FACULTY OF COMPUTING

SECI 1143 - PROBABILITY & STATISTICAL DATA ANALYSIS

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PROJECT 1

TITLE: INSIGHTS INTO ONLINE SHOPPING TRENDS

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1.0 Introduction or background

Online shopping has become a part of our daily life over the past few years, particularly because of the increasing convenience in technology. The aim of this research is to explore the patterns, habits and preferences of the consumers when making purchase online. We are interested in understanding what role time-saving, cost-saving, product availability, and convenience play in affecting one's choice to shop online versus shop in a physical store.

We were interested in this topic because online shopping sites such as Shopee, Lazada and TikTok Shop are favorites among school-going and working individuals, us included. They are not only convenient, but they have a large selection of items at good prices and lots of offers. This left us wondering whether people do actually think that they save time and money as many claim, and to what extent they use those tools.

Through this project, we expected to see that most respondents would prefer online shopping for its flexibility and convenience, rather than necessity alone. We also anticipated that a large number of people would believe they save both time and money by shopping online, and that they would continue to do so in the future. Our main aim was to identify these common behaviors and perceptions in order to better understand what drives the online shopping trend in our generation.

Lastly, the data collected through this survey can provide useful information for future studies regarding the development of e-commerce in Malaysia, as well as the changing behaviors and preferences of digital consumers in the era of technology-driven shopping.

2.0 Data Collection

For this project, we collected data to learn more about the online shopping behavior of people between the ages of 18 and 55. The main aim was to identify common patterns and habits related to time spent shopping, money spent, convenience, and personal background.

We used an online survey created with Google Forms. It was shared through social platforms like WhatsApp, Telegram and Instagram. The survey asked both yes/no and multiple-choice questions, as well as questions that required numerical answers.

To help us analyze the data properly, we grouped the survey questions into three types based on the kind of data they represent:

- Nominal – Categories without a specific order (e.g., gender, platform used)
- Ordinal – Categories that have a clear order (e.g., "Rarely" to "Always"), but the difference between levels isn't exact
- Ratio – Numerical values with a true zero, where differences and ratios can be measured (e.g., age, money spent)

The questions in the survey were organized into four sections:

Section A: Demographic Information

These questions asked about the respondent's background:

- Age (in years) – Ratio
- Employment status (Student, Employed, Unemployed) – Nominal

Section B: Time-Related Questions

These questions looked at how much time respondents spend shopping online:

- Time spent browsing online shopping platforms in a month – Ratio
- Do you think online shopping saves time? (Yes/No) – Nominal

Section C: Cost-Related Questions

These questions focused on spending habits and opinions on saving money:

- Average amount spent on online shopping each month (in RM) – Ratio
- How often do you find better deals online? (Never to Always) – Ordinal
- Do you agree that online shopping helps save money? (Strongly Agree to Strongly Disagree) – Ordinal
- Do you compare prices before buying? (Yes/No) – Nominal

Section D: Convenience and Shopping Behavior

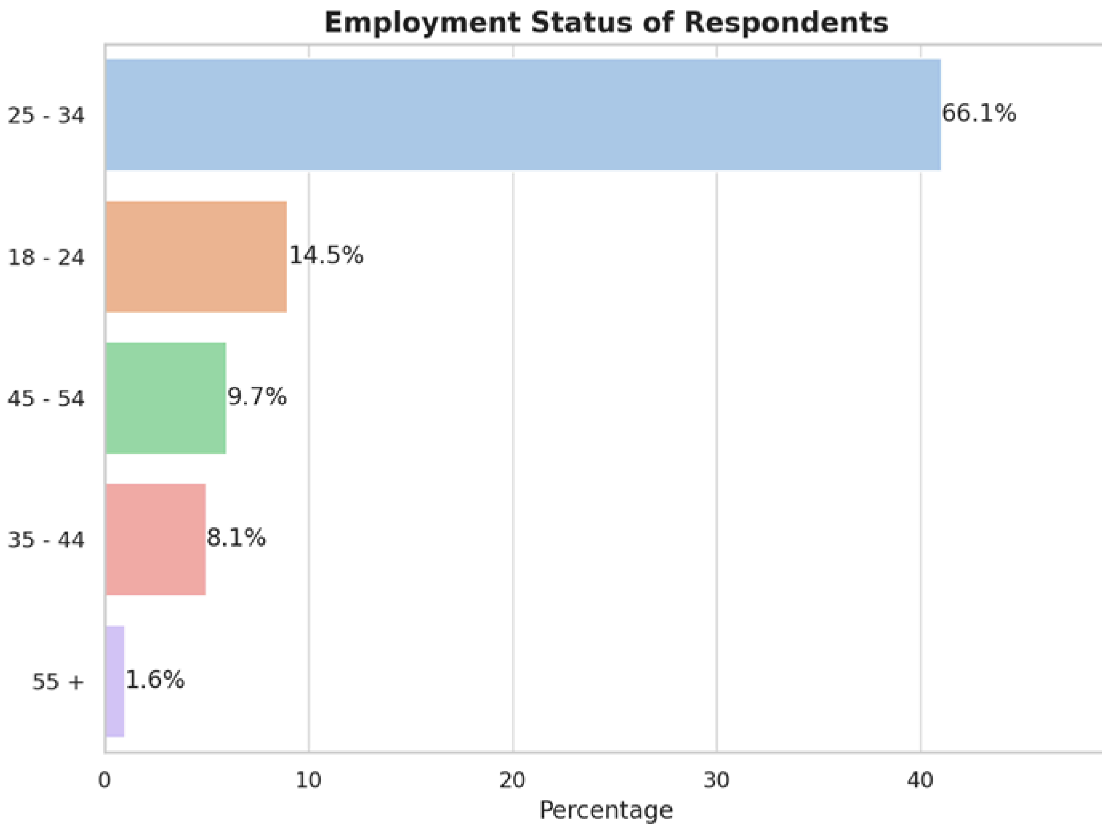
These questions explored reasons for shopping online and shopping patterns:

- Main reason for shopping online (Convenience or Necessity) – Nominal
- Number of returned or cancelled items in the past 3 months – Ratio
- How often do you shop online? (Never to Always) – Ordinal

By collecting these types of data, we were able to study different online shopping behaviors, such as whether people shop more for convenience or because it saves time, and how often they make purchases online.

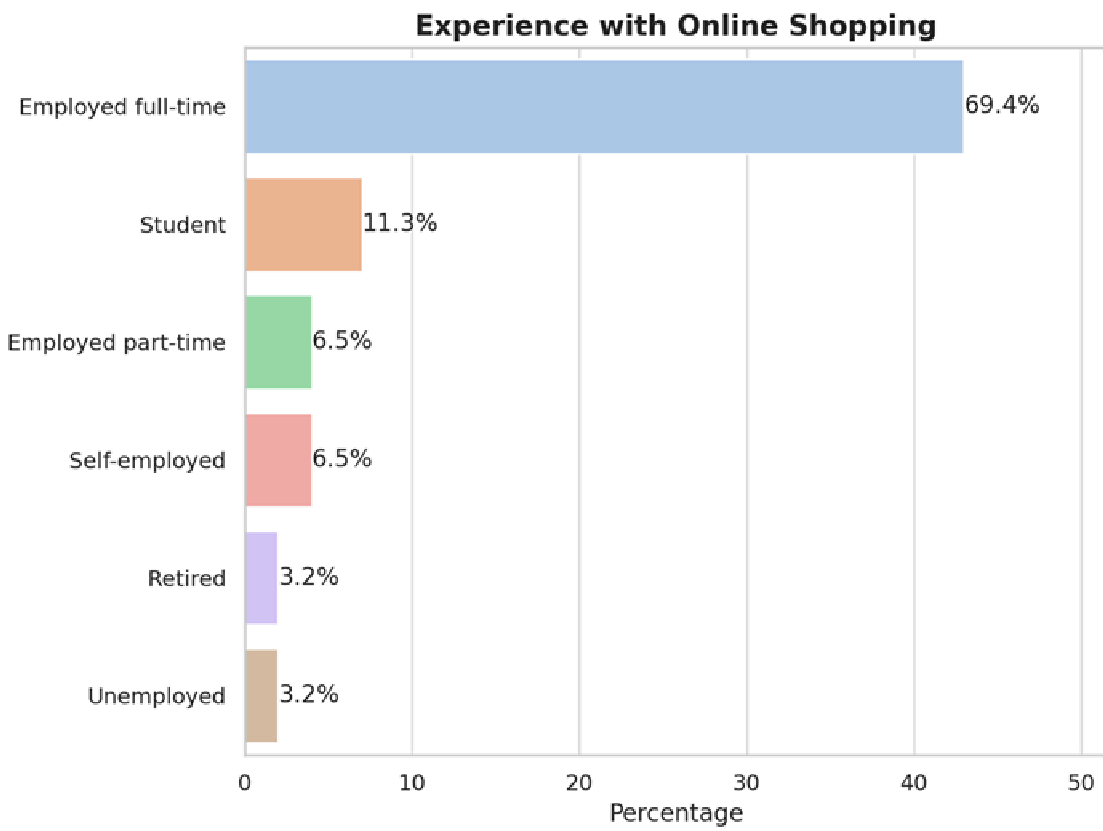
3.1 Categorical data:

Figure 3.1.1 - Employment Status of Respondents



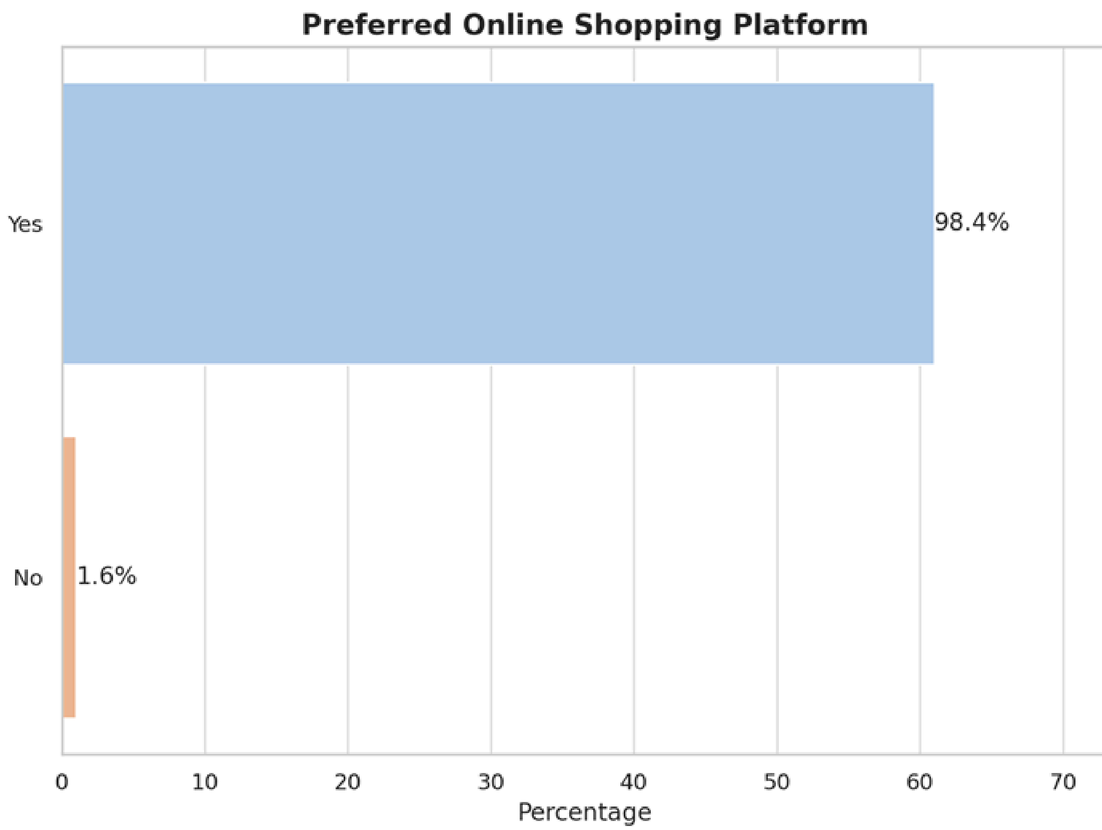
Based on the bar chart above, the majority of the respondents are from the 25-34 age group, making up 90.3% (56 respondents) of the total sample. A smaller proportion falls under other age categories, indicating that the survey primarily reflects the preferences and behaviors of young adults who are typically in early stages of their careers or still pursuing their education. This demographic concentration suggests that insights derived from this survey may be most relevant to this age segment.

Figure 3.1.2 - Experience with Online Shopping



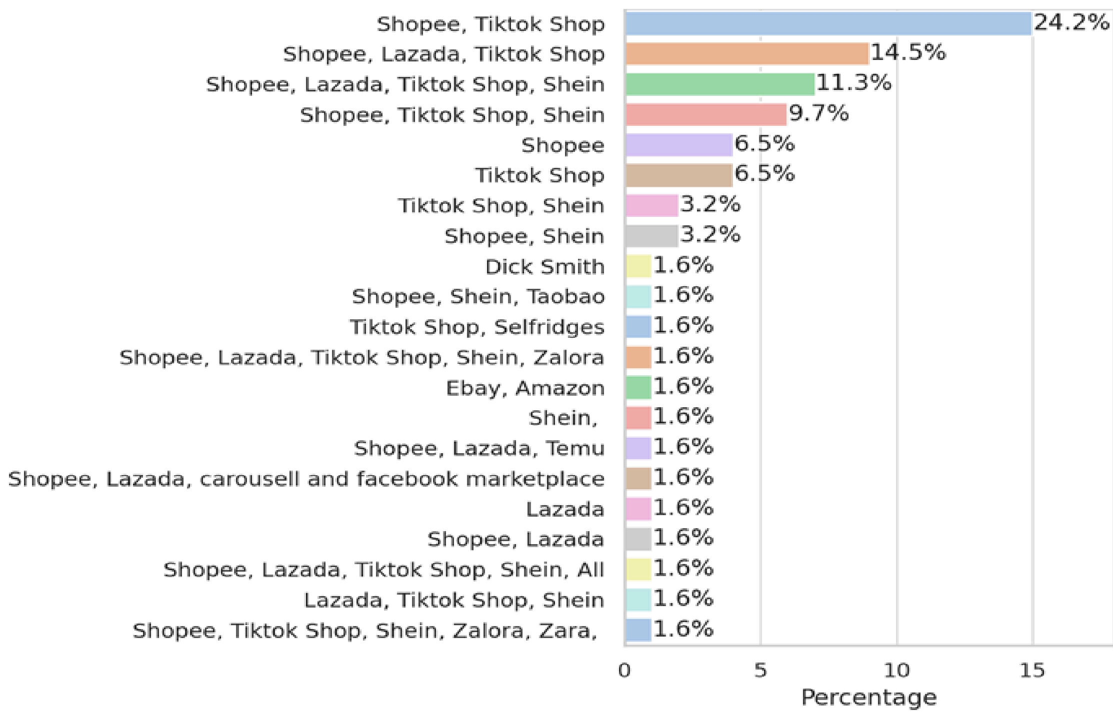
As shown in the chart, most respondents are either employed full-time (53.2%) or students (37.1%), with a few indicating part-time employment or unemployment. This reflects a mix of working professionals and learners, implying the data captures online shopping behavior from both economically active individuals and those with limited income or time flexibility.

Figure 3.1.3 - Preferred Online Shopping Platform



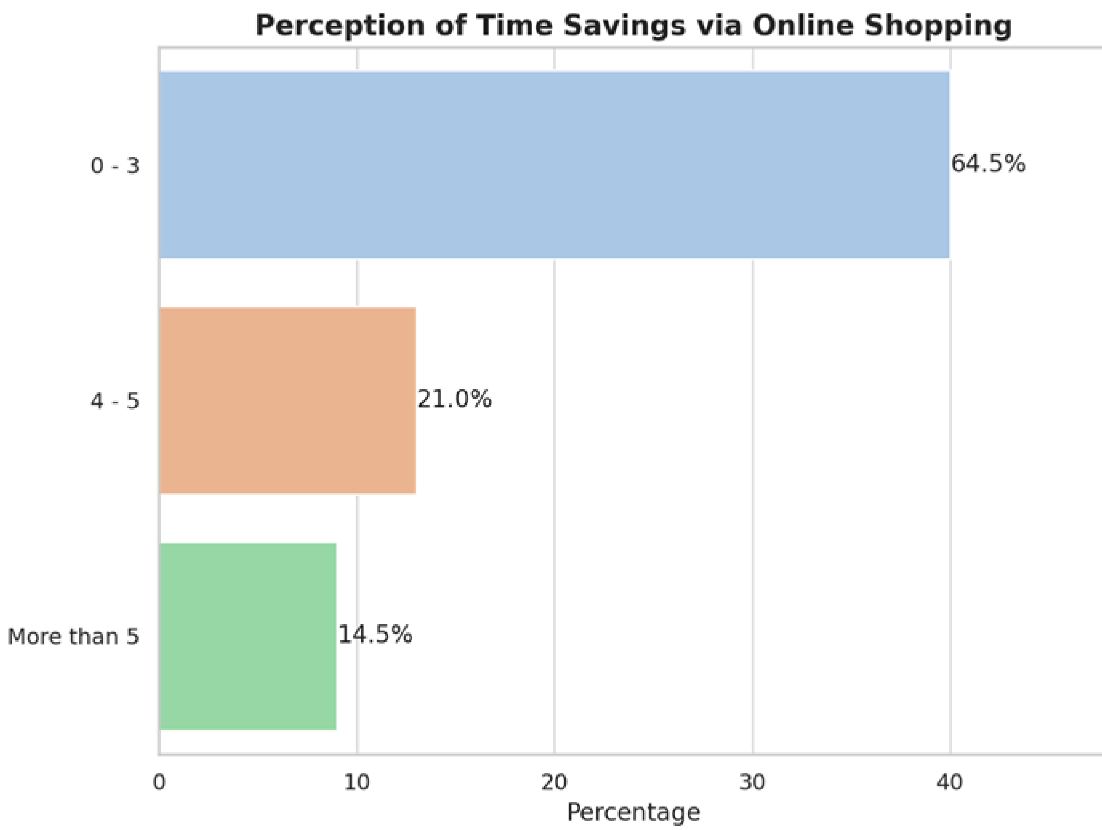
Nearly all respondents reported having shopped online before (100%), confirming that the population surveyed is familiar with online purchasing. This ensures the validity of responses to other questions regarding preferences and experiences in online shopping.

Figure 3.1.4 - Number of Online Shopping Platforms Used



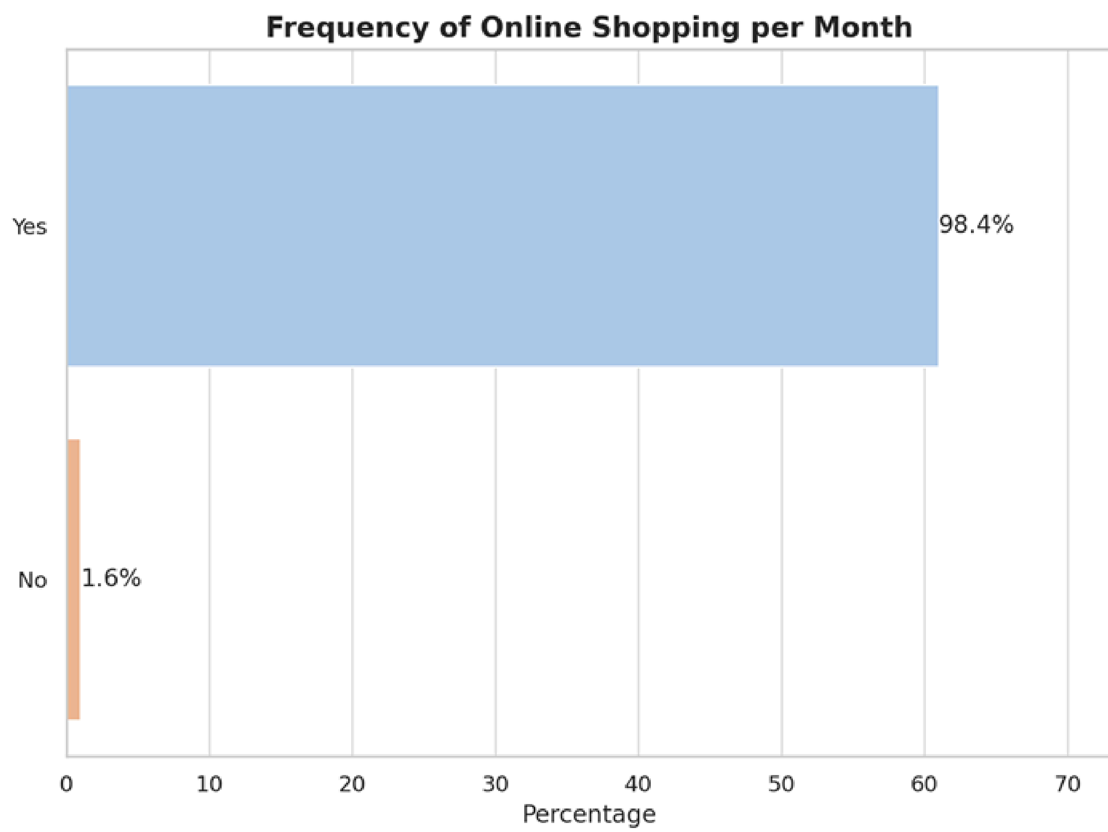
The most commonly preferred platform among respondents is Shopee, either alone or in combination with Lazada, TikTok Shop, or Shein. Platforms like Shopee were mentioned in over 85% of responses. This shows Shopee's dominance and suggests that future analysis of behaviors, promotions, or preferences should consider platform-specific features.

Figure 3.1.5 - Perception of Time Savings via Online Shopping



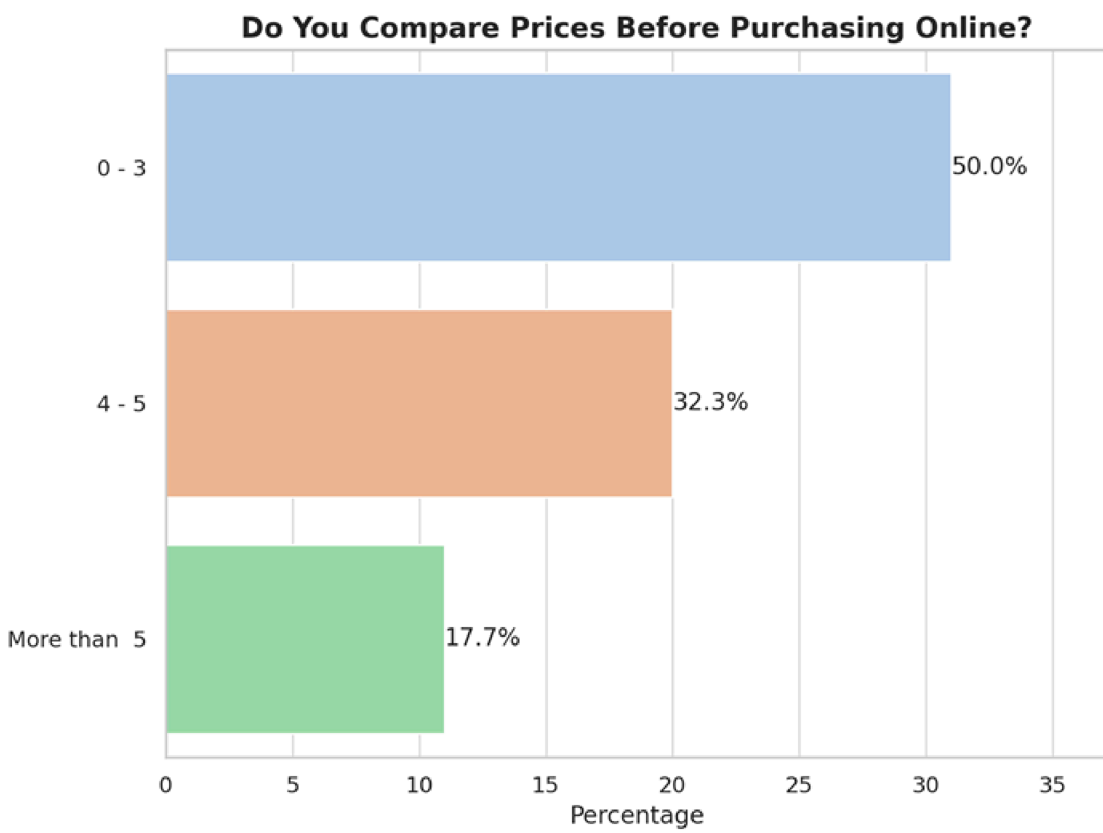
Respondents mostly use 0-3 platforms (53.2%), followed by 4-5 platforms (25.8%). Only a smaller segment uses more than 5 platforms. This suggests that while respondents are active online shoppers, they are loyal to a few main apps, possibly due to convenience, familiarity, or preferred features.

Figure 3.1.6 - Frequency of Online Shopping per Month



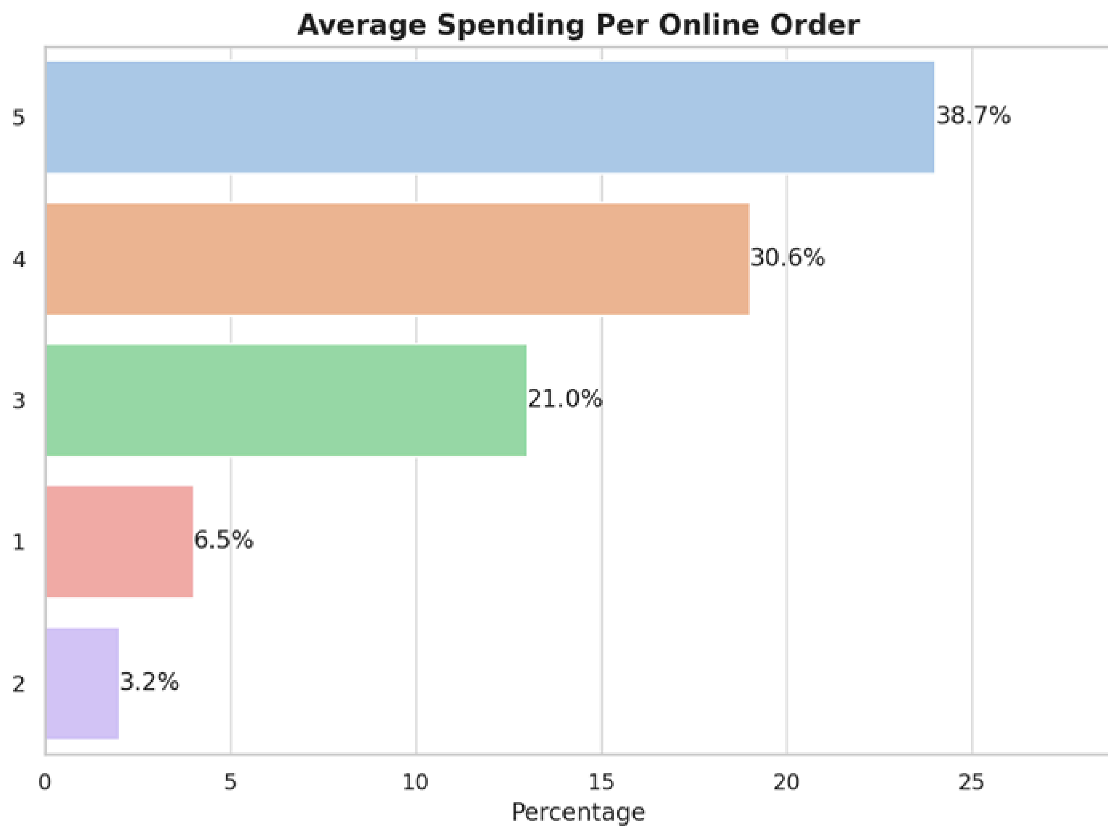
An overwhelming majority (over 95%) agreed that online shopping saves time, indicating that time efficiency is a key driver for choosing online platforms over traditional shopping. This perception could be leveraged in marketing and platform design to further highlight convenience.

Figure 3.1.7 - Do You Compare Prices Before Purchasing Online?



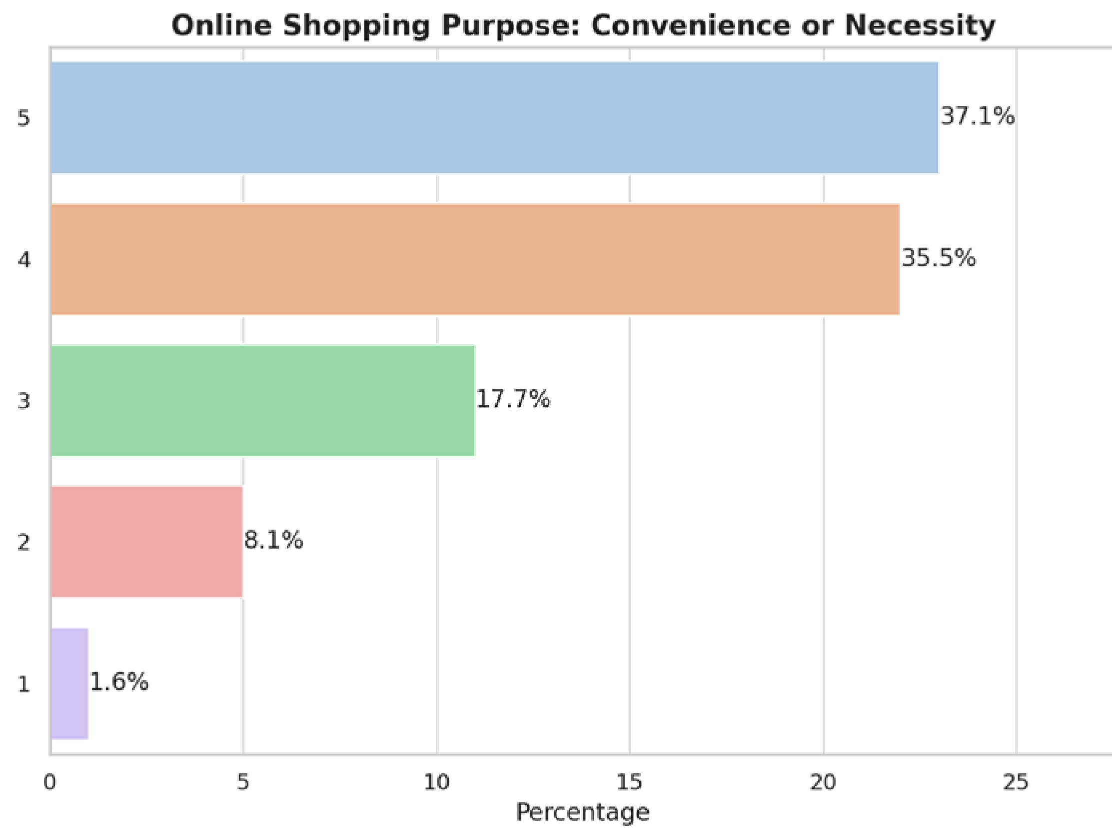
The data shows that a majority of respondents shop online 0-3 times per month (46.8%), followed by 4-5 times (27.4%). About 25.8% reported shopping online more than 5 times monthly. This indicates that while online shopping is common, it is still used moderately by most users, possibly due to financial constraints or selective shopping behavior.

Figure 3.1.8 - Average Spending Per Online Order



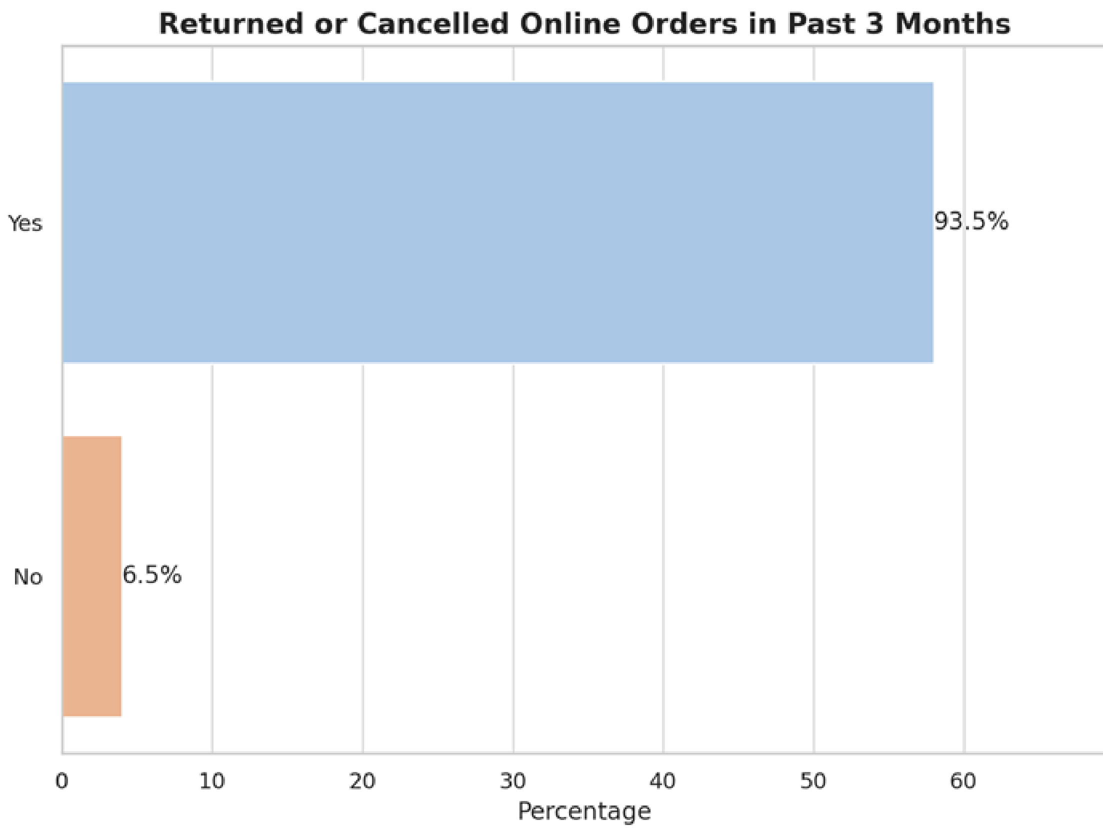
A significant majority (93.5%) of respondents compare prices before making online purchases. This suggests that price sensitivity is high and that comparison tools or price tracking features could be valuable additions for online shopping platforms.

Figure 3.1.9 - Online Shopping Purpose: Convenience or Necessity



Most respondents reported spending between RM100-RM300 (59.7%) per order. Fewer respondents spend RM300-RM400 (16.1%) or less than RM100 (14.5%), and a small portion spends over RM400. These figures indicate that mid-range spending is most common, suggesting users are budget-conscious but willing to spend moderately.

Figure 3.1.10 - Returned or Cancelled Online Orders in Past 3 Months



The majority of respondents selected "Both" (54.8%), indicating that online shopping fulfills both practical needs and offers lifestyle convenience. About 32.3% shop mainly for convenience, and only 12.9% for necessity. This demonstrates that convenience is a key motivator even when shopping is essential.

3.2 Quantitative Data

3.2.1 Frequency of Finding Better Deals Online

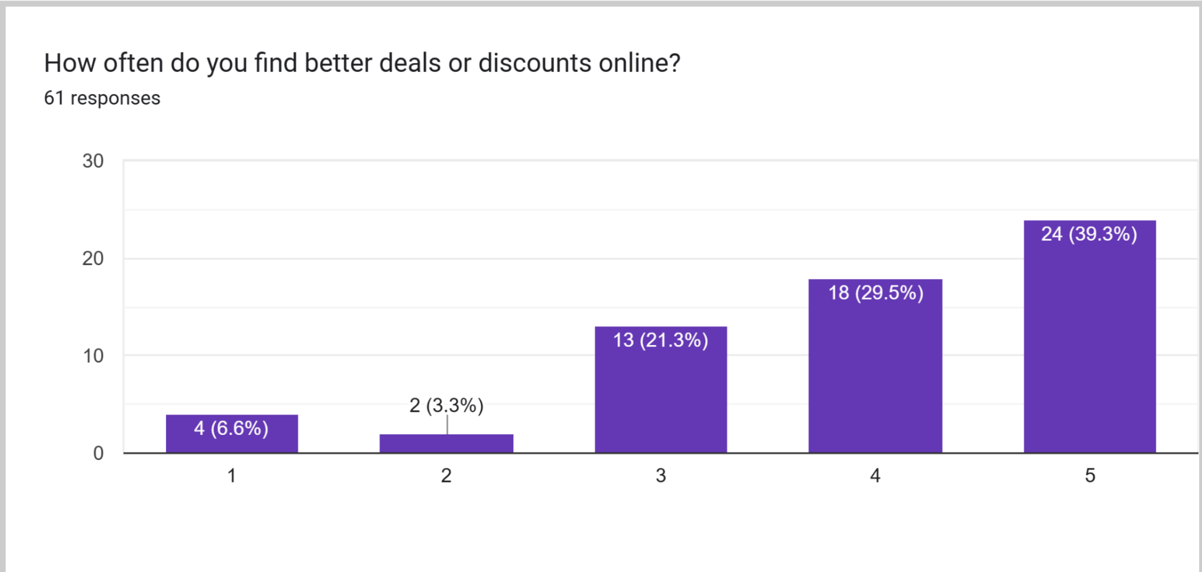


Figure 3.2.1 (a) Histograms: Frequency of Finding Better Deals Online

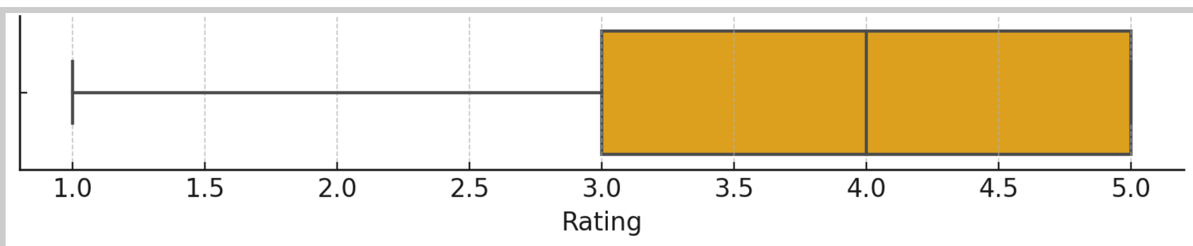


Figure 3.2.1 (b) Boxplots: Frequency of Finding Better Deals Online

Mean	3.92
Median	4
Mode	5

The survey results indicate that most respondents frequently find better deals or discounts when shopping online. The average rating for this question is **3.92 out of 5**, with a **median of 4** and a **mode of 5**, showing that many participants rated their experience at the higher end of the scale. This suggests that online platforms are widely perceived as offering more attractive pricing or promotional deals compared to in-store shopping. Overall, the data reflect a strong positive perception of the value and savings associated with online shopping.

3.2.2 Perception That Online Shopping Saves Money

Figure 3.2.2 (a) Histograms: Perception That Online Shopping Saves Money

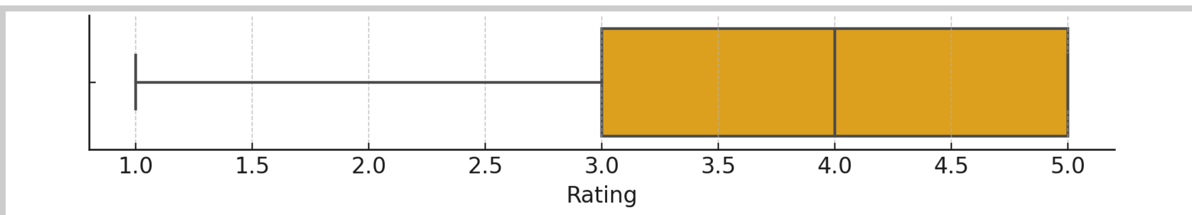


Figure 3.2.2 (b) Boxplots: Perception That Online Shopping Saves Money

Mean	3.98
Median	4
Mode	5

The responses to the question on whether online shopping helps save money indicate a generally positive perception among participants. The **average rating is 3.98 out of 5**, with a **median of 4** and a **mode of 5**, showing that most respondents either agreed or strongly agreed with the statement. This suggests that many participants feel they are able to reduce spending or find better value when purchasing online compared to traditional shopping methods. The distribution of responses reflects a strong belief that online platforms offer cost-saving opportunities, likely due to competitive pricing, discounts, and wider product comparisons.

3.2.3 Availability of Desired Products 24/7

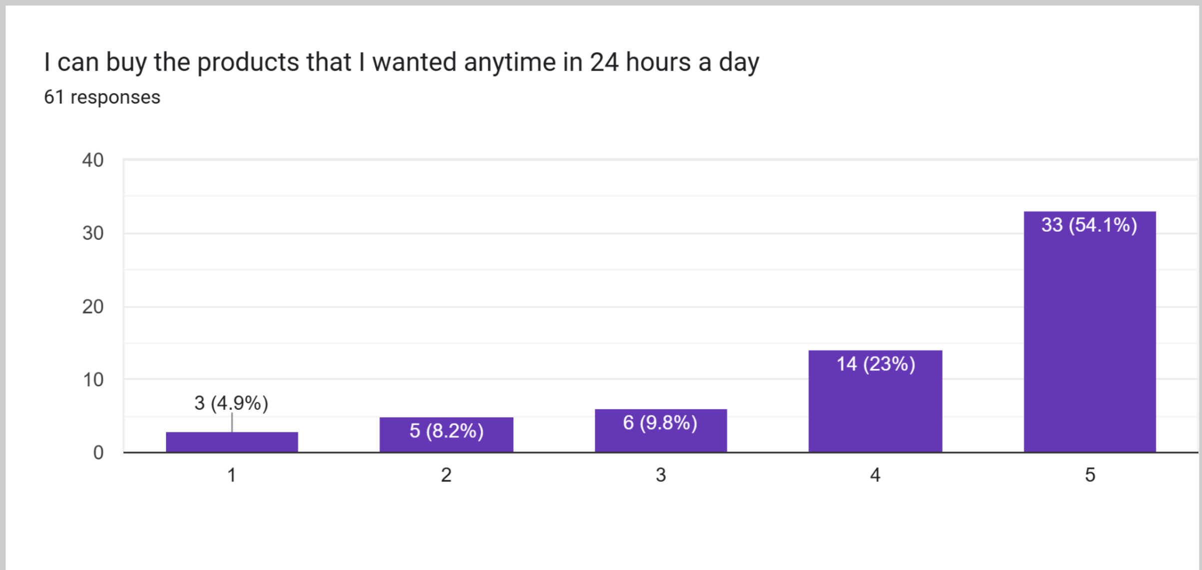


Figure 3.2.3 (a) Histograms: Availability of Desired Products 24/7

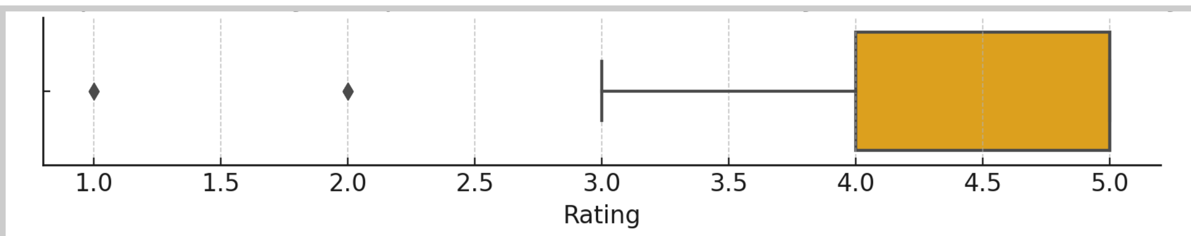


Figure 3.2.3 (b) Boxplots: Availability of Desired Products 24/7

Mean	4.13
Median	5
Mode	5

The survey responses regarding product availability 24/7 show a strong agreement among participants. The **mean rating is 4.13**, with a **median of 5** and a **mode of 5**, indicating that most respondents highly value the ability to shop at any time of the day. This suggests that around-the-clock access is seen as a major advantage of online shopping. The high concentration of ratings at the top end of the scale reflects a widespread belief that online platforms provide convenience and flexibility that traditional stores may not offer, reinforcing the appeal of online shopping for people who are busy or have varied schedules.

3.2.4 Chances of Continuing Online Purchases in the Future

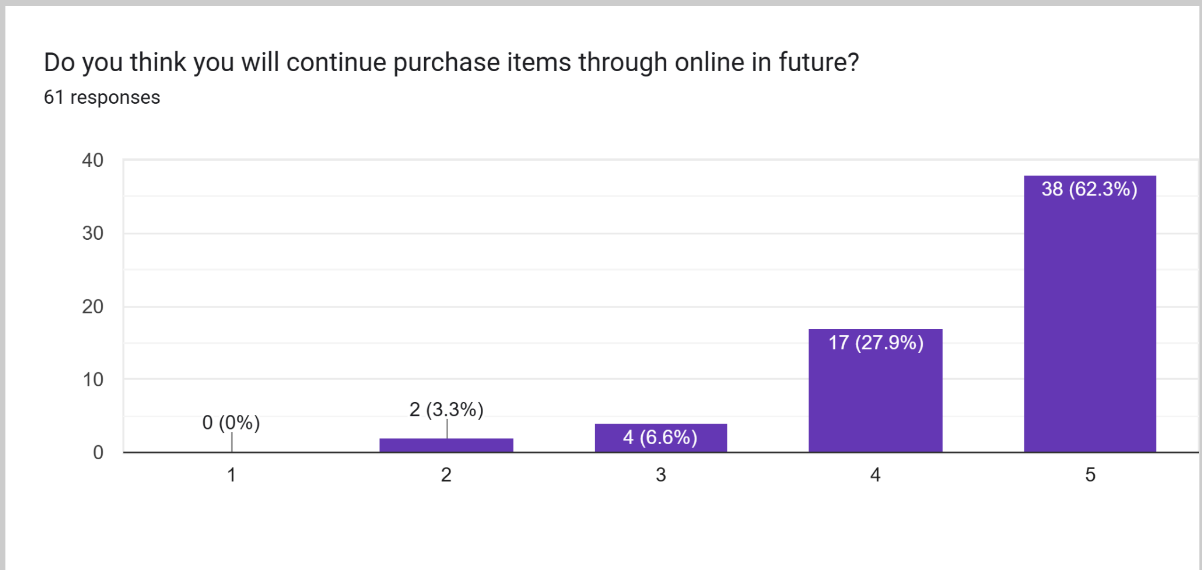


Figure 3.2.4 (a) Histograms: Chances of Continuing Online Purchases in the Future

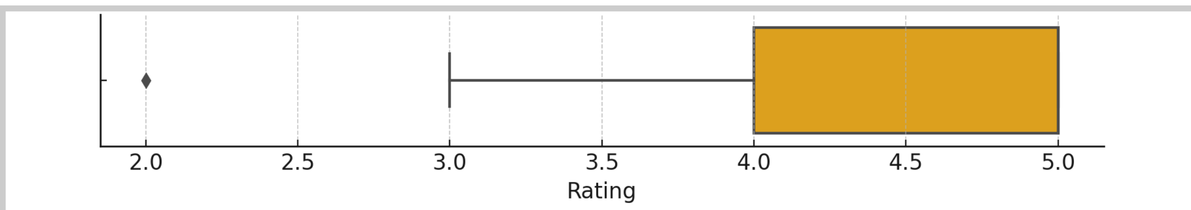


Figure 3.2.4 (b) Boxplots: Chances of Continuing Online Purchases in the Future

Mean	4.49
Median	5
Mode	5

The responses to the question about the chances of continuing to purchase items online in the future showed a very strong positive trend. The **mean rating is 4.49**, with both the **median and mode at 5**, indicating that the majority of participants are highly likely to continue shopping online. This suggests a strong level of satisfaction and trust in online shopping experiences. The data reflects a clear intent among respondents to maintain or even increase their online purchasing habits, likely due to perceived benefits such as convenience, accessibility, and value for money.

4.0 Conclusion (Summary)

This study provided valuable insights into the online shopping behaviors of individuals aged 18–55, particularly young adults aged 25–34. The findings revealed that convenience, time-saving, and attractive deals are the main drivers of online shopping. Most respondents believe that online shopping saves both time and money, and they often compare prices before purchasing, highlighting their cost-conscious nature. The majority also use only a few main platforms like Shopee, emphasizing platform loyalty. Quantitatively, high average ratings confirmed strong agreement that online shopping is beneficial, with a significant number expressing intent to continue in the future. Mathematically, we applied statistical tools such as mean, median, and mode to understand trends, while technologically, we utilized Google Forms and basic data visualization to analyze consumer preferences. Overall, this project deepened our understanding of modern consumer behavior in the digital age and reinforced the dominant role of online platforms in daily shopping habits.