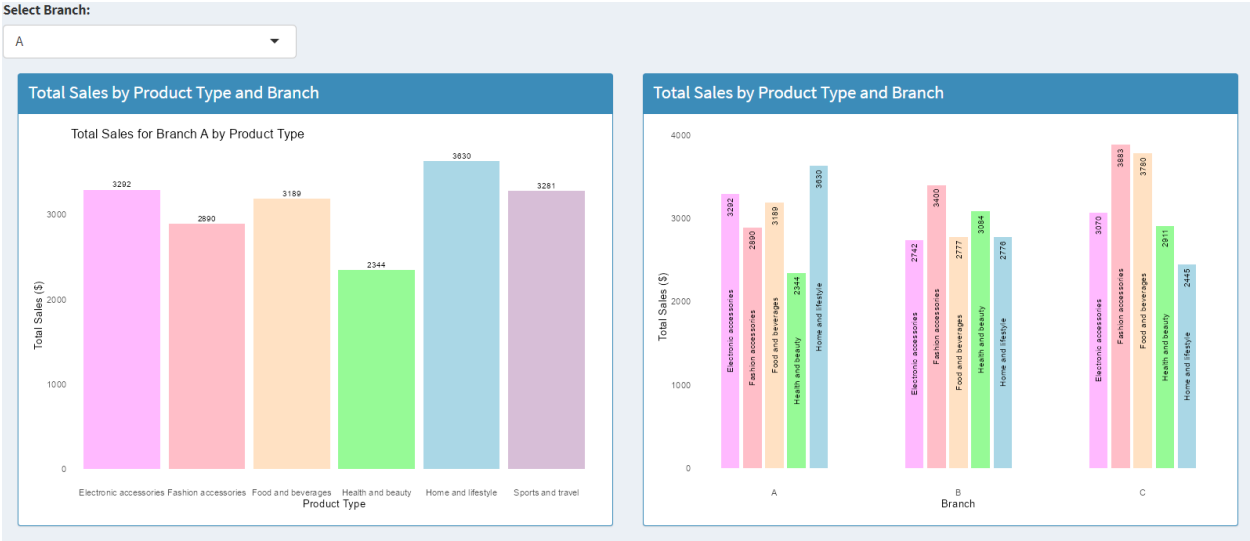


Figure 4: Total Sales by Product Type and Branch

Result:

The bar chart on the left shows the total sales for Branch A across various product types. Home and Lifestyle products lead with $3630, followed by Electronic Accessories at $3292, Sports and Travel at $3281, and Fashion Accessories at $2890. The Health and Beauty category has the lowest sales at $2344. This chart can also display total sales for Branches B and C via drop-down options.

The bar chart on the right compares total sales by product type across Branches A, B, and C. Branch C achieves the highest total sales, with notable figures in Fashion Accessories ($3883) and Food and Beverages ($3780). Branch B excels in Fashion Accessories ($3400) and Health and Beauty ($3094).

Discussion:

In Branch A (Yangon), Home and Lifestyle products dominate sales. As Yangon is a major commercial hub, the high demand for home-related products is expected due to its large, urban population. This urban lifestyle drives the need for home improvement and lifestyle products. The sales in Electronic Accessories and Sports and Travel are also significant, indicating a

tech-savvy and active consumer base. Conversely, the Health and Beauty category's lower performance suggests potential growth opportunities.

The highest sales in Branch C (Naypyitaw) are driven by Fashion Accessories and Food and Beverages. Naypyitaw’s status as the administrative capital attracts government officials and visitors, creating a strong demand for these products. Branch B (Mandalay) shows a strong preference for Fashion Accessories and Health and Beauty products, reflecting the city's rich cultural heritage and vibrant fashion scene. In contrast, Branch A's (Yangon) high sales of Home and Lifestyle products suggest a focus on home improvement and urban living.

Conclusion:

Home and Lifestyle products contribute most to the high sales in Branch A, aligning with the urban lifestyle and needs of Yangon’s population. The diverse sales across other categories also reflect a well-rounded consumer demand.

Branch C's overall highest sales reflect its unique position as the administrative capital with diverse demands. Each branch’s sales performance is influenced by its location, with consumer preferences aligning with the local lifestyle and demographic needs.

Figure 5: Total Sales by Product Type

Result:

The figure above shows the total sales by various types of product. The majority of the products that achieve above-average total sales include home and lifestyle, fashion accessories, electronic accessories, sports and travel and food and beverages. Among these products, the food and beverages achieve the highest total sales of $56145. However, health and beauty products have achieved the lowest total sales of $49194 compared to other products.

Discussion:

The food and beverages are essential items and unlike other products that have longer replacement cycles such as fashion accessories, electronic accessories and sports and travel products. Therefore, customers need to purchase it frequently as it will be consumed quickly.

Despite Figure 3 showing that males purchase most health and beauty products, it achieved the lowest total sales compared to other products. This may be caused by males only purchasing basic grooming items more frequently rather than purchasing high-priced skincare or cosmetic products. This leads to health and beauty products having lower sales despite higher purchase frequency by males.

Conclusion:

The food and beverages product category has contributed to the highest total sales. Besides, health and beauty have achieved the lowest total sales compared to other product categories. Therefore, supermarkets are required to put more effort in increasing the sales of health and beauty products.

Gross Income Analysis:

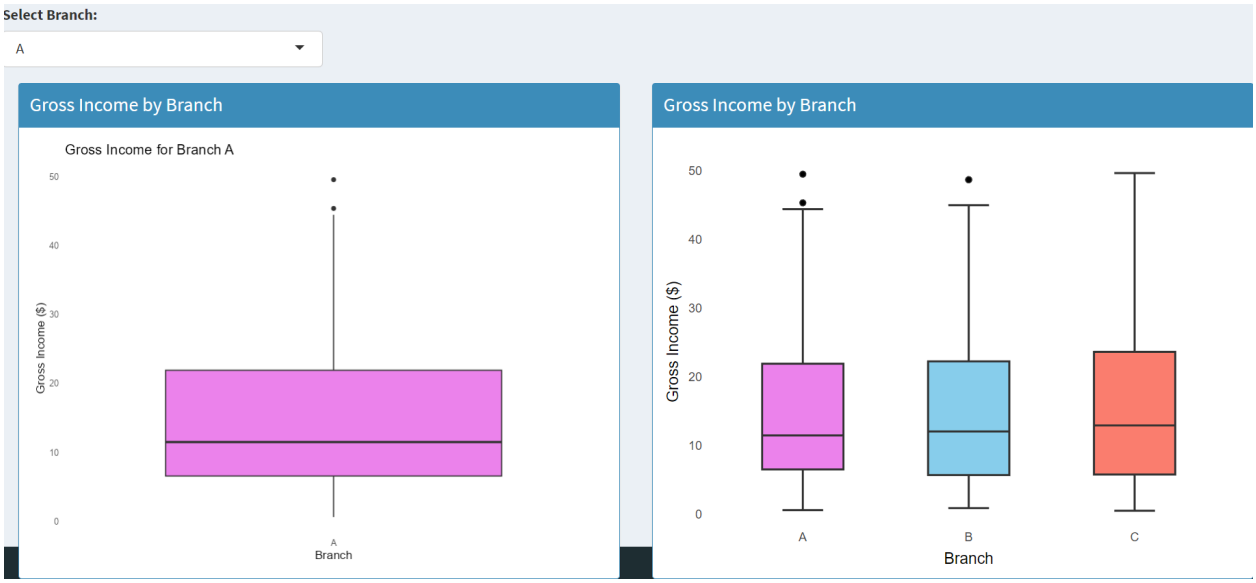


Figure 6: Gross Income by Branch

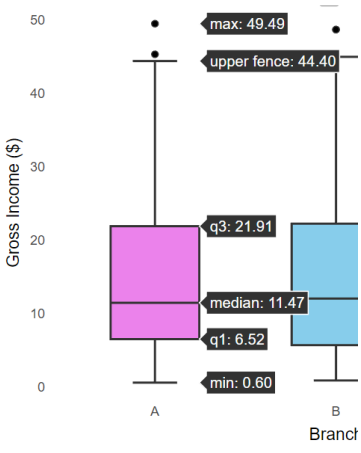


Figure 7: Gross Income by Branch A

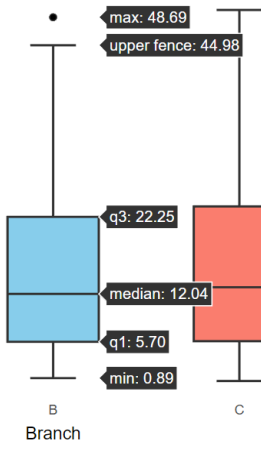


Figure 8: Gross Income by Branch B

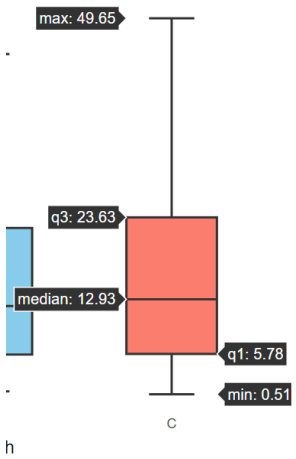


Figure 9: Gross Income by Branch C

Result:

The box plot on the left illustrates the distribution of gross income for Branch A. The median gross income is $11.47, with an interquartile range (IQR) from $6.52 to $21.91. There are notable outliers above $44.40. The right box plot compares the gross income distributions across all branches (A, B, and C). The median gross incomes for all branches are around $11.47 to $12.93. Branch C obtained the highest maximum gross income and has the highest median gross income compared to Branch A and B. Branch A and B have outliers, while Branch C does not. Branch C has the highest interquartile range (IQR), indicating more variability.

Discussion:

The IQR for Branch A indicates that the central 50% of transactions fall between $6.52 and $21.91, with outliers above $44.40 suggesting occasional high-income transactions. This distribution helps understand the typical income range and identify high-value transactions within Branch A. Branch C's higher median and maximum gross income suggest more frequent high-value transactions, likely due to higher consumer spending or effective sales strategies. The right-skewed distribution of gross incomes across all branches indicates that most transactions are lower, with fewer high-value sales. The lack of outliers in Branch C and its higher IQR indicate a more consistent and variable income distribution compared to Branches A and B.

Conclusion:

Branch A shows a typical gross income range with occasional high-value transactions. Understanding these outliers can help in identifying strategies to replicate high-income sales. Branch C outperforms the other branches in terms of maximum and median gross income. The higher variability and lack of outliers suggest a stable and profitable performance, likely due to factors such as higher consumer spending, advantageous location, or superior sales strategies. This highlights the potential for Branch C, possibly located in Naypyitaw, to serve as a model for other branches.

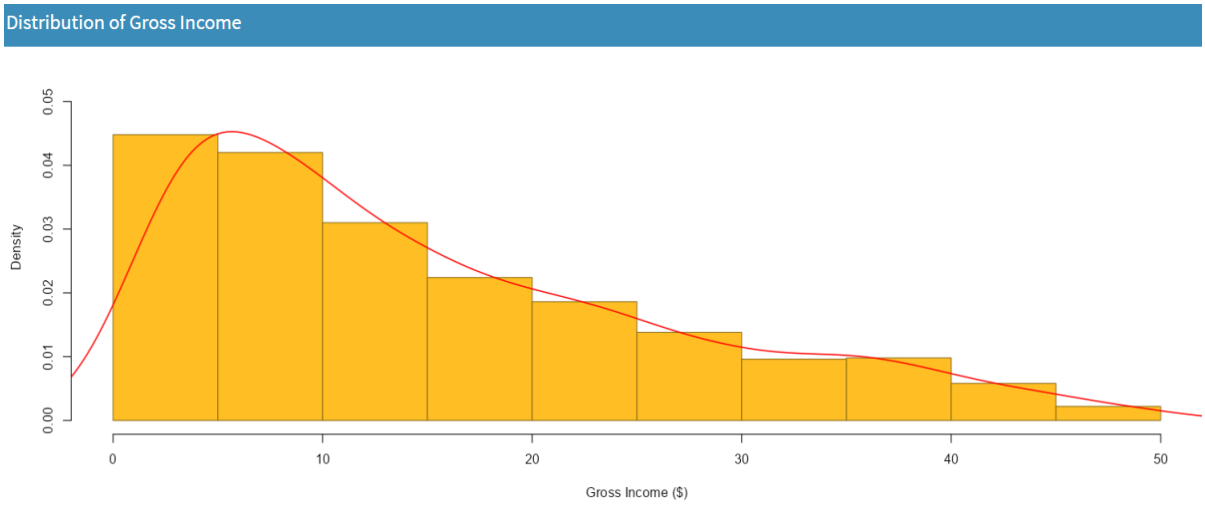


Figure 10: Distribution of Gross Income

Result :

Figure 7 shows the histogram for the distribution of gross income. The red line indicates the overall shape of the income distribution which is a right-skewed distribution. This can be seen because the majority of the data points are more on the left side indicating lower income values, while fewer moves to the right indicate higher income values. The highest bar in the histogram appears at the $10 mark on the horizontal axis while the lowest distribution for gross income is $50. This means that the most typical gross income value is within this range. Therefore, the mode of the distribution is about $10.

Discussion :

This happened because highly competitive markets tend to bring prices down and make it difficult for companies to maintain large profits which will impact the distribution of gross income. When incomes increase, the height of the bars decreases, indicating decreased frequency.

Conclusion :

In summary, Figure 7 right-skewed gross income distribution illustrates the difficulties that competitive marketplaces place on profit margins. Companies have to understand and manage these dynamics to adjust strategies that maximise income to face market changes.

Figure 11: Gross Income Trend by Month and Branch

Result:

Figure 8 shows the gross income trend from Jan 2019 until March for three different branches which are Mandalay, Naypyitaw and Yangon. The highest gross income per month for January is Napyitaw while February is Mandalay and March is Yangon. The gross income for Mandalay shows a slight decrease from January to February followed by a slight increase in March. This indicates some variation but overall stability around the $1,600-$1,700 range. The Naypyitaw and Yangon branch showed the highest gross income in January but experienced a significant drop in February. However, it recovered partially in March, suggesting possible seasonal or operational factors affecting its income.

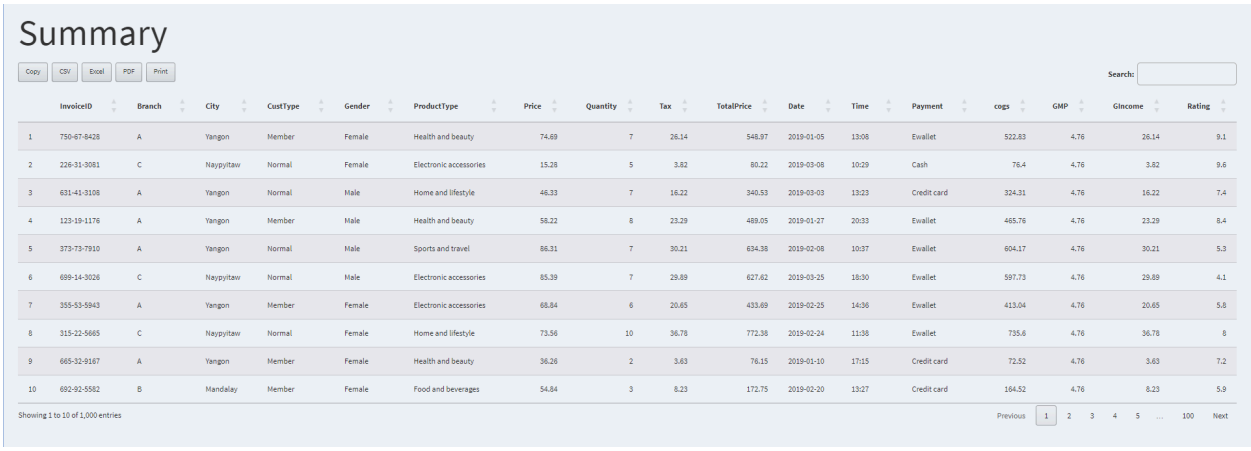
Discussion :

The data seems to indicate that there is a regular seasonal trend that results in lower gross income in February for every branch. This drop is most likely the result of lower consumer spending after the holidays, which may have been impacted by end-of-year specials or promotions that usually increase incomes in January. Furthermore, the delivery of fresh inventory could make customers wait for new products, which would add to the February slowdown. March shows a recovery in income, possibly due to new marketing campaigns, promotions, or product launches aimed to boost sales after the February decrease.

Conclusion:

By analysing the gross income trend by month and city, companies can identify the most impact on sales performance. Marketing strategy can be modified to increase sales revenue.

Table of the dataset:



Summary

Copy CSV Excel PDF Print

Search:

	InvoiceID	Branch	City	CustType	Gender	ProductType	Price	Quantity	Tax	TotalPrice	Date	Time	Payment	cogs	GMP	Gincome	Rating
1	750-67-8428	A	Yangon	Member	Female	Health and beauty	74.69	7	26.14	548.97	2019-01-05	13:08	Ewallet	522.83	4.76	26.14	9.1
2	226-31-3081	C	Naypyitaw	Normal	Female	Electronic accessories	15.28	5	3.82	80.22	2019-03-08	10:29	Cash	76.4	4.76	3.82	9.6
3	631-41-3108	A	Yangon	Normal	Male	Home and lifestyle	46.33	7	16.22	340.53	2019-03-03	13:23	Credit card	324.31	4.76	16.22	7.4
4	123-19-1176	A	Yangon	Member	Male	Health and beauty	58.22	8	23.29	489.05	2019-01-27	20:33	Ewallet	465.76	4.76	23.29	8.4
5	373-73-7910	A	Yangon	Normal	Male	Sports and travel	86.31	7	30.21	634.38	2019-02-08	10:37	Ewallet	604.17	4.76	30.21	5.3
6	699-14-3026	C	Naypyitaw	Normal	Male	Electronic accessories	85.39	7	29.89	627.62	2019-03-25	18:30	Ewallet	597.73	4.76	29.89	4.1
7	355-53-5943	A	Yangon	Member	Female	Electronic accessories	68.84	6	20.65	433.69	2019-02-25	14:36	Ewallet	413.04	4.76	20.65	5.8
8	315-22-5665	C	Naypyitaw	Normal	Female	Home and lifestyle	73.56	10	36.78	772.38	2019-02-24	11:38	Ewallet	735.6	4.76	36.78	8
9	665-32-9167	A	Yangon	Member	Female	Health and beauty	36.26	2	3.63	76.15	2019-01-10	17:15	Credit card	72.52	4.76	3.63	7.2
10	692-92-5582	B	Mandalay	Member	Female	Food and beverages	54.84	3	8.23	172.75	2019-02-20	13:27	Credit card	164.52	4.76	8.23	5.9

Showing 1 to 10 of 1,000 entries

Previous 1 2 3 4 5 … 100 Next

Figure 12: Table of the dataset

The figure above shows the table of the sales of a supermarket. This page contains a search button which can help to filter the required data. After filtering the required data, it can be exported to CSV, excel, or pdf format. The filtered data also can be copied and printed. It also provides but to sort the data in ascending and descending order. Besides, it provides previous, next and number page buttons to adjust and choose the pages.

6.0 Conclusion

This project goes beyond just analyzing data; it plays an important role in connecting customer satisfaction with sales performance for supermarket chains. By looking closely at various sales factors, the project hopes to help supermarket owners spot hidden chances, make smart choices, and boost their profits. Creating a user-friendly interactive dashboard is a key part of this project, aiming to make data analytics accessible to store managers and marketing teams who might not be tech experts. With this tool, users can explore data, compare metrics, and come up with insights to guide their strategies.

By allowing users to investigate different characteristics like the type of product, the demographics of customers, and the timing of purchases, the interactive dashboard will help people gain a better understanding of how sales patterns and customer behaviour work. As a result, supermarkets will be able to adjust their strategies to better serve their customers, improve their inventory management, and create more successful marketing campaigns. The project's uniqueness lies in its ability to turn raw data into useful information, giving supermarket businesses the knowledge they need to succeed in a competitive market.

In the end, the main goal of this project is to give supermarket owners the knowledge and tools they need to make smart decisions based on data. This will create an environment where actions are guided by accurate and thorough data analysis. By making technical concepts easier to understand and apply, the project hopes to bring success and satisfaction to the constantly changing retail industry. By using this data-driven approach, supermarkets can improve how they operate, engage with customers, and achieve long-term growth.

7.0 Limitations of the Study

This study has certain limitations because the sales data used were limited to three branches for three months in 2019. This timeframe and scope may not have reflected seasonal shifts, long-term trends, or variations in consumer purchasing patterns. Aside from that, our analysis made use of almost outdated data, which may not be able to highlight the current market trend. Furthermore, our decision to not remove outliers for further investigation may affect the analysis. Outliers may be helpful when we need to see such trends or some specific anomaly, but they distract our analysis, if not treated effectively.

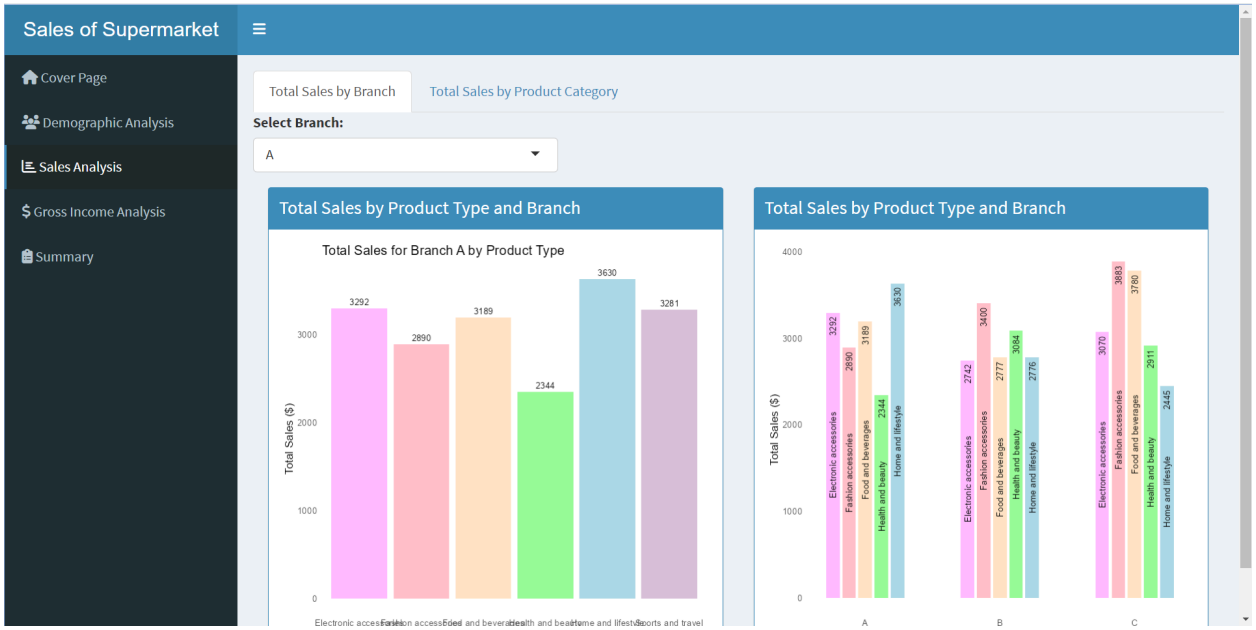
8.0 Appendix

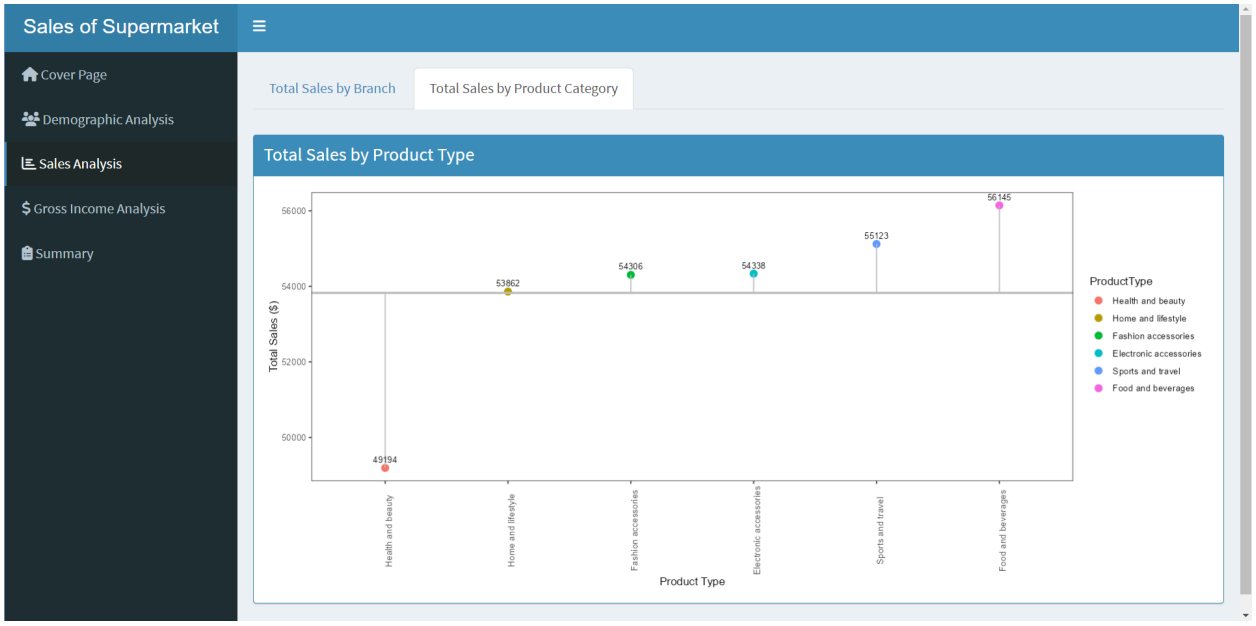
Link for Dataset, Presentation Slide, Presentation Video and R Coding:

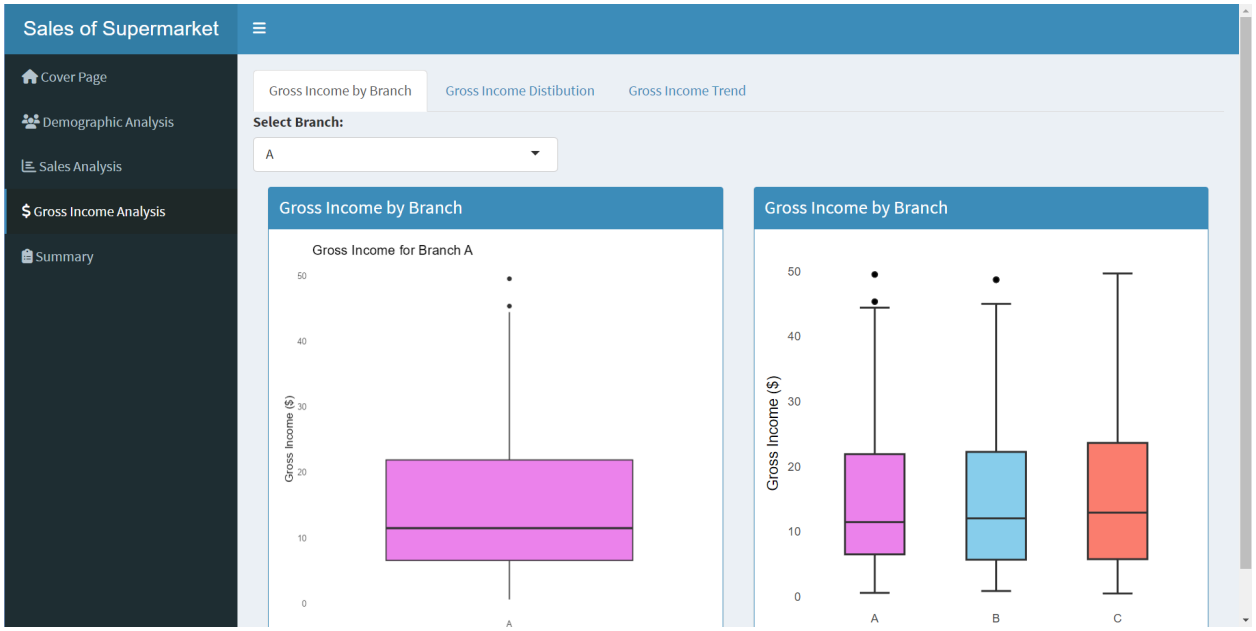
https://drive.google.com/drive/folders/1aARR2wj39R-fdg-jz2_iPaGoPO7i6CEX?usp=drive_link

GUI Screenshot:


Sales of Supermarket
Cover Page
Demographic Analysis
Sales Analysis
Gross Income Analysis
Summary
Payment Methods & Membership
Number of Products
Total Number of Products Purchased by Gender
Health and beauty
Home and lifestyle
Electronic accessories
Sports and travel
Food and beverages
Fashion accessories
88
64
81
79
86
84
78
88
84
90
82
96
Product Type
Gender
Female
Male
-50
0
50
100
Quantity

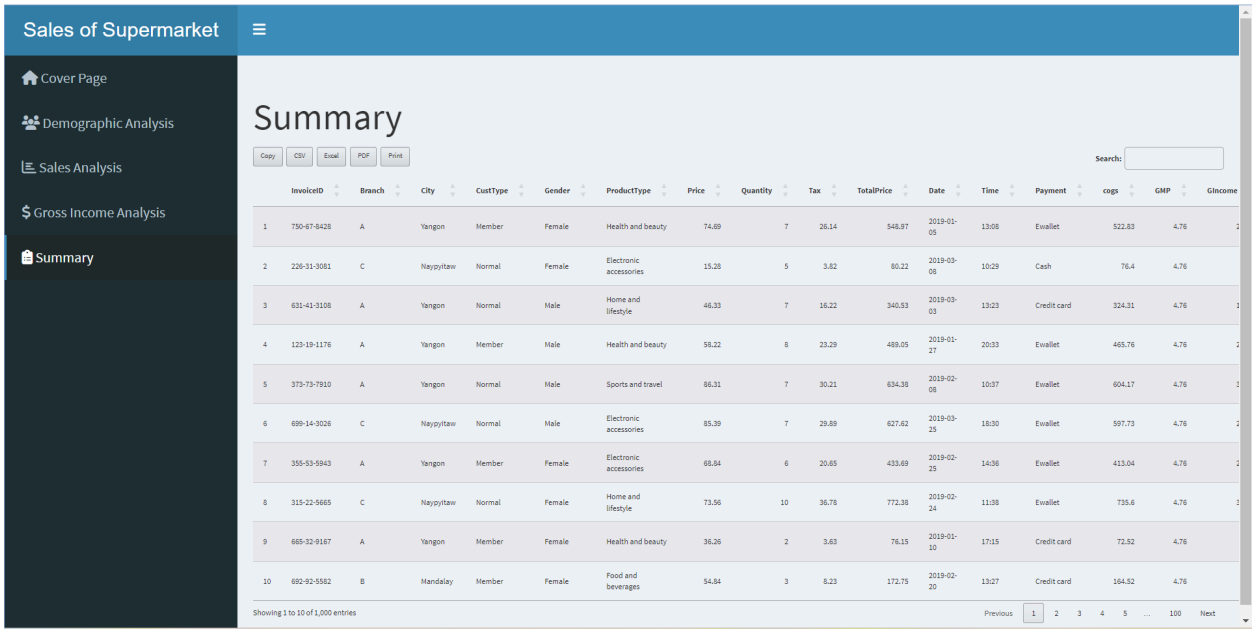

Sales of Supermarket
Cover Page
Demographic Analysis
Sales Analysis
Gross Income Analysis
Summary
Total Sales by Branch
Total Sales by Product Category
Select Branch:
A
Total Sales by Product Type and Branch
Total Sales for Branch A by Product Type
3292
2890
3189
2344
3630
3281
Total Sales ($)
Total Sales by Product Type and Branch
A
B
C


Sales of Supermarket
Cover Page
Demographic Analysis
Sales Analysis
Gross Income Analysis
Summary
Total Sales by Branch
Total Sales by Product Category
Total Sales by Product Type
56145
55123
54306
54338
53862
49194
56000
54000
52000
50000
Total Sales ($)
Health and beauty
Home and lifestyle
Fashion accessories
Electronic accessories
Sports and travel
Food and beverages
Product Type
ProductType
Health and beauty
Home and lifestyle
Fashion accessories
Electronic accessories
Sports and travel
Food and beverages


Sales of Supermarket
Cover Page
Demographic Analysis
Sales Analysis
Gross Income Analysis
Summary
Gross Income by Branch
Gross Income Distibution
Gross Income Trend
Select Branch:
A
Gross Income by Branch
Gross Income for Branch A
Gross Income ($)
50
40
30
20
10
0
A
Gross Income by Branch
Gross Income ($)
50
40
30
20
10
0
A
B
C


Sales of Supermarket
Cover Page
Demographic Analysis
Sales Analysis
Gross Income Analysis
Summary
Gross Income by Branch
Gross Income Distibution
Gross Income Trend
Distribution of Gross Income
Density
0.00
0.01
0.02
0.03
0.04
0.05
0
10
20
30
40
50
Gross Income ($)


Sales of Supermarket
Cover Page
Demographic Analysis
Sales Analysis
Gross Income Analysis
Summary
Gross Income by Branch
Gross Income Distibution
Gross Income Trend
Gross Income Trend by Month and Branch
Mandalay
Naypyitaw
Yangon
1926
1842
1770
1639
1568
1422
1793
1771
1648
1900
1800
1700
1600
1500
1400
Gross Income ($)
Jan 2019
Feb 2019
Mar 2019
Month


Sales of Supermarket
Cover Page
Demographic Analysis
Sales Analysis
Gross Income Analysis
Summary
Summary
Copy
CSV
Excel
PDF
Print
Search:
InvoiceID
Branch
City
CustType
Gender
ProductType
Price
Quantity
Tax
TotalPrice
Date
Time
Payment
cogs
GMP
Gincome
1 750-67-8428 A Yangon Member Female Health and beauty 74.69 7 26.14 548.97 2019-01-05 13:08 Ewallet 522.83 4.76
2 226-31-3081 C Naypyitaw Normal Female Electronic accessories 15.28 5 3.82 80.22 2019-03-08 10:29 Cash 76.4 4.76
3 631-41-3108 A Yangon Normal Male Home and lifestyle 46.33 7 16.22 340.53 2019-03-03 13:23 Credit card 324.31 4.76
4 123-19-1176 A Yangon Member Male Health and beauty 58.22 8 23.29 489.05 2019-01-27 20:33 Ewallet 465.76 4.76
5 373-73-7910 A Yangon Normal Male Sports and travel 86.31 7 30.21 634.38 2019-02-08 10:37 Ewallet 604.17 4.76
6 699-14-3026 C Naypyitaw Normal Male Electronic accessories 85.39 7 29.89 627.62 2019-03-25 18:30 Ewallet 597.73 4.76
7 355-53-5943 A Yangon Member Female Electronic accessories 68.84 6 20.65 433.69 2019-02-25 14:36 Ewallet 413.04 4.76
8 315-22-5665 C Naypyitaw Normal Female Home and lifestyle 73.56 10 36.78 772.38 2019-02-24 11:38 Ewallet 735.6 4.76
9 665-32-9167 A Yangon Member Female Health and beauty 36.26 2 3.63 76.15 2019-01-10 17:15 Credit card 72.52 4.76
10 692-92-5582 B Mandalay Member Female Food and beverages 54.84 3 8.23 172.75 2019-02-20 13:27 Credit card 164.52 4.76
Showing 1 to 10 of 1,000 entries
Previous 1 2 3 4 5 ... 100 Next

GROUP PROJECT PLAN & APPROVAL

Note: Print this form and obtain your lecturer's approval before starting the project's tasks.

SECTION NO.	01G	
GROUP NAME	ShinyR Explorers	
GROUP MEMBERS (Leader's name is the first in the list)	**Id. No.**	**Name**
	SD22059	LOW ANN GIE
	SD22013	AQILAH MAISARAH BINTI AZIZI
	SD22011	NOR MIMI AZURA BINTI HUZAIMI
	SD22057	MUHAMMAD FIRAS BIN IRWAN
PROJECT TITLE	Sales of Supermarket	
PROJECT DESCRIPTION	The growth of supermarkets in most populated cities is increasing and market competitions are also high. The dataset is one of the historical sales of supermarket company which has recorded in 3 different branches for 3 months data.	
DATA DESCRIPTION	Invoice id, Branch, City, Customer Type, Gender, Product Line, Unit Price, Quantity, Tax, Total Price, Date, Time, Payment, COGS, Gross Margin Percentage, Gross Income and Rating	
APPROVED BY (signature)	Associate Professor Dr. Roslinazairimah Zakaria	
DATE	24/4/2024	

Marking Sheet (For Lecturer's use only)

	DATA SCIENCE PROGRAMMING II (BSD2223)		**MARKS: 120 (30%)**
	GROUP LEADER: LOW ANN GIE	**ID NO: SD22059**	
	GROUP PROJECT	**SECTION NO: 01G** **DUE DATE: 14/06/2024**	/120

RUBRICS FOR CLO2/PLO2

CLO2: Analyse and summarise data using appropriate programming tools	PLO2: Cognitive Skills and Functional work skills with focus on Numeracy skills. **C4: Analysis**	/40	/10

Criteria	Achievement Level						Weightage	Score
	0	1	2	3	4	5		
	Incompetent	Inadequate	Emerging	Developing	Good	Excellent		
Ability to **obtain appropriate data** for the project	Unable to do the task.	Limited ability to do the task.	Reasonable ability to do the task.	Able to do the task with effort.	Good effort to do the task .	Able to do the task efficiently.	2	10
Ability to **summarise data numerically and graphically using R**.	Unable to do the task.	Limited ability to do the task.	Able to do the task with errors.	Able to do the task with no errors but wrong answer.	Able to do the task with no errors.	Able to do the task efficiently and correctly with no errors.	2	10
Ability to **analyse data using R and obtain data insights**.	Unable to do the task.	Limited ability to do the task.	Able to do the task with errors.	Able to do the task with no errors but wrong answer.	Able to do the task with no errors.	Able to do the task efficiently and correctly with no errors.	2	10
Ability to **provide conclusion** and recommendation from the project.	Unable to do the task.	Limited ability to do the task.	Reasonable ability to do the task.	Able to do the task with effort.	Good effort to do the task .	Able to do the task efficiently.	2	10

RUBRICS FOR CLO3/PLO3

CLO3: Develop programming codes to solve problems	PLO3: Functional work skills with focus on Practical, and Digital skills. **P4: Mechanism**	/40	/10

Criteria	Achievement Level						Weightage	Score
	0	1	2	3	4	5		
	Incompetent	Inadequate	Emerging	Developing	Good	Excellent		
Ability to **construct R codes to summarise data numerically and graphically**.	Unable to do the task.	Limited ability to do the task.	Reasonable ability to do the task.	Able to do the task with effort.	Good effort to do the task .	Able to do the task efficiently.	2	10
Ability to **construct R codes for data analysis**.	Unable to do the task.	Limited ability to do the task.	Able to do the task with errors.	Able to do the task with no errors but wrong answer.	Able to do the task with no errors.	Able to do the task efficiently and correctly with no errors.	2	10
Ability to **develop a dashboard (GUI) to present the data using Rshiny.**	Unable to do the task.	Limited ability to do the task.	Reasonable ability to do the task.	Able to do the task with effort.	Good effort to do the task .	Able to do the task efficiently.	4	20

RUBRICS FOR CLO4/PLO5

CLO4: Demonstrate verbal and written communication skills	PLO5:Functional work skills with focus on communication skills. **A3: Valuing**	/20	/5

	Criteria	Achievement Level						Weightage	Score
		0	1	2	3	4	5		
		Incompetent	Inadequate	Emerging	Developing	Good	Excellent		
Written	Ability to write the report findings coherently.	Unable to do the task.	Limited ability to do the task.	Reasonable ability to do the task.	Able to do the task with effort.	Good effort to do the task .	Able to do the task efficiently.	1	5
	Ability to present the project report in the given format which include data description, data analysis, results and discussion.	Unable to do the task.	Limited ability to do the task.	Reasonable ability to do the task.	Able to do the task with effort.	Good effort to do the task .	Able to do the task efficiently.	1	5
Communication	Ability to present the project proficiently by organizing and communicating the results in a clear, logical, and easy-to-follow manner.	Unable to do the task.	Limited ability to do the task.	Reasonable ability to do the task.	Able to do the task with effort.	Good effort to do the task .	Able to do the task efficiently.	1	5
	Ability to deliver the dashboard to summarise the project findings.	Unable to do the task.	Limited ability to do the task.	Reasonable ability to do the task.	Able to do the task with effort.	Good effort to do the task .	Able to do the task efficiently.	1	5

RUBRICS FOR CLO5/PLO8

CLO5: Relate entrepreneur skills in assigned task	PLO8:Entrepreneural skills **A4: Organising values**	/20	/5

Criteria	Achievement Level						Weightage	Score
	0	1	2	3	4	5		
	Incompetent	Inadequate	Emerging	Developing	Good	Excellent		
Ability to articulate the given/ chosen case study related to entrepreneurship.	Unable to articulate the given/ chosen case study.	Able to articulate the given/ chosen case study fairly weak.	Able to articulate the given/ chosen case study fairly well.	Able to articulate the given/ chosen case study well.	Able to articulate the given/ chosen case study reasonably well.	Able to articulate the given/ chosen case study excellently.	2	10
Ability to deliver entrepreneur ideas.	Unable to deliver any entrepreneur idea.	Delivery of idea is unclear, vague and not systematic.	Delivery of idea is less clear, vague and systematic.	Delivery of idea is moderately clear, vague and systematic.	Delivery of idea is clear and systematic.	Delivery of idea is very clear and systematic.	2	10