UNIVERSITI TEKNOLOGI MALAYSIA

SECI 1143-01
Probability & Statistical Data Analysis

Project 1
Online Shopping Among Malaysian Adult

Lecturer:
Dr Sharin Hazlin Binti Huspi

Group 1

Name	Matric number
Choh Jing Yi	A23CS0296
Liow Jia Feng	A23CS0302
Chua Shang Yeet	A23CS0297
YAGOUB SADI	A23EC4064

1.0 Introduction

Introduction or background Explain the purpose of the study in your own words, why you were interested in the question and what you expected to see from the data.

The quick development of e-commerce has completely changed how consumers purchase, with e-commerce platforms offering a wide array of choices, ease, and accessibility. Similar to many other nations, Malaysia has experienced a significant increase in e-commerce activity in the past few years, mostly because of reasons including rising internet access, smartphone usage, and evolving consumer preferences. It is vital to understand the behaviour, preferences, and experiences of adult Malaysians in this digital marketplace.

This study aims to get insight into Malaysian adults' online buying preferences, habits, and perceptions. We hope to shed insight on the dynamics influencing Malaysia's online shopping environment by looking at a variety of factors, including preferred platforms, payment methods, frequency of online shopping, and satisfaction online shopping experience, perceived accuracy of product descriptions, time spent browsing online shopping per week, average amount spent on online shopping monthly, average number of items purchased per online transaction and analysis of monthly income.

We are interested in this topic since e-commerce is becoming more and more important in Malaysian retail, and we need to understand how it affects consumer preferences and market trends. We expect the data will provide insightful information about the variables influencing online shopping behavior, bringing the analysis and relationship of customer background, income level and frequency of online shopping.

To conduct this study, we have done questionnaire and collected the data from Malaysian adult. The data are then analyzed based on some specific topics which we have deeper understanding of online shopping behavior in Malaysia, with the aim of facilitating the growth and development of the e-commerce industry in the country.

2.0 DATA COLLECTION

There are totally 60 respondents Malaysian adult have been randomly selected to answer the survey. The mean we use to collect all data is via Google Form. We distributed the Google form to the selected population via Facebook. The variables of data to be measured in the survey are showed below:

	Variables	Data measurement	Data collected
1	Gender	Nominal	Male, Female
2	Online Shopping Platform Preference	Nominal	Shopee, Lazada, Shein, Taobao, TikTok, others
3	Preferred Payment Methods for Online Shopping	Nominal	Credit/debit card, e-wallet, bank transfer, others
4	Average Time Taken to Deliver to Location	Interval	Time filled by Malaysia adult
5	Satisfaction with Online Shopping Experience	Ordinal	Very Dissatisfied, Dissatisfied, Neutral, Satisfied, Very Satisfied
6	Frequency of Online Shopping	Ordinal	Never, Rarely, Occasionally, Sometimes, Frequently
7	Perceived Accuracy of Product Descriptions	Ordinal	Not accurate at all, Slightly accurate, Moderately accurate, Very accurate, Completely accurate
8	Time Spent Browsing Online Shopping per Week	Interval	Time filled by Malaysia adult
9	Age Group	Ratio	Age filled by Malaysia adult
10	Average Amount Spent on Online Shopping Monthly	Ratio	Amount spent filled by Malaysia adult
11	Average Number of Items Purchased per Online Transaction	Ratio	Average number filled by Malaysia adult
12	Monthly Income Level	Ratio	Monthly income filled by Malaysia adult

3.0 Data Analysis

3.1 Online Shopping Frequency

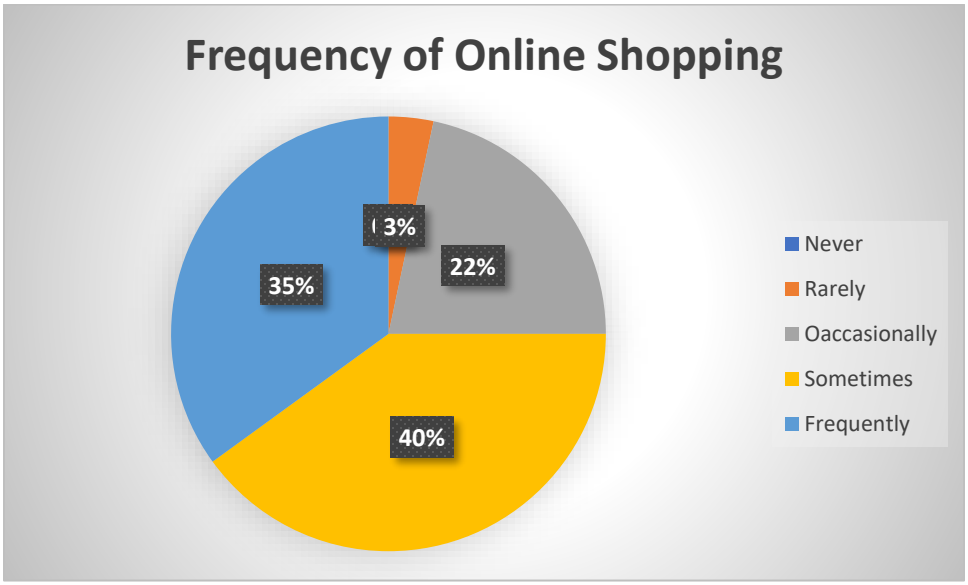


Figure 1: Pie chart online shopping frequency of respondents

Based on figure 1 pie chart, there are no people never online shopping among Malaysian adults but at least once a year. Most of the Malaysian adults online shopping few times a month and 35 % of Malaysian adults online shopping very frequently about once or more per week. Figure 1 shows that about 75% Malaysian adults like to online shopping. The trend of online shopping is because of its convenience, variety, and competitive pricing. With the ability to shop from anywhere at any time, access a wide range of products, and benefit from discounts, online shopping offers a hassle-free and efficient shopping experience. Additionally, the ease of comparison shopping and access to customer reviews further enhance the appeal, making it a favored option for the majority of Malaysian adults.

3.2 Gender

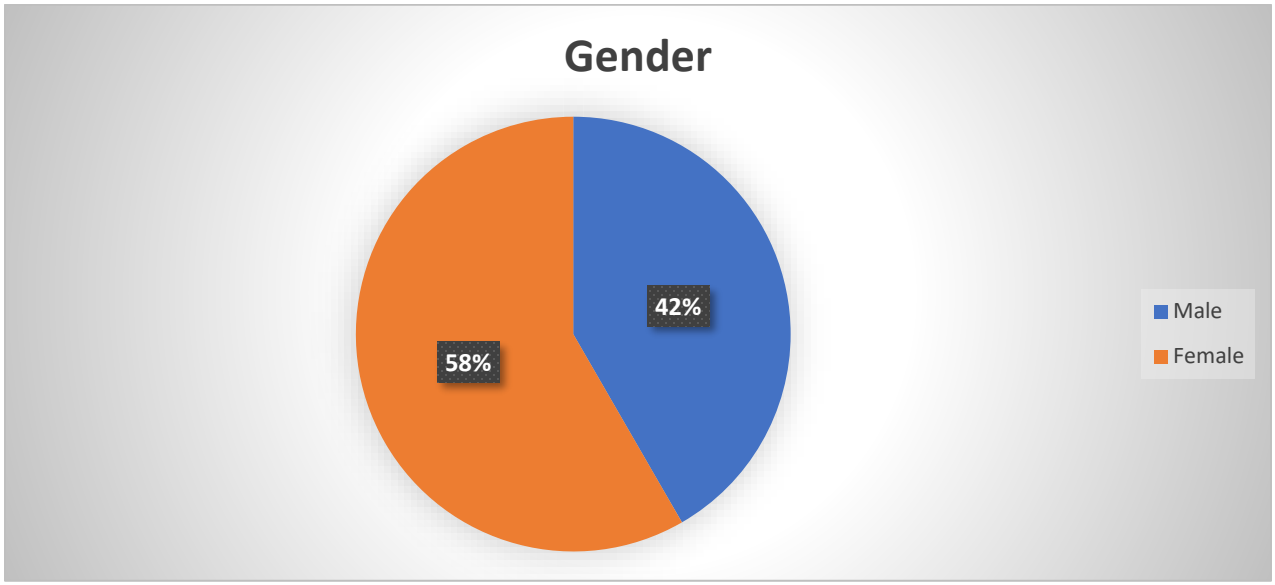


Figure 2: Pie chart of respondents' gender

The survey is randomly distributed to the public via social media and collected 60 responds from Malaysian adults. Based on figure 2, the respondents are made up of 35 females and 25 males. The female respondents are more than male respondents in number as figure 2 shown. Based on the survey, females have more online shopping experience and willing to answer the survey.

3.3 Preferred Online Shopping Platform

Preferred Online Shopping Platform	Frequency	Relative frequency	Culmulative Frequency	Percentage of culmulative frequency
Shopee	46	0.76	0.76	76
Lazada	9	0.15	0.91	91
Shein	0	0.00	0.91	91
Taobao	1	0.02	0.93	93
TikTok	3	0.05	0.98	98
Other	1	0.02	1.00	100
Total	60	1.0	1.00	100

Frequency distribution table 3.3 Preferred online shopping platform of respondents

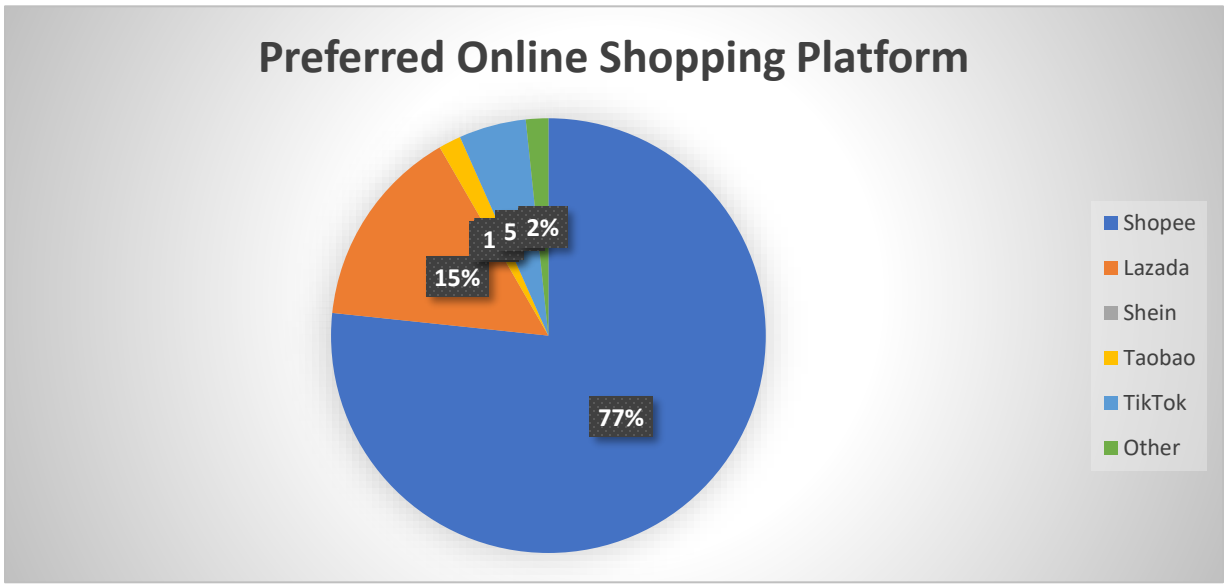


Figure 3: Pie chart of preferred online shopping platform of respondents

Based on figure 3, the data on preferred online shopping platforms among Malaysian adults indicates a clear dominance of Shopee, with 76.66% of respondents preferring this platform. Lazada follows with 15%, while TikTok and Taobao each garner smaller percentages of 5% and 1.67%, respectively. Interestingly, no respondents preferred Shein, and only a negligible percentage opted for other platforms. This highlights Shopee's strong market presence and popularity among Malaysian online shoppers, suggesting it holds a significant competitive advantage in the e-commerce landscape.

3.4 Preferred Payment Method for Online Shopping

Preferred Payment Method	Frequency	Relative frequency	Culmulative Frequency	Percentage of culmulative frequency
Credit / Debit Card	16	0.27	0.27	27
E-wallet	13	0.22	0.49	49
Banks Transfer	26	0.43	0.92	92
Other	5	0.08	1.00	100
Total	60	1.00	1.00	100

Frequency distribution table 3.4 Preferred payment method for Online Shopping

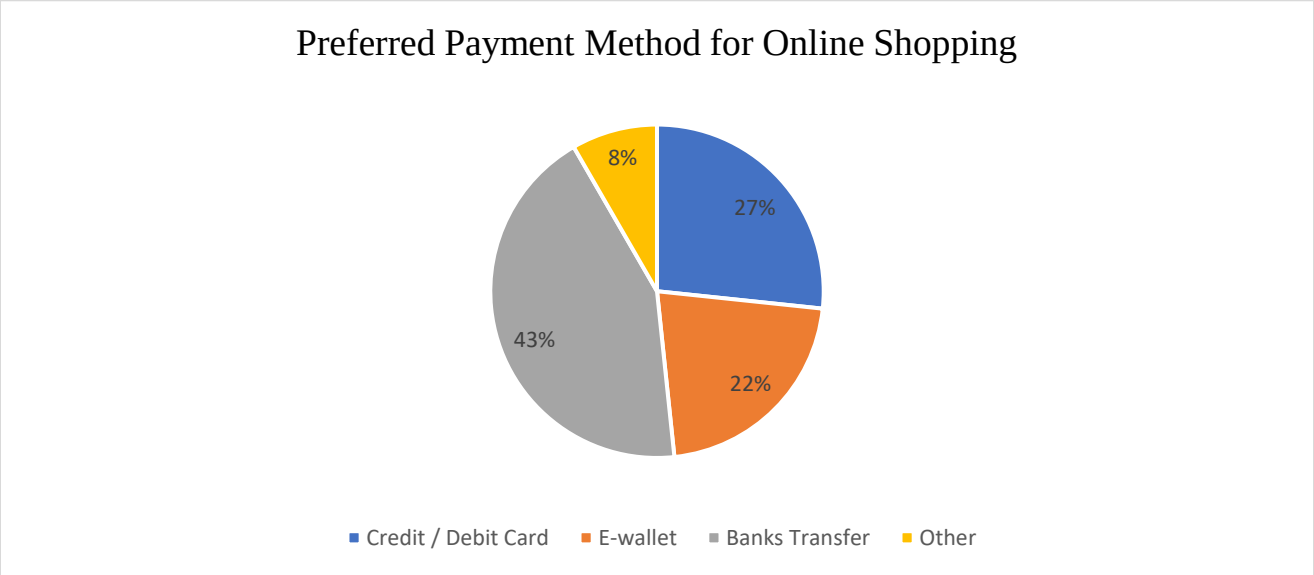


Figure 4: Pie chart of respondents preferred payment method

Based on figure 4, Malaysian adults prefer banks transfer which also consist of FPX online banking. The other payment method may include Cash on Delivery (COD) and installment payment. Malaysian adults rarely use the cash on delivery and installment payment when making the payment for the online shopping. From the responses collected, across all ages of Malaysian adults, both early adulthoods and middle adulthoods prefer Bank transfer. 16 over 37 of early adulthoods (18-35 years old) and 10 over 22 of middle adulthoods (35 - 60) prefer Bank transfer. Elderly people (60 and above) prefer Credit / Debit card payment.

3.5 Satisfaction with online shopping experience

Satisfaction with online shopping experience	Frequency	Percentage (%)
Very dissatisfied	2	3.33
Dissatisfied	0	0
Neutral	16	26.67
Satisfied	33	55
Very Satisfied	9	15
Total	**60**	**100**

Table 3.5 Satisfaction with online shopping experience of respondents

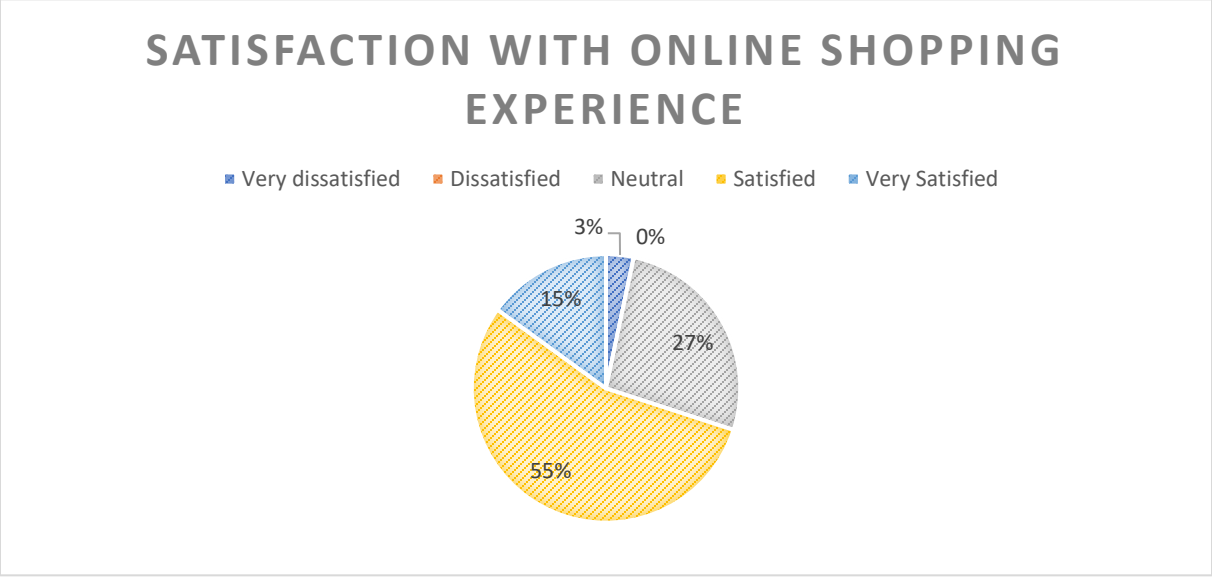


Figure 5: Pie chart of satisfaction with online shopping experience of respondents

From the figure 5, there is no dissatisfied with online shopping experience but there are very dissatisfied with online shopping experience. Most of Malaysian adults are satisfied with their online shopping experiences. The respondents who are very dissatisfied with their online shopping appear at the respondent who shopping few times a year and few times a month. Other than the very dissatisfied online shopping experience with 3.33% of responses, the other 96.67% of respondents are neutral, satisfied and very satisfied with their online shopping experiences. The corresponding percentage of respondents are 26.67%, 55% and 15%.

3.6 Perceived Accuracy of Product Description

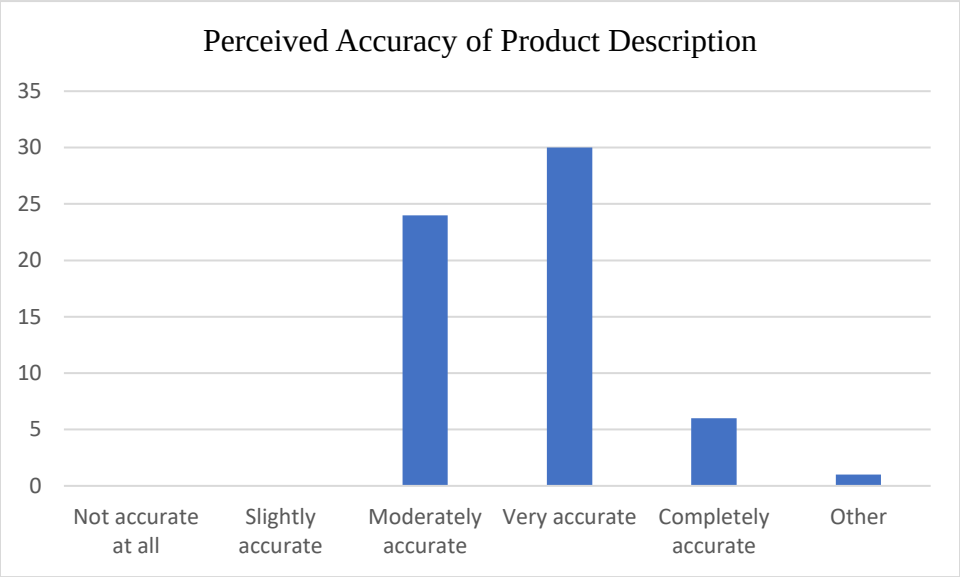


Figure 6 Bar chart of perceived accuracy of product description by respondents

Based on figure 6, the product received by the respondents are moderately accurate and above, there is no product is not accurate at all and slightly accurate. The 13 over 24 respondents who feel moderately accurate about the perceived accuracy of product description have neutral satisfaction. 21 out of 30 respondents who feel very accurate about the perceived accuracy of product description are satisfied with their online shopping experience. 3 out of 6 respondents who feel completely accurate about the perceived accuracy of product description are very satisfied with their online shopping experience. In short, Malaysian adults with who received more accurate product have higher satisfaction with online shopping experience.

3.7 Time Spent Browsing Online Shopping per Week(In hours)

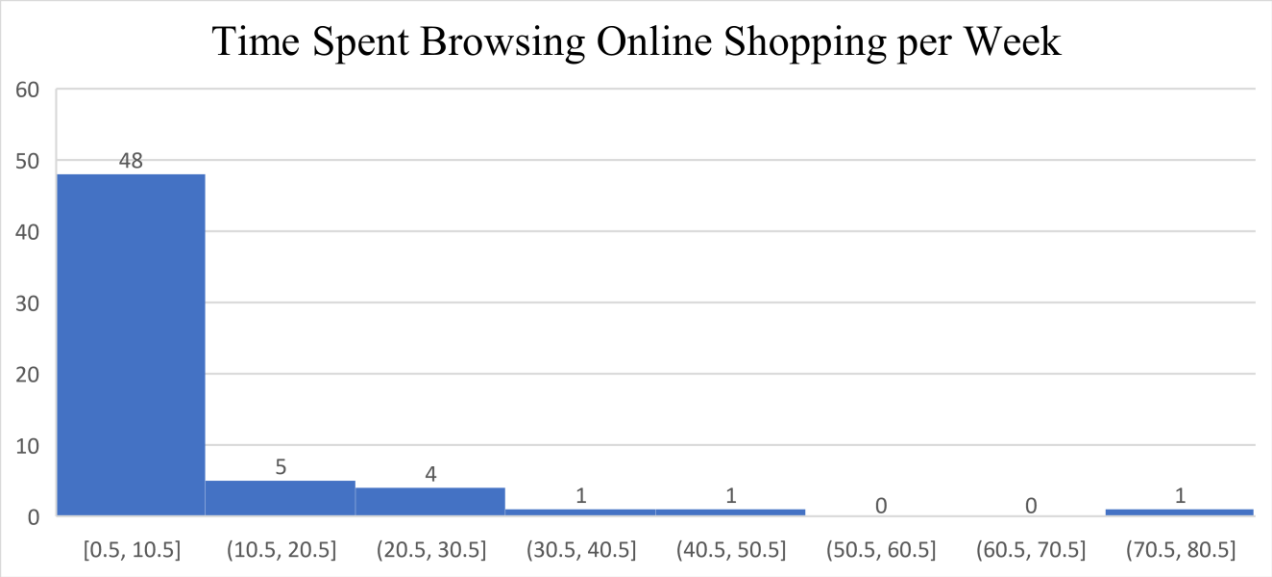


Figure 7 Histogram of Time Spent Browsing Online Shopping per Week

Based on Figure 7, the histogram illustrates the time spent browsing online shopping platforms per week. The majority of respondents, 48 out of 60, spend between 0 to 10 hours per week browsing online stores. This suggests that a significant portion of individuals engage in quick and efficient browsing sessions. However, there are smaller subsets of respondents who spend more time, with 5 people allocating 10.5 to 20.5 hours, 4 people spending 20.5 to 30.5 minutes, and 1 person each dedicating 40.5 to 50.5 hours and 70.5 to 80.5 hours. These findings imply diverse browsing habits among respondents, reflecting varying levels of engagement and interest in online shopping activities.

3.8 Average Time Taken to Deliver to Location

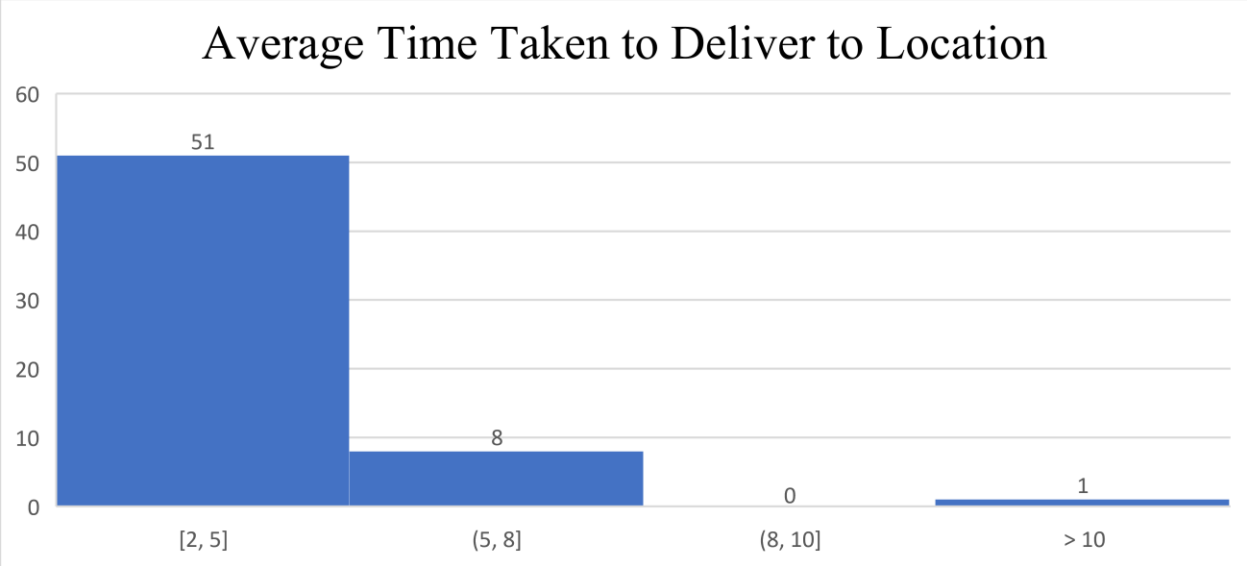


Figure 8 Histogram of Average Time Taken to Deliver to Location

In the histogram, the majority of respondents, 51 out of 60, received their orders within a relatively quick timeframe, typically between 2 to 5 days. A smaller subset of respondents, comprising 8 individuals, experienced delivery durations ranging from 5 to 8 days. Notably, there was one respondent who reported a delivery time exceeding 10 days. This histogram clearly states the importance of efficient logistics and delivery services in ensuring timely fulfillment of online orders and fulfilling users' online shopping experience.

3.9 Age Group

Stem	Leaf
1	9
2	0 0 0 1 1 1 1 2 2 4 5 5 5 6 7 8 8 8 9 9
3	0 0 0 0 0 0 0 1 1 2 2 2 2 3 4 5 6 6 6 7 7 8 8 9 9
4	0 0 1 1 3 6 7 9
5	0 0 2 5
6	0 1

Key: 1/9 means 19

Figure 9 Stem-and-leaf plot of age group of respondents

Based on the stem and leaf plot, the majority of our respondents fall within the age range of 20 to 40 years old, with a notable concentration in the 20s and 30s. This can be attributed to several factors. Firstly, younger individuals are typically more digitally native and comfortable with technology, making online shopping a natural choice. They are also more likely to adopt new trends and technologies, including e-commerce platforms. Additionally, younger adults often have busier lifestyles, balancing work, studies, and social commitments, making the convenience of online shopping appealing. Moreover, younger demographics are often more influenced by social media and online marketing, driving their engagement with online shopping platforms.

3.10 Average Amount Spent on Online Shopping Monthly

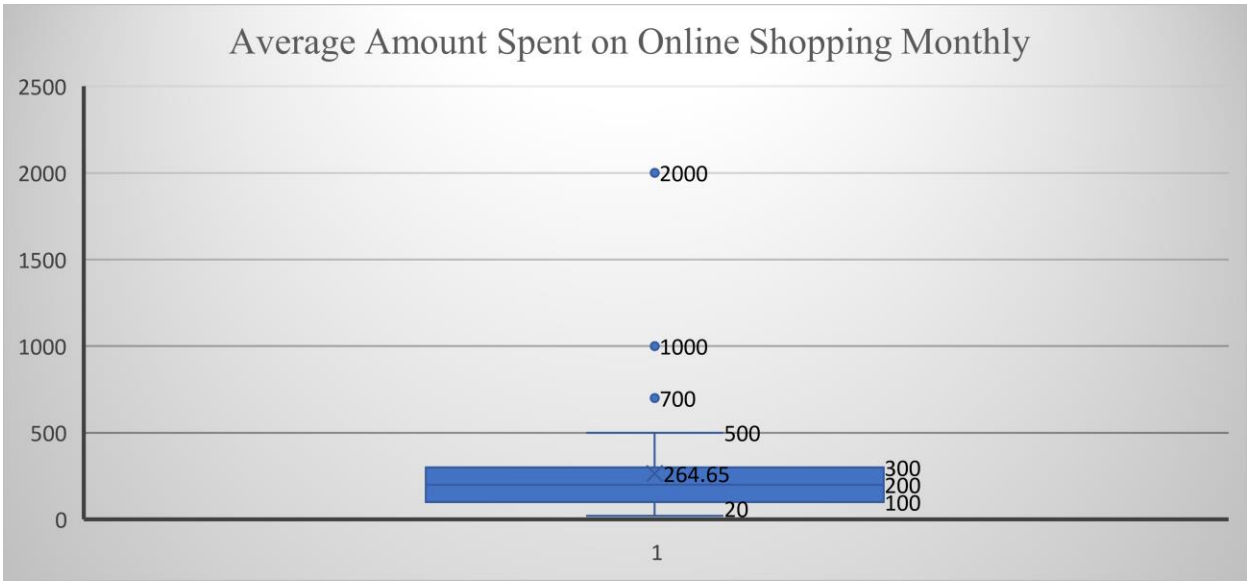


Figure 10 Box Plot for the of Average Amount Spent on Online Shopping Monthly

The box plot for the average amount spent on online shopping monthly provides valuable insights into consumer behavior. With a mean expenditure of RM264.25 per month, this suggests a moderate level of spending among respondents. The minimum spending value of RM20 indicates that some individuals have relatively modest online shopping budgets. Quartile 1 (Q1) at RM100 reveals that 25% of respondents spend RM100 or less monthly, while Quartile 3 (Q3) at RM300 indicates that 75% spend RM300 or less. However, outliers at RM700, RM1000, and RM2000 signify that a few respondents significantly exceed the typical spending range, reflecting diverse spending habits within the sample.

3.11 Average Number of Items Purchased per Online Transaction

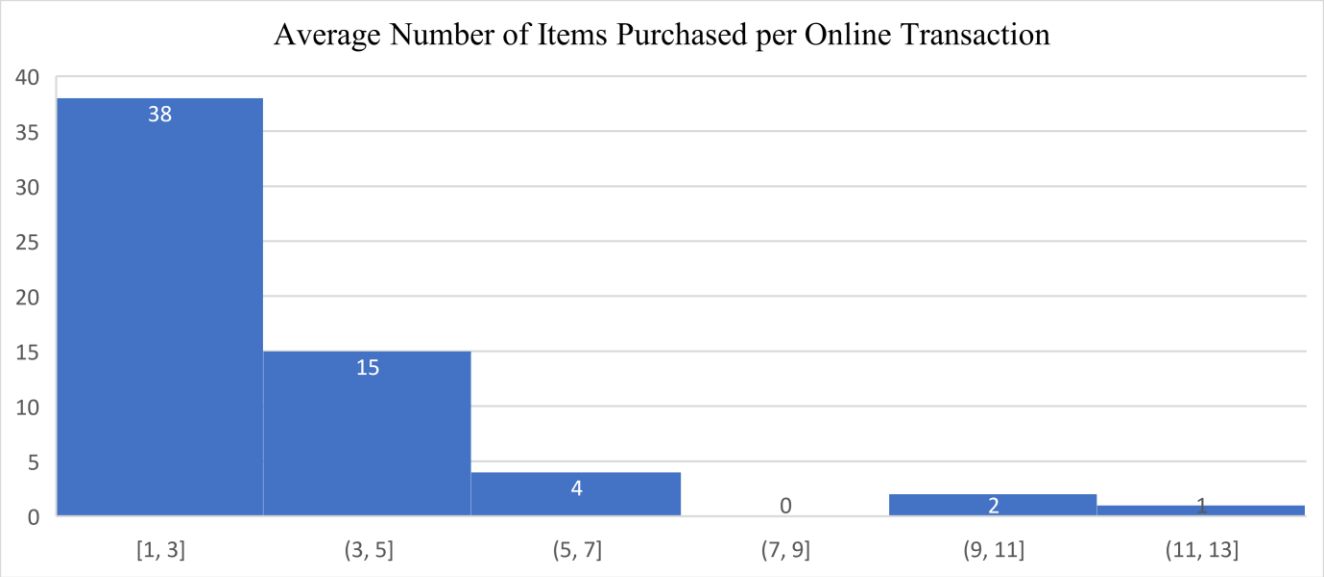


Figure 11: Histogram of Average Number of Items Purchased per Online Transaction

Based on the histogram of the average number of items purchased per online transaction, the distribution reveals insights into consumer behavior. The majority of respondents, 38 out of 60, typically purchase between 1 to 3 items per transaction. This suggests a preference for smaller purchases or perhaps more focused shopping trips. Additionally, 15 people report purchasing 3 to 5 items, indicating a moderate level of shopping volume. However, there are fewer respondents who make larger transactions, with 4 people buying 5 to 7 items, 2 people purchasing 9 to 11 items, and 1 person acquiring 11 to 13 items. The distribution of the average number of items purchased per online transaction can be attributed to several factors. Firstly, convenience plays a significant role, with many individuals preferring to make smaller purchases online for ease and efficiency. The other factor is budget constraints also influence purchasing behavior, as some consumers may opt for fewer items per transaction to adhere to financial limitations. Additionally, shipping considerations impact decision-making, with consumers mindful of shipping costs and often choosing to make smaller transactions to minimize expenses or take advantage of free shipping limits.

3.12 Monthly Income Level

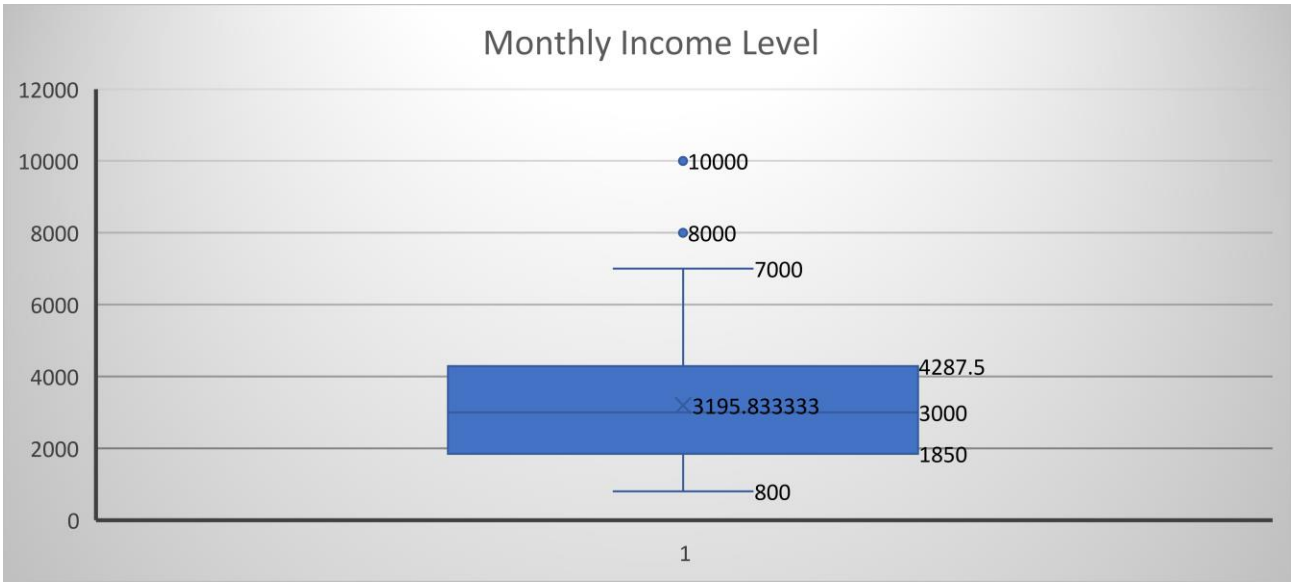
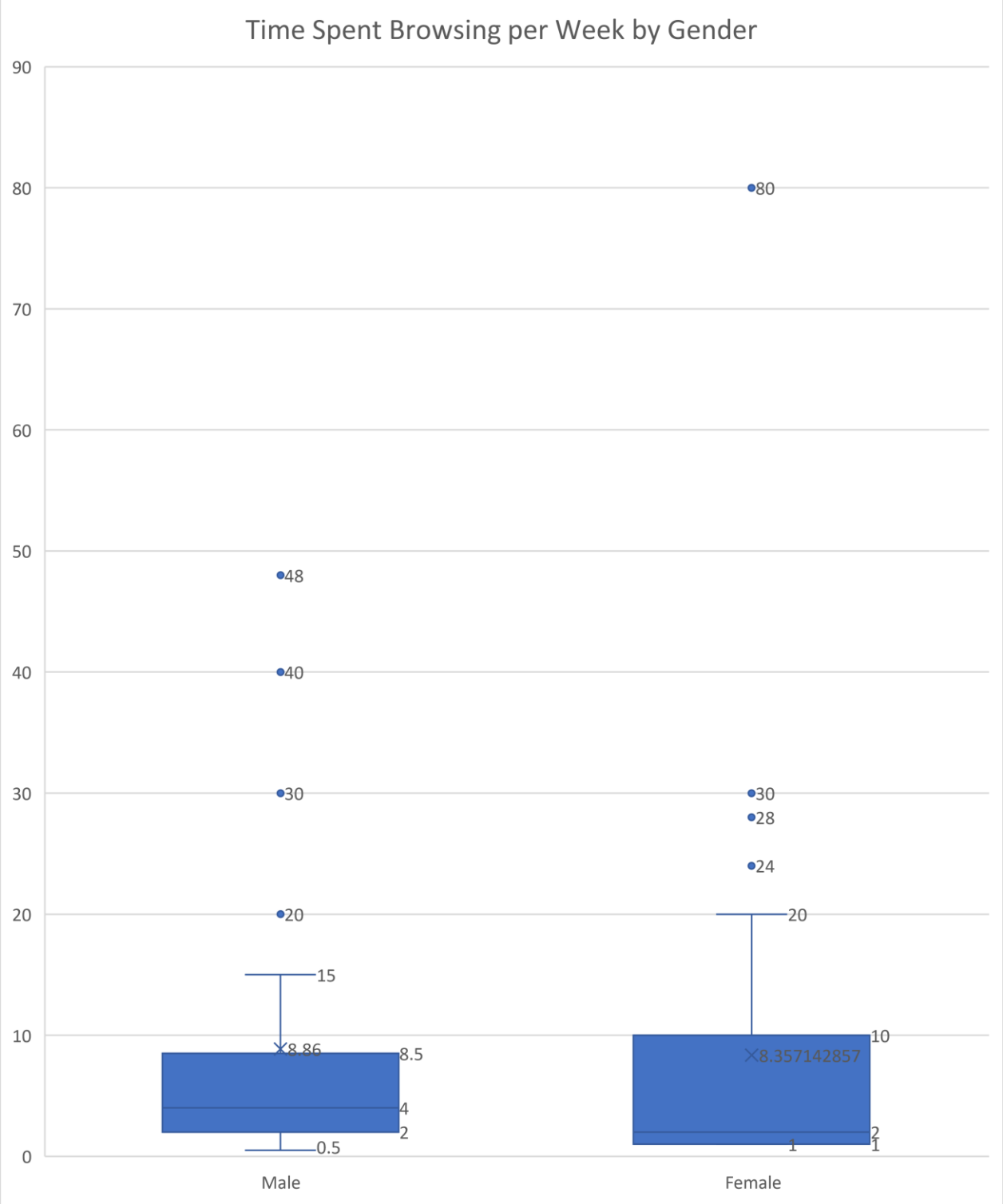


Figure 12 Box Plot of Monthly Income Level

The box plot of monthly income levels among respondents presents a varied distribution, reflecting the diverse financial circumstances of the surveyed population. With a mean income of RM3195.83, the majority of respondents fall within a moderate income bracket. However, the presence of outliers with incomes as high as RM8000 and RM10000 indicates the existence of individuals with significantly higher earnings. Quartile 1 at RM1850 suggests that a quarter of respondents earn relatively lower incomes, while Quartile 3 at RM4287.5 indicates that three-quarters of respondents earn less than this amount. The range of reported incomes, from a minimum of RM800 to a maximum of RM10000, underscores the heterogeneity of income levels within the sample. Factors contributing to this distribution may include differences in education, occupation, and geographic location among respondents, reflecting the complexity of income dynamics in the surveyed population.

3.13 Time Spent Browsing by Gender

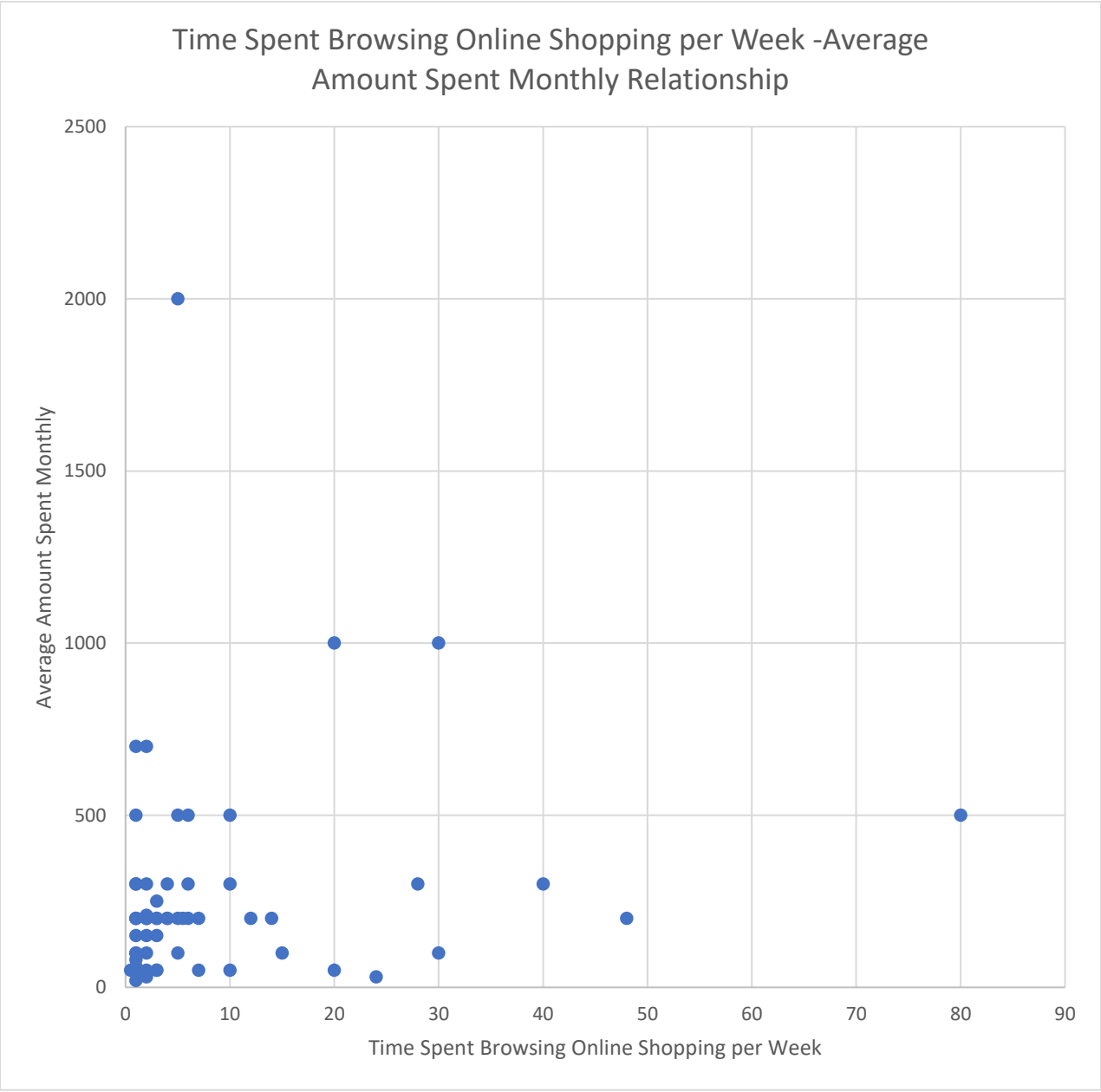


The time spent browsing online shopping per week varies between genders, as indicated by the provided statistics. Among males, the mean browsing time is 4 hours, with a minimum of 0.5 hours and a maximum of 15 hours. Quartile 1 (Q1) is at 2 hours, while Quartile 3 (Q3) is at 8.5 hours. Notably, outliers are observed at 20, 30, and 40 hours, suggesting that some males spend significantly more time browsing than the majority.

Conversely, females exhibit different browsing patterns, with a mean browsing time of 2 hours. The minimum browsing time for females is 1 hour, and the maximum is 20 hours. Quartile 1 (Q1) is at 1 hour, while Quartile 3 (Q3) is at 10 hours. Outliers are present at 24, 28, and 80 hours.

These findings indicate that while males tend to spend more time browsing online shopping platforms on average compared to females, both genders display a wide range of browsing durations, with outliers representing individuals who engage in exceptionally lengthy browsing sessions.

3.14 Time Spent Browsing Online Shopping per Week-Average Amount Spent Monthly Relationship



The scatter plot reveals browsing online shopping time in hour on the x-axis and average monthly spending on the y-axis.

From the scatter plot, we analyse various patterns regarding online shopping behavior:

- High Browsing, High Spending: Data points located in the upper-right quadrant of the plot represent individuals who spend significant time browsing online shopping platforms and correspondingly allocate a substantial amount of money for their purchases. These individuals exhibit both a high level of engagement with online shopping and a willingness to invest financially in their purchases.

- High Browsing, Low Spending: Points positioned in the upper-left quadrant indicate respondents who dedicate considerable time to browsing online shopping sites but demonstrate relatively low monthly spending. This group may engage in extensive window shopping or research online but may be more cautious or selective when it comes to actual purchases, leading to lower spending levels despite their browsing habits.

- Low Browsing, High Spending: Data points in the lower-right quadrant represent individuals who spend minimal time browsing online shopping platforms yet exhibit high monthly spending. These consumers may already have specific items or brands in mind, reducing the need for extensive browsing. Despite spending less time browsing, they are willing to make substantial purchases when necessary or desired.

- Low Browsing, Low Spending: Points situated in the lower-left quadrant depict respondents who both spend minimal time browsing online shopping platforms and exhibit low monthly spending. This group may comprise individuals who infrequently engage in online shopping or those who prefer to make only essential purchases, resulting in minimal browsing and spending activity.

Based on the scatter plot analysis, it's evident that a significant portion of our respondents tend to spend less time browsing online shopping platforms and exhibit lower spending habits. This observation highlights a most of respondents prefer quick and efficient browsing sessions and are more cautious with their online spending.

3.15 Analysis of amount spent on Online Shopping Across Income Level

The scatter plot reveals monthly income level on the x-axis and average monthly spending on the y-axis.

-High-Income, High-Spending: Data points clustered in the upper-right quadrant of the plot represent individuals with higher monthly incomes who correspondingly spend more on online shopping. These individuals have greater financial capacity to indulge in online purchases, resulting in higher expenditure levels.

-Low-Income, Low-Spending: Points located in the lower-left quadrant indicate respondents with lower monthly incomes who exhibit lower online shopping expenditure. Limited financial resources may constrain their ability to make substantial purchases, leading to reduced spending despite their engagement with online shopping platforms.

-High-Income, Low-Spending: Data points positioned in the upper-left quadrant depict individuals with higher monthly incomes but relatively low online shopping expenditure. Despite having the financial means to spend more, these respondents may exercise restraint in their online shopping habits, preferring to save or allocate their income to other expenses.

-Low-Income, High-Spending: Points situated in the lower-right quadrant represent individuals with lower monthly incomes who demonstrate higher-than-average online shopping expenditure. Despite facing financial constraints, these respondents prioritize online shopping and allocate a significant portion of their income towards this activity, potentially driven by specific needs or preferences.

Conclusion

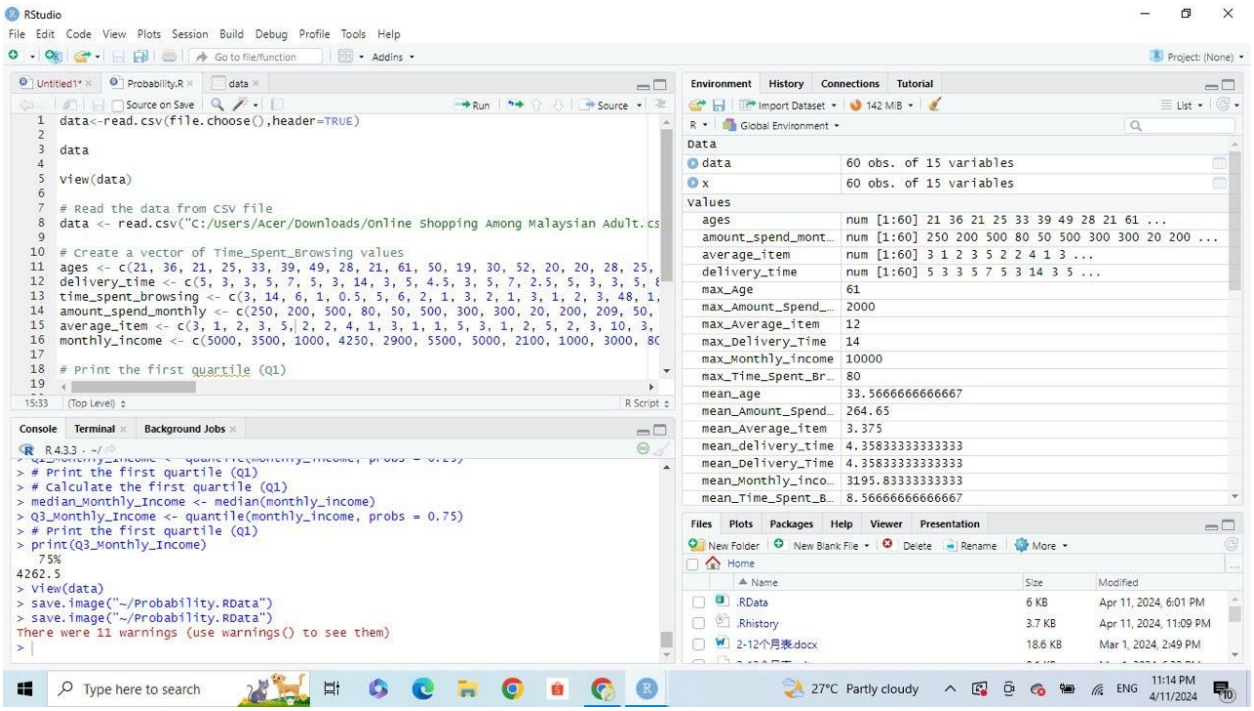
In conclusion, our survey conducted via Google Form provided valuable insights into the trends and preferences of online shopping among Malaysian adults today. After analyzing the data collected from our sample, we observed that the landscape of shopping in Malaysia is continually evolving, with a majority of respondents engaging in online shopping frequently. Shopee emerged as the preferred online shopping platform, indicating its strong presence in the market. Moreover, satisfaction levels with the online shopping experience were generally high, reflecting the effectiveness of e-commerce platforms in meeting consumer needs. Additionally, this project equipped us with the knowledge of using R programming for data analysis, allowing us to calculate statistical measures such as the minimum, maximum, quartiles, and mean. This analytical approach facilitated a deeper understanding of the data and enabled us to draw meaningful conclusions regarding online shopping behavior among Malaysian adults. Furthermore, through the process of data collection, cleaning, and analysis, we learned how to answer questions and understand facts. We enhanced our problem-solving skills through probability and statistical analysis, enabling us to make informed decisions and recommendations based on the findings of our study.

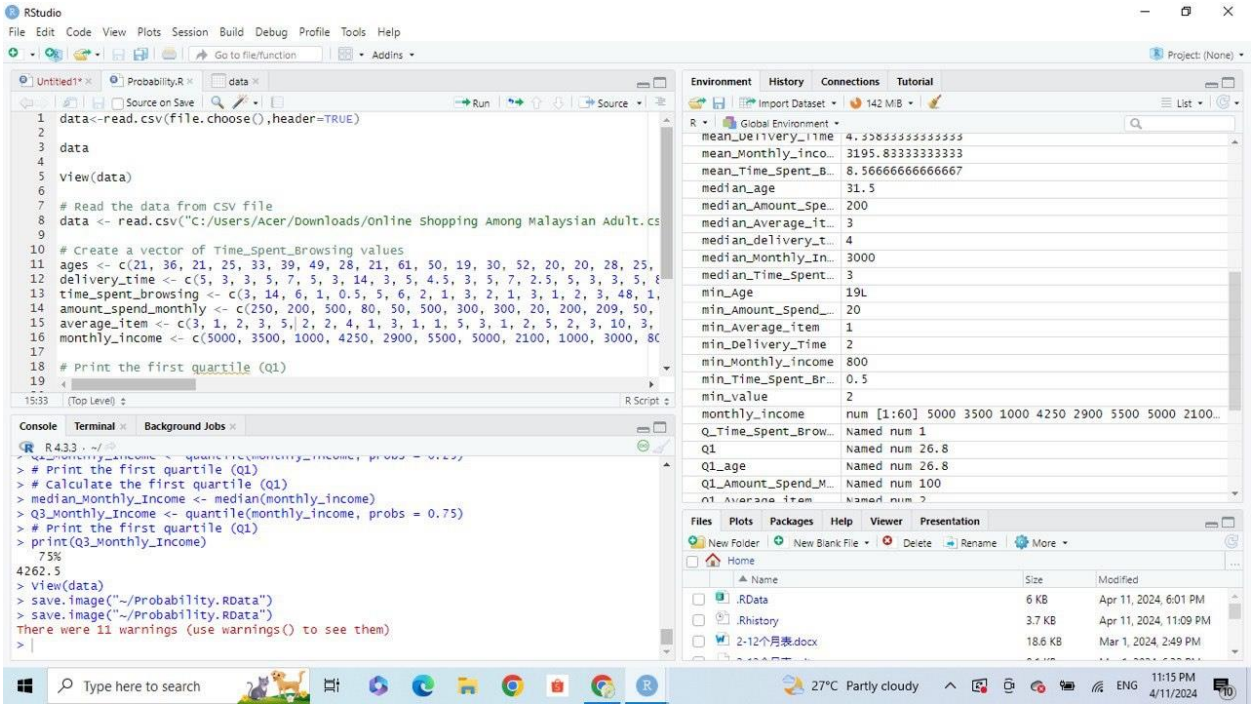
Apendix

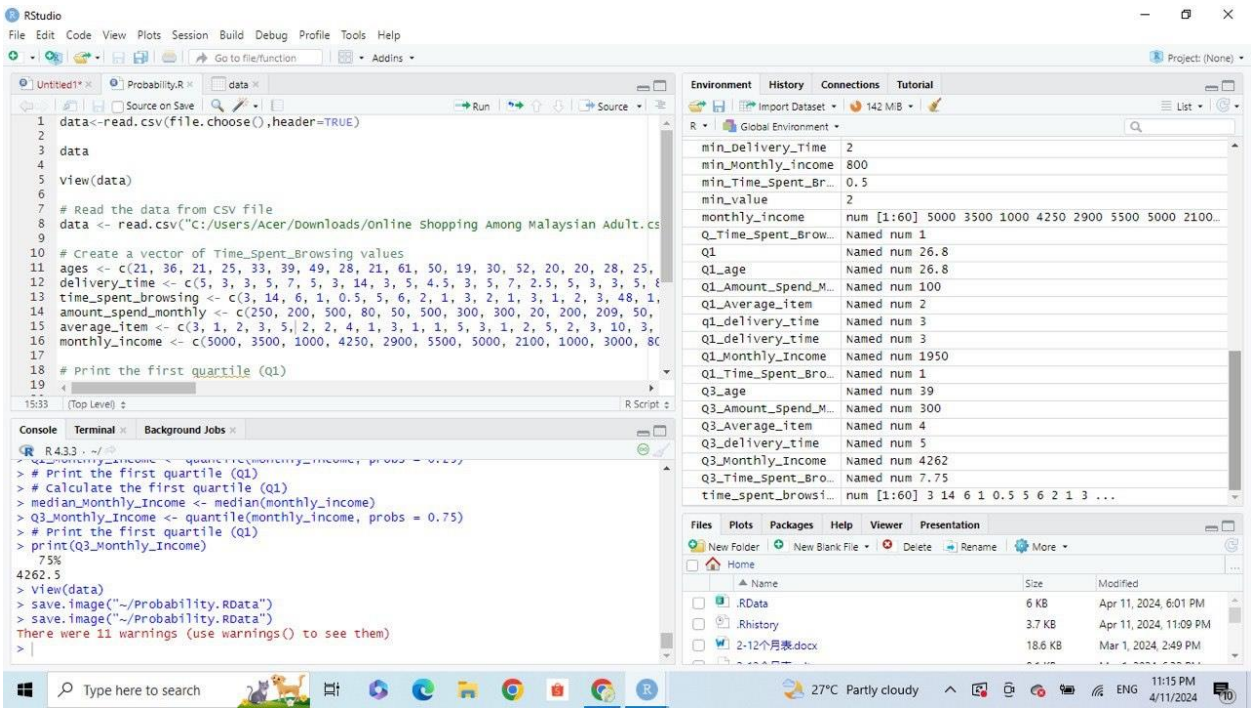
Please refer the link below for the Google Form:

https://docs.google.com/forms/d/e/1FAIpQLSdeRDDIuMyQdbxhDuqeOAhiiVvOBTZ9FtpGCHDzCjcHlRMEUA/viewform?usp=sharing

R programming:




RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Untitled1* Probability.R data
1 data<-read.csv(file.choose(),header=TRUE)
3 data
5 view(data)
7 # Read the data from CSV file
8 data <- read.csv("C:/Users/Acer/Downloads/Online Shopping Among Malaysian Adult.cs
10 # Create a vector of Time_Spent_Browsing values
11 ages <- c(21, 36, 21, 25, 33, 39, 49, 28, 21, 61, 50, 19, 30, 52, 20, 20, 28, 25,
12 delivery_time <- c(5, 3, 3, 5, 7, 5, 3, 14, 3, 5, 4.5, 3, 5, 7, 2.5, 5, 3, 3, 5,
13 time_spent_browsing <- c(3, 14, 6, 1, 0.5, 5, 6, 2, 1, 3, 2, 1, 3, 1, 2, 3, 48, 1,
14 amount_spend_monthly <- c(250, 200, 500, 80, 50, 500, 300, 300, 20, 200, 209, 50,
15 average_item <- c(3, 1, 2, 3, 5, 2, 2, 4, 1, 3, 1, 1, 5, 3, 1, 2, 5, 2, 3, 10, 3,
16 monthly_income <- c(5000, 3500, 1000, 4250, 2900, 5500, 5000, 2100, 1000, 3000, 8
18 # Print the first quartile (Q1)
Console Terminal Background Jobs
R 4.3.3 · ~/
> # Print the first quartile (Q1)
> # Calculate the first quartile (Q1)
> median_Monthly_Income <- median(monthly_income)
> Q3_Monthly_Income <- quantile(monthly_income, probs = 0.75)
> # Print the first quartile (Q1)
> print(Q3_Monthly_Income)
75%
4262.5
> View(data)
> save.image("~/Probability.RData")
> save.image("~/Probability.RData")
There were 11 warnings (use warnings() to see them)
Environment History Connections Tutorial
Import Dataset 142 MiB
Global Environment
mean_Delivery_Time 4.33833333333333
mean_Monthly_inco... 3195.83333333333
mean_Time_Spent_B... 8.56666666666667
median_age 31.5
median_Amount_Spe... 200
median_Average_it... 3
median_delivery_t... 4
median_Monthly_In... 3000
median_Time_Spent... 3
min_Age 19L
min_Amount_Spend_... 20
min_Average_item 1
min_Delivery_Time 2
min_Monthly_Income 800
min_Time_Spent_Br... 0.5
min_value 2
monthly_income num [1:60] 5000 3500 1000 4250 2900 5500 5000 2100...
Q_Time_Spent_Brow... Named num 1
Q1 Named num 26.8
Q1_age Named num 26.8
Q1_Amount_Spend_M... Named num 100
Files Plots Packages Help Viewer Presentation
New Folder New Blank File Delete Rename More
Home
Name Size Modified
.RData 6 KB Apr 11, 2024, 6:01 PM
.Rhistory 3.7 KB Apr 11, 2024, 11:09 PM
2-12个月表.docx 18.6 KB Mar 1, 2024, 2:49 PM
Type here to search
27°C Partly cloudy
ENG
11:15 PM
4/11/2024


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Untitled1* Probability.R data
1 data<-read.csv(file.choose(),header=TRUE)
3 data
5 view(data)
7 # Read the data from CSV file
8 data <- read.csv("C:/Users/Acer/Downloads/Online Shopping Among Malaysian Adult.cs
10 # Create a vector of Time_Spent_Browsing values
11 ages <- c(21, 36, 21, 25, 33, 39, 49, 28, 21, 61, 50, 19, 30, 52, 20, 20, 28, 25,
12 delivery_time <- c(5, 3, 3, 5, 7, 5, 3, 14, 3, 5, 4.5, 3, 5, 7, 2.5, 5, 3, 3, 5,
13 time_spent_browsing <- c(3, 14, 6, 1, 0.5, 5, 6, 2, 1, 3, 2, 1, 3, 1, 2, 3, 48, 1,
14 amount_spend_monthly <- c(250, 200, 500, 80, 50, 500, 300, 300, 20, 200, 209, 50,
15 average_item <- c(3, 1, 2, 3, 5, 2, 2, 4, 1, 3, 1, 1, 5, 3, 1, 2, 5, 2, 3, 10, 3,
16 monthly_income <- c(5000, 3500, 1000, 4250, 2900, 5500, 5000, 2100, 1000, 3000, 8
18 # Print the first quartile (Q1)
Console Terminal Background Jobs
R 4.3.3 · ~/
> # Print the first quartile (Q1)
> # Calculate the first quartile (Q1)
> median_Monthly_Income <- median(monthly_income)
> Q3_Monthly_Income <- quantile(monthly_income, probs = 0.75)
> # Print the first quartile (Q1)
> print(Q3_Monthly_Income)
75%
4262.5
> View(data)
> save.image("~/Probability.RData")
> save.image("~/Probability.RData")
There were 11 warnings (use warnings() to see them)
Environment History Connections Tutorial
Import Dataset 142 MiB
Global Environment
min_Delivery_Time 2
min_Monthly_Income 800
min_Time_Spent_Br... 0.5
min_value 2
monthly_income num [1:60] 5000 3500 1000 4250 2900 5500 5000 2100...
Q_Time_Spent_Brow... Named num 1
Q1 Named num 26.8
Q1_age Named num 26.8
Q1_Amount_Spend_M... Named num 100
Q1_Average_item Named num 2
Q1_delivery_time Named num 3
Q1_delivery_time Named num 3
Q1_Monthly_Income Named num 1950
Q1_Time_Spent_Bro... Named num 1
Q3_age Named num 39
Q3_Amount_Spend_M... Named num 300
Q3_Average_item Named num 4
Q3_delivery_time Named num 5
Q3_Monthly_Income Named num 4262
Q3_Time_Spent_Bro... Named num 7.75
time_spent_browsi... num [1:60] 3 14 6 1 0.5 5 6 2 1 3 ...
Files Plots Packages Help Viewer Presentation
New Folder New Blank File Delete Rename More
Home
Name Size Modified
.RData 6 KB Apr 11, 2024, 6:01 PM
.Rhistory 3.7 KB Apr 11, 2024, 11:09 PM
2-12个月表.docx 18.6 KB Mar 1, 2024, 2:49 PM
Type here to search
27°C Partly cloudy
ENG
11:15 PM
4/11/2024