SECI2143 SECTION 02: PROBABILITY & STATISTICAL DATA ANALYSIS

2020/2021 – SEMESTER 2

TEAM 8: STATS BUDDIES

TOPIC: **COVID-19 Online Shopping Habits**

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INTRODUCTION

The rapid development of technology has created a new method of conducting buying and selling activities without face-to-face changing to online purchases. Online platforms such as Lazada, Shopee, Amazon and Alipay are becoming increasingly popular especially among students to help online shopping activities. However, due to the recent pandemic which is Covid 19 that occurs all over the world, we can see the usefulness of online platforms to help in conducting business between sellers and buyers.

In this case, are there any specific preferences in using online shopping platforms among students? What kinds of products do they usually buy? Besides, what is the average spendings and time of occurrence they spend in a month? Hence, are there any differences in their habits while purchasing online before and after Covid 19?

Thus, the survey that our group conducted will help in answering the following questions through Google Forms application. Each of the following data or results will be analysed and explained until the readers know which trends are more popular between online shopping before and after the pandemic.

DATA COLLECTION TECHNIQUES

In order to get an accurate and representative sample of the change in habits of online shopping after the pandemic of Covid-19, the survey was conducted and distributed to various demographics of respondents. The following are examples of some of the questions asked in this survey.

- Gender; Male or Female
- Age
- Average salary per month
- Shopping platforms: Lazada, Shopee, Zalora, Foodpanda/Grabfood, COD, Codashop, carousell, TAoBao, direct shop website.
- Online purchased category: Fashion and accessories, food and beverages, home appliances, cosmetics, electronic devices, healthcare products, sports, groceries, and others
- Average spending per month, before and after the pandemic
- The amount of times respondents used online shopping, before and after the pandemic
- Change in traits or habits: before and after the pandemic

Almost all of the data in the survey is used in our analysis. As much information and respondents are recorded in order to have accurate results and findings. The survey was conducted through an online platform to have a smooth and fast result. The platform used is Google Form since many people are familiar with it. Graphs, histogram and pie charts are generated using Microsoft excel, R programming and graph generator on certain websites.

DATA ANALYSIS

The sample size of this survey is 67. This size results in 53 females and 14 males which are randomly selected. Below are the graphical representation and analysis of COVID-19 online shopping habits.

Demographic of respondents

1) Age
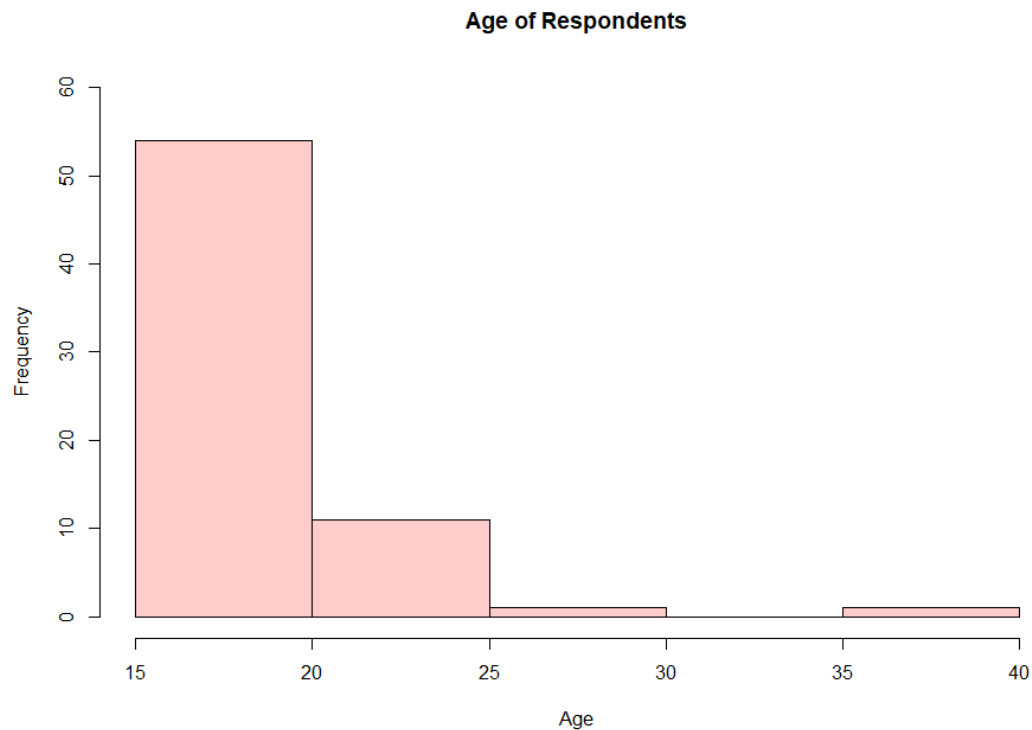
Age of Respondents

Histogram 1: Age of Respondents

In the survey, respondents need to insert their age. Based on the collection, presented by the histogram above, respondents with the age 15-20 are the highest with 54 number of people. Next, there are also some people between the ages of 20-25 which is a total of 11 people. However, the smallest number of people are in the age of 25-40 which consist only 2 people. The mean of the data collected is 20.53731, the median is 20 and also the mode is 20. The skewness of the graph is 5.000079, which is positively skewed. Therefore, we can conclude that most of the respondents are still students and still new with university life.

2) Financial Support
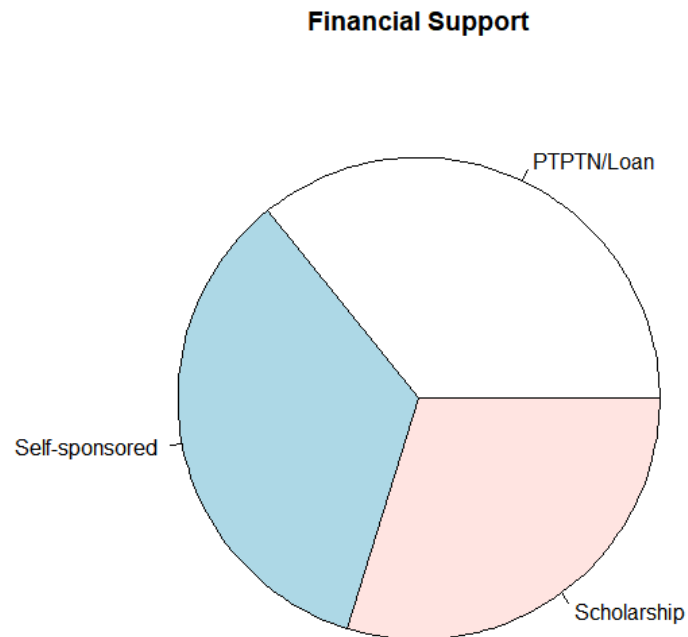
Financial Support

Pie Chart 1: Financial Support

Since this survey is mainly for students, we include categorical data which allow the respondent to choose their current financial support. Based on the chart, all of the types of financial support have quite the same percentage. The highest from the above chart is PTPTN/Loan support which is 36% (24). Next, 34% of them are self-sponsored (23) and lastly, 30% (20) of them are getting a scholarship.

3) Average Salary Per Month

Average Salary per month
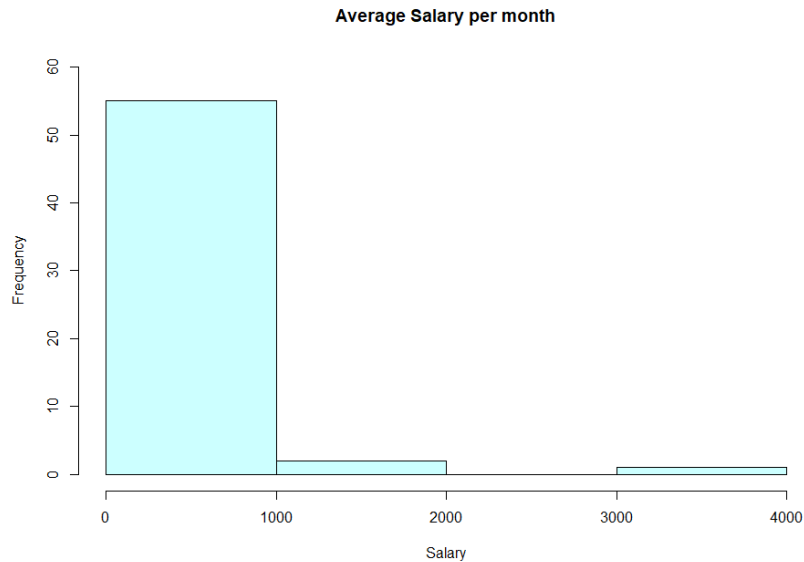
Histogram 2: Average Salary per month (for part-timers)

Based on histogram 2, the average salary per month owned by most of the students are less than RM1000 with a frequency of 55. 2 out of 58 responses for this question have side income in between RM1000 to RM2000 per month. Lastly, 1 out of 58 respondents have income RM3000 to RM 4000 per month. The mean of the average salary per month is RM150 while the median and mode are both 0. Next, the skewness of the graph is 5.205118 which is positively skewed. Therefore, we can conclude that most of the respondents have a little amount of side income which also most of them earn 0 amount of salary and mainly focus on studies.

4) Shopping platforms
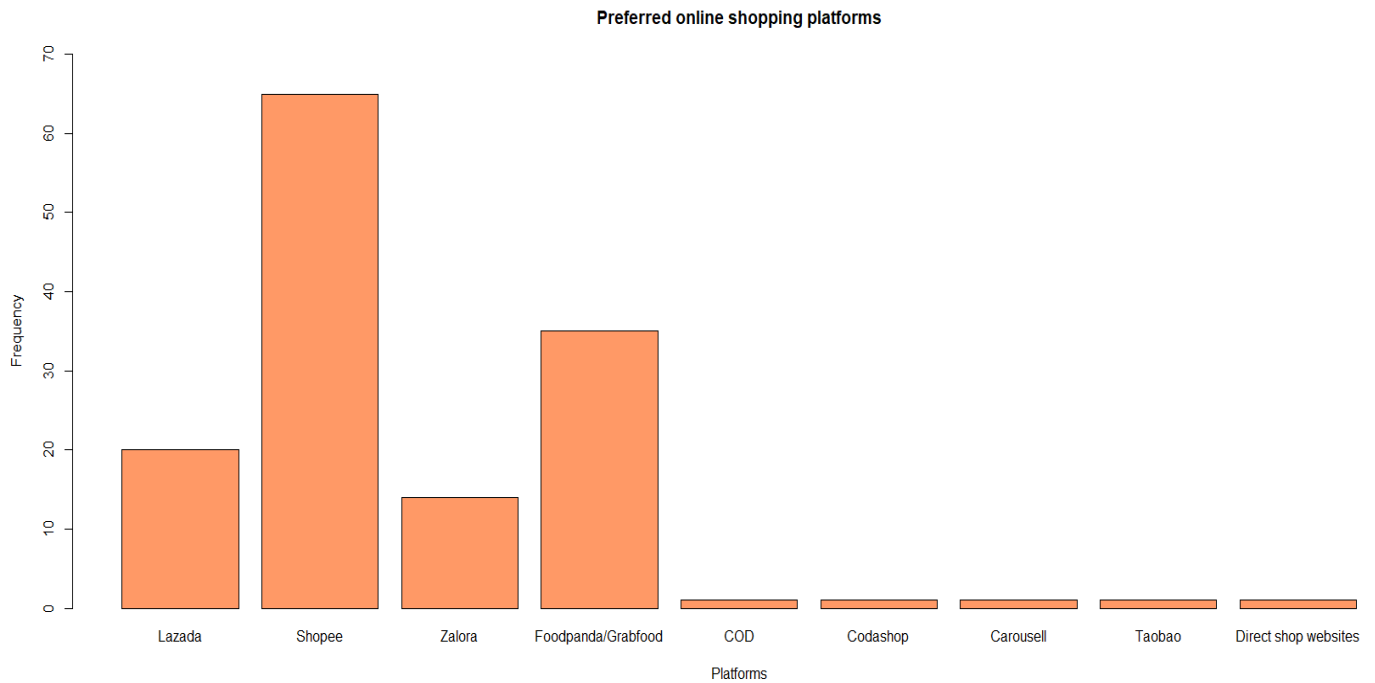
Bar chart 1: Preferred online shopping platforms

Based on bar chart 1 above, we can see that Shopee is the most popular platform for online shopping with 65 out of 67 of them using it. Followed by Foodpanda or Grabfood with 35 people using it. Lazada and Zalora each show slightly different amounts which are 20 and 14 respectively. Lastly, COD, Codashop, Carousell, Taobao and Direct shop websites recorded 1 person from each of them. Therefore, we can conclude that most of the people are more comfortable using shopee as it might offer such good deals compared to the others.

5) Usually used online-shopping category
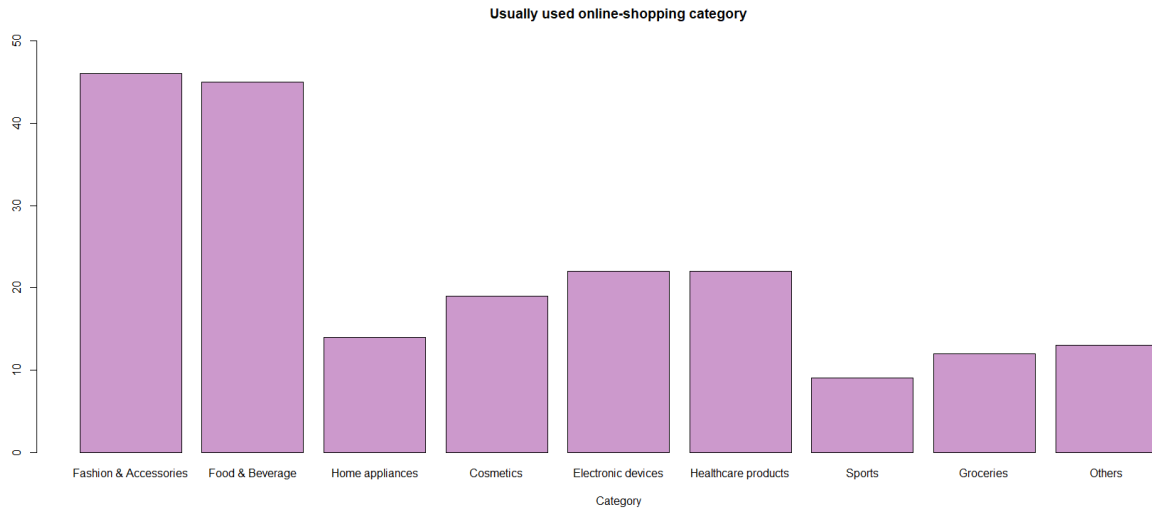
Bar chart 2: Usually used online-shopping category

Each online shopping application or website offers the user different kinds of shopping categories. Some of the apps might sell all of the categories and some of them are more specific. Based on bar chart 2, fashions & accessories category record the highest number of people which is 46, followed by food & beverage with only difference in 1 from fashion category which is 45 of them. Electronic devices and healthcare products recorded the same number of people which each consists of 22 respondents. Whereby sports recorded the least number of people which is only 9 of them. The graph of other categories aside from fashion & accessories and food & beverage are more fluctuated. Therefore, we can see that during the pandemic, people mainly prefered buying clothes or wearable items online maybe because of some shops not allowing people to use fitting rooms. Next, food & beverage also recorded a high amount of people, might be because of the MCO restricts people to eat at the restaurant.

6) The average spendings in a month before and after Covid 19

Average Spendings per Month Before Covid 19
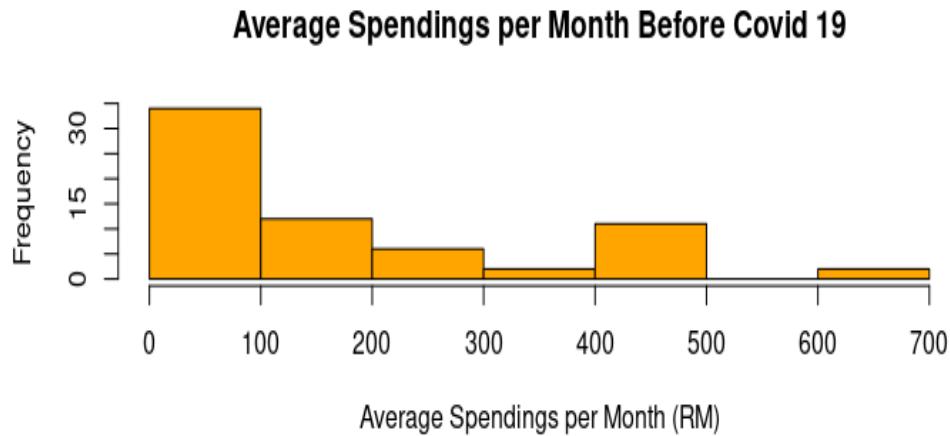
Histogram 3: The Average Spendings In A Month Before Covid 19

In this survey, we asked the users about their average spendings amount in a month before and after Covid 19 to review if there are any changes in user's habits. Hence, based on histogram 4, we can conclude that most users spend about RM100 in a month for buying products on online shopping platforms based on the mode and RM206.36 as the mean. Besides, we can also see that this graph is positively skewed which is 1.0023. Therefore, concluding that many buyers are most likely to make purchases in the range of below RM200 while only 13 people among 67 users will spend over RM500 in a month.
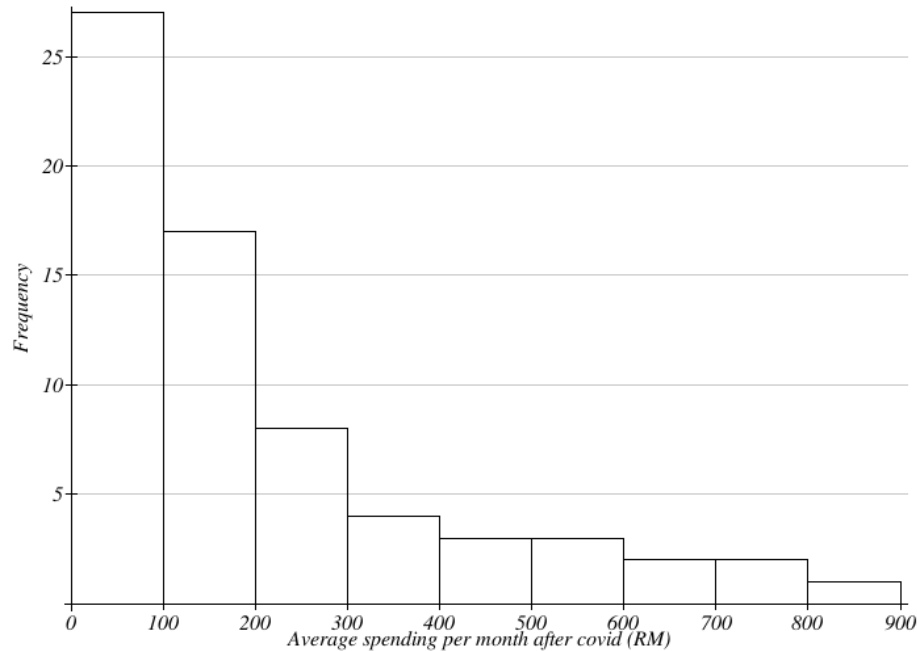
Histogram 4: The Average Spendings In A Month After Covid 19

The histogram shows the average spending per month after the pandemic of covid-19 among 67 respondents. The chart has a declining trend where the majority of respondents spent around RM100 per month with a mode of 72.97. The most common or average expenditure among all 67 respondents is RM 208.21, which is the mean based on the graph. The median is calculated to be RM124.07, which resulted in the graph to be positively skewed.

Based on the before and after graph and statistical value, it could be seen that the average spending of respondents increase. The maximum value before the pandemic started is only RM700 while after the pandemic it increased to RM 900.

7) The occurrence time of buying products online in a month before and after Covid 19

Histogram 5: The Occurrence Time of Buying Products Online In A Month Before Covid 19

According to histogram 5, we asked the users to enter how many times they will buy things on online platforms. The range of answers shows that most buyers have chosen from 1 until 6 occurrence which means that most of the participants of this survey is not excessive when buying products online. The mode and median of this result have the same value which is 1, but the mean of it is 2.089552 which are not significantly different. Thus, this graph is positively skewed as only a minor group of respondents will buy things online more than six times in a month before the pandemic.

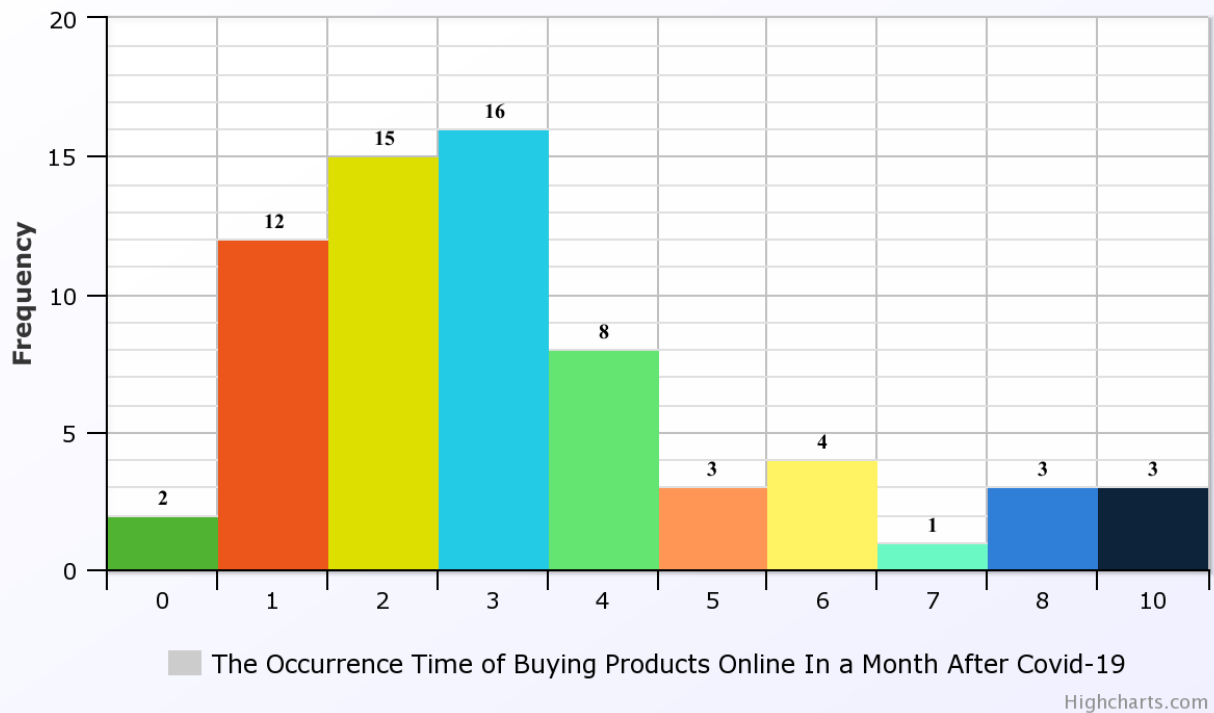The Occurrence Time of Buying Products Online In a Month After Covid-19

The Occurrence Time of Buying Products Online In a Month After Covid-19

Histogram 6: The Occurrence Time of Buying Products Online In a Month After Covid-19

The bar chart above shows the result of frequency of buying products online in a month after the pandemic started. The graph displays a fluctuating trend where it rises and fall a couple of times. The mode of the graph is three times a month with a value of 16 respondents. The mean is valued to be 6.7(once a month) while the median is 33.5(three times a month).

The comparison of the before and after graph does not differ or have any change that is significant but there are certain rise and fall. The number of times respondents buy products online increase after the pandemic starts. Before the pandemic the amount of times respondents purchase online is considered rarely but increases after Covid-19 hits.

Change in traits of online shopping

1) Increment on expenses of online shopping after pandemic Covid-19 started

Your spending on online shopping increased after the first MCO (March 18th 2020) till now
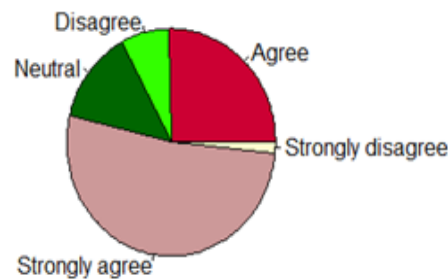
Pie Chart 2: Increment on expenses of online shopping after pandemic Covid-19 started

Based on the figure above, this pie chart represents the responses picked by the respondents according to the statement stated above. The statement designed for this part is to see if there were any increment in terms of expenses especially on online shopping after the wave of pandemic Covid-19 arrived in Malaysia. From this figure, the majority voted to strongly agree which is at 52.2% with 35 respondents having realized their expenses on online shopping increases as the pandemic strikes on. Contrary to the majority vote, the minority vote recorded can be found to strongly disagree which only recorded one person out of all 67 respondents picked it which makes it only conquer 1.5% out of all choices provided. Second highest vote can be observed to agree at 25.4% with 17 respondents voted for it. For neutral it managed to get 9 votes which makes it the third highest choice at 13.4%. The last one to be described, managed to get the fourth highest vote at 7.5% with 5 votes which completed all of it to get a full 100% votes based on all 67 votes casted. With this data it can be concluded that most of the respondents are positively sure that their expenses on online shopping grew larger after the lockdown was declared in Malaysia due to pandemic Covid-19.

2) The control of expenses when using online shopping

**It is easy for you to control yourself if you overspend buying things online**
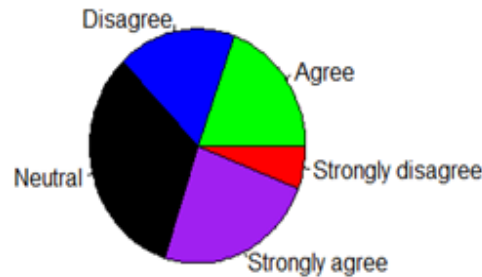
Pie Chart 3: The control of expenses when using online shopping

The figure above is a pie chart which is split into five different opinions from the respondents to the statement above. The statement focused on the concern of the respondents about how they easily overspend their budget on online shopping. Based on the figure above, the least vote received from respondents strongly disagrees with the statement with the recorded percentage at 6% with only 4 respondents voted for it. Next, the second and third least votes only differ by one vote, which disagree with 12 respondents at 17.9% of the votes and agree with 13 respondents at 19.4% respectively. The second highest vote got 16 respondents voted for it at 23.9%, it goes to strongly agree with the statement. The most votes went to neutral which makes up to 32.8% with 22 respondents choosing it. Even though the highest vote recorded is neutral, the sum of the percentage of respondents that agreed and strongly agreed with the statements makes up a larger percentage which is at 43.3%. This indicates that most of the respondents had noticed that it may be hard to restraint themselves from spending their money on online shopping.

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3) Assurance of safeness when choosing online shopping as a method to shop

**Online shopping can keep you safe from the pandemic**
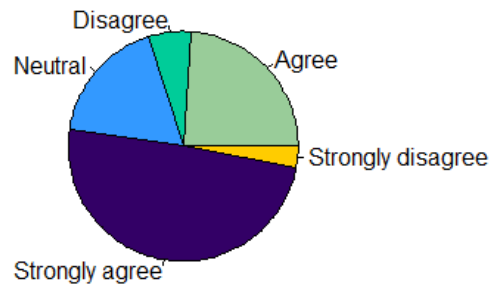
Pie Chart 4: Assurance of safeness when choosing online shopping as a method to shop

The figure shown above, is the fractions of opinion collected from the respondents about the statement above. For this part, the statement is focused on the safeness offered by the online shopping platforms during this pandemic season. Based on the pie chart above, 33 out of 67 respondents in total have voted that they strongly agree that online shopping possesses more safety than the other form of business during the pandemic. These amounts of votes easily secured 49.3% of votes which is impressively almost half of the respondents strongly agreed with this statement. Next, 16 respondents agreed with the statement which secured 23.9% of the votes, as they also believed that online shopping kept them safe during the pandemic. Then, 17.9% or 12 respondents casted their votes on neutral, 6% for disagree and 3% strongly disagree, which recorded the votes of 4 and 2 respectively. It can be concluded that majority respondents feel that it is safer to buy things online.

4) Preference on shopping method

Performing online shopping is more preferable compared to store bought
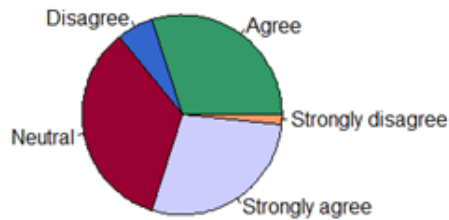
Pie Chart 5: Preference on shopping method

Based on the figure above, it is a pie chart that represents the variety of opinion according to the statement attached to it. In this part, it centered towards the preference of the respondents on shopping methods. Most of the votes went to neutral which succeeded to catch 23 respondents with percentage recorded is at 34.3%. Next, the second most casted vote went to agree with percentage at 29.9% and 20 respondents voted for it. Unsurprisingly, the third most votes went to strongly agree and coincidently the difference of vote between the second and third most votes are only by 1 vote. This strong agreement recorded a solid 28.4% with 19 respondents. Then, disagree managed to get 4 votes which makes it recorded a percentage of 6%. Lastly, strongly disagree is the most unpopular opinion in this part which only managed to get 1 vote out of all 67 respondents involved in this survey and with this, its percentage is only 1.5%. Overall, it can be said that the majority of the respondents positively considered that they preferred online shopping as a method to shop.

CONCLUSION

After this study, we conclude that the pandemic of Covid-19 did affect the habits of online shopping. Respondents feel safer to do online shopping because it keeps away contact with other humans which could also reduce the chances of getting affected. Many shopping applications and online websites are used to satisfy their needs of buying food, groceries, and others. While online shopping is more preferable in this pandemic, there are also respondents that feel reluctant and prefer to do the traditional shopping method where they go to the store. This is very expected because in the traditional shopping method, customers are allowed to try on clothes, taste the food, and see the products in real life. Online shopping has the disadvantages because the quality, size and actual product cannot be seen directly and there are high chances of being dissatisfied with the product once it arrives.

This study manages to catch the pros and cons of online shopping and figure out the differences in online shopping habits after the pandemic started.

APPENDIX

Covid-19 Online Shopping Habits

HI, we are the students from UTM Skudai, Johor, would like to conduct a survey about students' online shopping habits. This survey is conducted in regards to subject Probability & Statistical Data Analysis. As we all know, online shopping platforms such as Lazada, Shopee and etc become more popular in this modern day. The evolution of shopping style from walk-in into the shops towards buying goods from sellers over the internet has influenced many people especially during the COVID-19 pandemic. We greatly appreciate your service and cooperation in taking the time to answer these questions. Thank you!

* Required

Gender *

◯ Male

◯ Female

Age *

Your answer

Who is your financial support? *

○ Scholarship

○ PTPTN / Loan

○ Self-sponsored

Average Salary per month (if you working part time or having any side incomes)
Example: 500 if none, put 0

Your answer

Shopping platforms *

- [ ] Lazada
- [ ] Shopee
- [ ] Zalora
- [ ] Foodpanda/Grabfood
- [ ] Other: _____

Which online-purchased category do you usually buy? *

- [ ] Fashion & Accessories
- [ ] Food & Beverage
- [ ] Home appliances
- [ ] Cosmetics
- [ ] Electronic devices
- [ ] Healthcare products
- [ ] Sports
- [ ] Groceries
- [ ] Others

Before the pandemic of COVID19, what is your average spending per month? (RM) *

Your answer

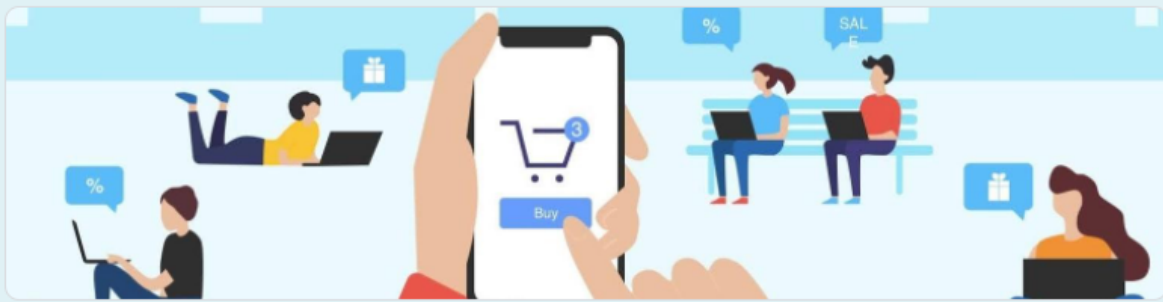Before the pandemic of COVID19, how often do you buy products online in a month? example if 2 times a month put: 2 *

Your answer

After the pandemic of COVID19, what is your average spending per month? (RM) *

Your answer

After the pandemic of COVID19, how often do you buy products online in a month? example if 2 times a month put: 2 *

Your answer

Covid-19 Online Shopping Habits

* Required

Changes in Traits of Online Shopping Before and After COVID-19

Rate the following statements based on your perceptions.

Your spending on online shopping increased after the first MCO (March 18th 2020) till now *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

It is easy for you to control yourself if you overspend buying things online *

	1	2	3	4	5	
Strongly disagree	◯	◯	◯	◯	◯	Strongly agree

Online shopping can keep you safe from the pandemic *

	1	2	3	4	5	
Strongly disagree	◯	◯	◯	◯	◯	Strongly agree

Performing online shopping is more preferable compared to store bought *

	1	2	3	4	5	
Strongly disagree	◯	◯	◯	◯	◯	Strongly agree

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