UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SECI 2143-06
PROBABILITY & STATISTICAL DATA ANALYSIS

Project 1 Report

Prepared for : Dr. Chan Weng Howe

Name	**Matric No.**
Rakesh A/L Kannapathy	A19EC0153
Muhammad Fikri Bin Abdullamin	A19EC0096
Amir Hakim Bin Ahmed Mahir	A19EC0018
Amjad Bin Rushdan	A19EC0021

Introduction

“Stop playing the game and go do your homework!!”. It is believed that playing games will make you dumb and stupid. In this new era of uprising technology, it is good that people keep exploring and building a new thing in our life. Game also doesn’t miss it either. From just a simple ‘Game Boy’ to Virtual Game that gives us a new extraordinary view of how a game is being played. However, there is a drawback, one of it is, kids start to spend most of their time playing game. In fact, parents are so worried about their children whenever they play games because it will make them brainless and dumb. It is no strange that gamers have a hard time when they learn something new in school, especially subjects that are related with facts and history. For most gamers, the obvious reason behind the underperformance in this subject is because they don’t have time to remember all those things because they've been busy playing games.

In contrast, according to study by the Department of Brain and Cognitive Sciences and Center for Visual Science, University of Rochester, Rochester. Daphne Bavelier said people who played action games like "Call of Duty" and "Unreal Tournament 2004" showed greater capacity to learn than those who played non-action games. Those improvements on a range of tasks were still with them when they were tested again a year later. (Casey, M.,2014). This study contradicts what the parents claim about their child when they play games. In addition, it is found out that gamers are also great in solving a problem compared to non-gamer. So, which one do we have to believe in, Our parents or the study?

In order to solve the tug war between the parent and department of science, we think that it’s better for the data to speak for itself. That’s why we, students from the 1st year from the faculty of computing have decided to conduct a study about how gaming affects the lifestyle of students and thus breaking the truth about gaming. Our goal is to gather as much data as we can so that we can conclude whether gaming affects the performance of the student in study or not.

Other than that, we also want to investigate whether the lifestyle of students will be affected by gaming or not. The term “lifestyle” that we've been using here has a wide broad meaning. It includes how social the gamers are, how much they spend money on games and most importantly how they take care of their health. This is because we want to know how obsess the gamers can be? Will they prioritize gaming over other activities to the extent that they aren't interested in other activities anymore? Or will they skip their meal, so that they can continue grinding their rank.

Methodology

First and foremost,our method of research contains only quantitative data.Quantitative method research allow us to analyse the data based on the number of data we obtain,while qualitative data enable us to make critical analysis based on the answer that were given from our respondent.Our aim is to conduct a research on UTM students whether gaming in their daily life will affects their academic.Other than that, we also wanted to promote the E-Sports activities among utm students.Hence, we need to conduct a survey whether gaming is a trend among utm students and discover the type of games that will get a good amount of participant for the E-Sports tournament.

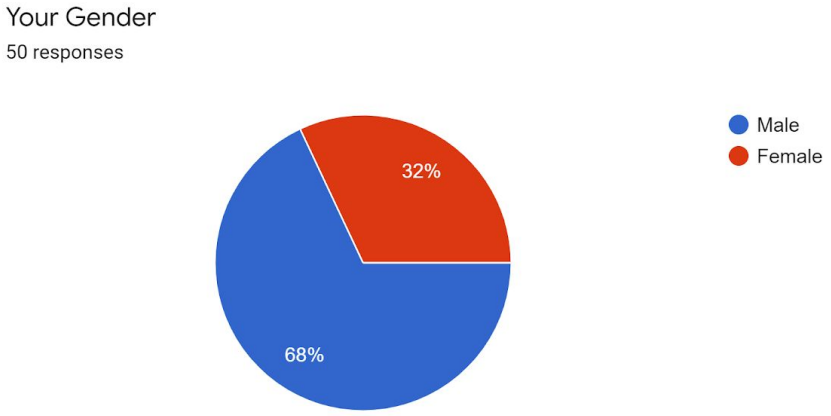
For the quantitative part of the survey, we use google forms as our primary source of data to obtain all the information that we need. Spreading the google forms through social media is the only way that we can think of to get as much data as we need.We uses the sampling method in our survey as we emphasize the survey for just UTM students and mainly our targeted participants were School of Computing.We limiting the number of respondent to 50 people so that we can easily use stratified sampling method as our main method of quantitative analysis.

As for the tools, we used google form to conduct our survey so that we can obtain primary data directly from the respondent. Other than that, we also used R-Programming to calculate most of our data to make a good analysis based on the survey that we conduct.Before we proceed to make our quantitative analysis, we begin it with separating data which is extreme and illogical data that our respondent answered.We also assume that the respondent does specific hours based on the range they answered. This is to make sure we can produce a better quality of graph to interpret the data more easily.For example, One of the respondent answer that he play games in the range between 2 and 4.Hence, we assume that he play 3 hours,which is still within the range of the answer given.

We use the approach of using quantitative data only because it is the most suitable way for us to obtain data and make conclusions based on the response given by students of UTM.Qualitative data was not necessary for us to obtain due to the fact that the accuracy of quantitative itself was already accurate enough for us to make conclusion.Approaching quantitative data makes our research easier and precise to draw a conclusion based on the number of respondent that we have limit by using stratified sampling method helps us to make sure our data and research are accurate by minimizing the amount or error and extreme data from our respondent that does not describe the pattern of gaming within UTM students.

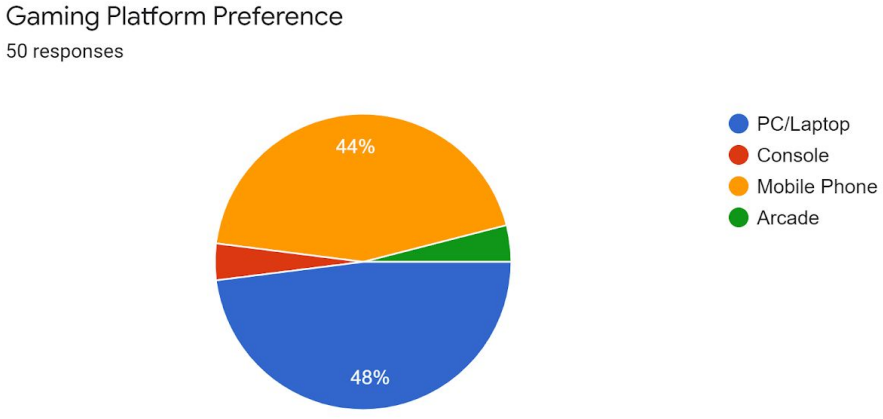
Data Analysis and Result

1.Your Gender



From the information shown in the pie chart above, most students who responded to this survey are male students with 68%, while the other 32% responded to this survey is female students. This therefore gives an idea that male students tend to play games more than female students. This also reflects on the fact that the gaming communities all around the world consisted of more males than females.

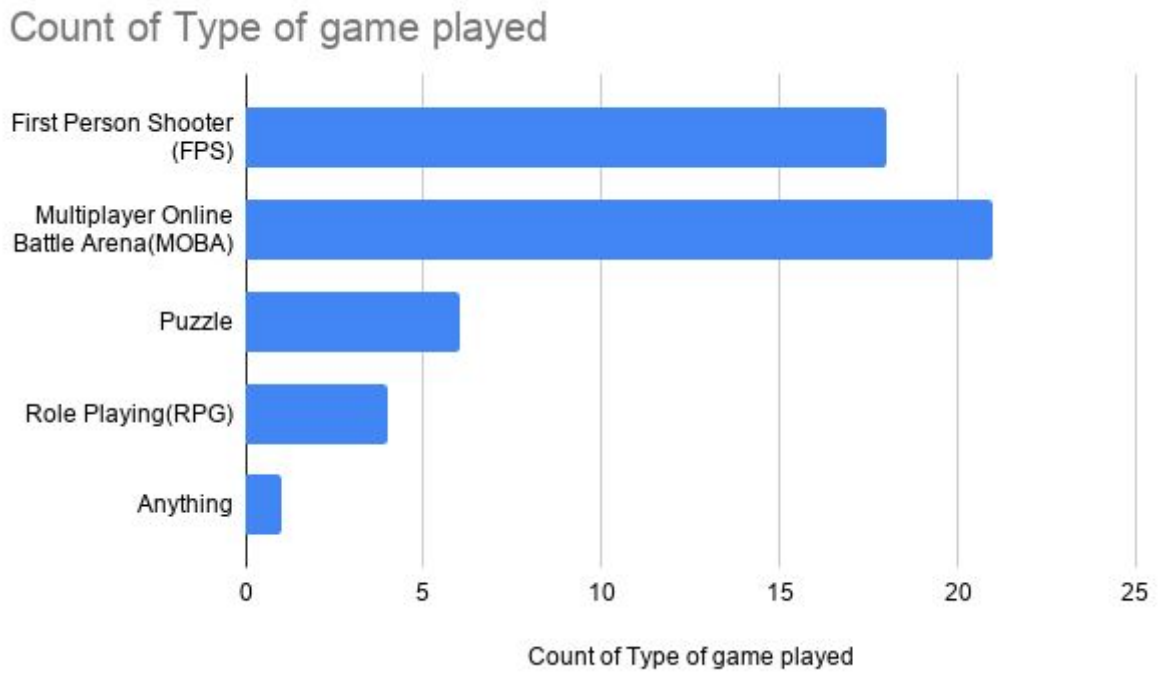
2.Gaming platform preference



The majority of the respondents preferred PC/Laptop(48%) as their gaming platform. This is due to the fact that the survey was mainly distributed to students of School of Computing, where almost everyone owns at least one PC/laptop and uses it daily. There are also plenty of students who have chosen mobile phones(44%) as their preferred gaming platform as every student has their own mobile phones, which most of them are smartphones. So, they basically can play games whenever they want to. Both gaming consoles(4%) and arcade(4%) shared the same lowest percentage for students' gaming platform preference.

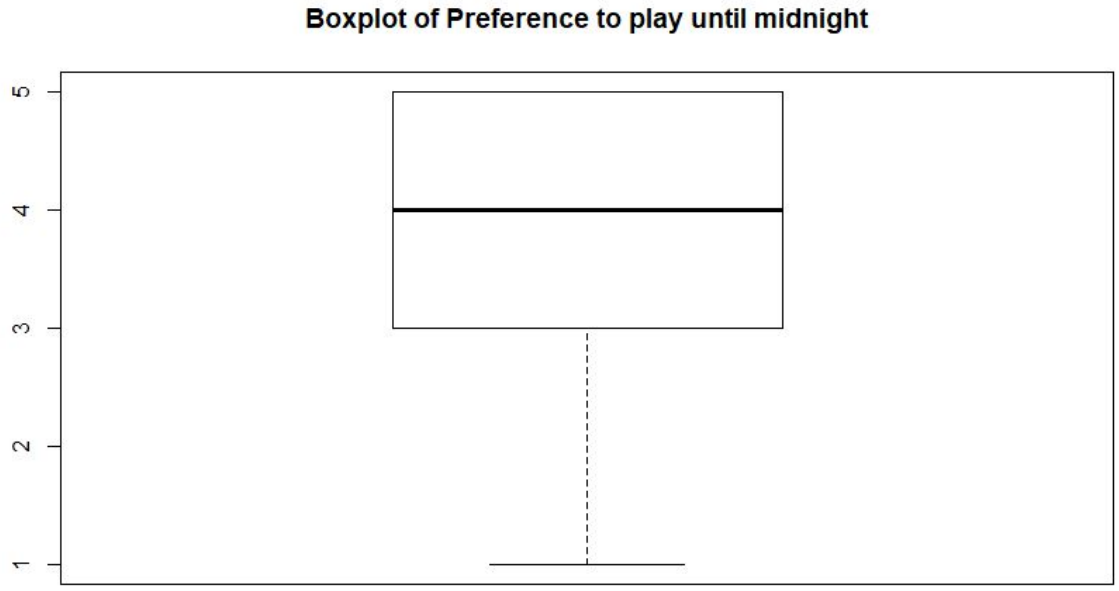
Both of them are the lowest because it is not often for students to bring their gaming console to the college and also it costs more time and money for students to go to the arcade just to play games there.

3.Type of game played



The type of game that has the highest number of students(21) playing it is Multiplayer Online Battle Arena(MOBA). This type of game can be played on either PC/laptop or mobile phones. Mobile Legends and DOTA 2 are the prime examples of this type of game. The second highest number goes to First Person Shooter(FPS) with (18) students having chosen it. Games like Counter Strike and Call of Duty are very popular especially among PC gamers. Both MOBA and FPS games are famous because of their online mode as it is very competitive and challenging. There are a total of (6) students who like to play puzzle games. Following closely behind it is role-playing(RPG) with (4) students. These two types of games are usually offline and not very competitive. There is also (1) student who like to play with any type of game.

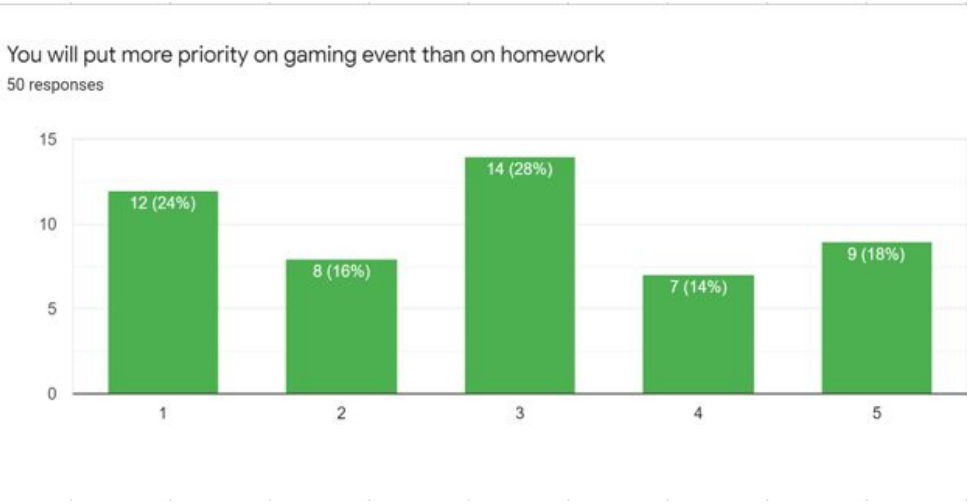
4.You always game until midnight



We asked the respondent on their preference to play games until midnight and it turns out that most of the respondent partially prefer to spend their time on gaming until midnight.There are a total of 8 people that voted on a scale of (1) out of (5), 2 people voted the scale of (2) out of (5),12 respondent voted (3) out of (5),14 people voted (4) out of (5) and lastly, 16 people voted (5) out of (5). This shows that most of the people prefer to play games until midnight based on the data.The scale of (5) out of (5) is also the mode class based on the survey.This is due to the facts that most of the students tend to enjoy their free time during the night.Hence, We can conclude that most of the students of UTM prefer to play games until midnight.

5.You will put more priority on gaming event than on homework

Score	Frequency
1	12
2	8
3	14
4	7
5	9



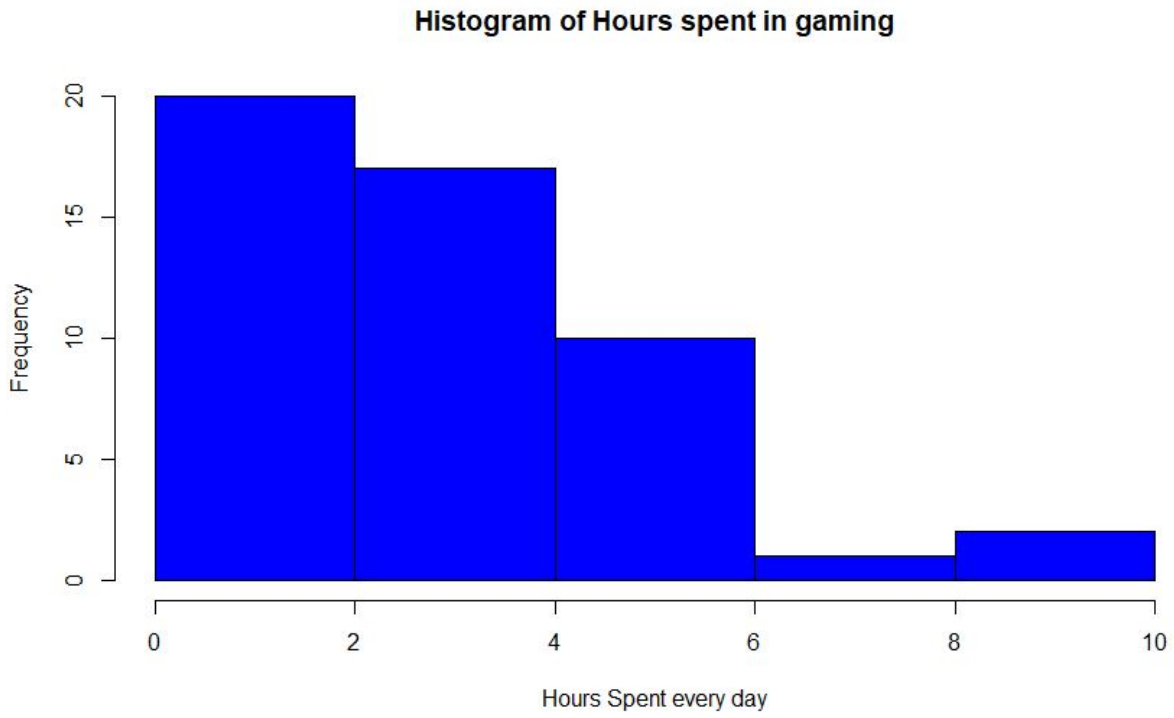
We asked the students whether they prioritize their gaming events more than their homework. We put on a likert scale (1 until 5) with 1 being strongly disagree and 5 being strongly agree. Most of the students (14) were completely neutral with this statement. They probably sometimes prefer joining the gaming event rather than doing their homework or vice versa. This is due to the fact that some gaming events offer a lot of exciting things like tournaments, giving free in-game stuffs and introducing new contents of certain games and some gaming events seem to be boring and not quite exciting. Next, there are (12) students who totally disagree that gaming events are more important than homework. These students prioritize their studies more than gaming or they are just basically casual gamers who play games just to pass up their free time. There are (9) students who strongly agree with the statement. These students are most probably hardcore gamers who will do anything for the games that they loved. Some of them most probably wanted to join as many as tournaments they can to show their gaming skills to the world and also take a shot in becoming a pro player of the game they played. (7) students who agree on the statement have somewhat similar conditions with those who strongly agree but they actually kind of care about their homework rather than leave it undone. Same goes to the (8) students who disagree, these participants rarely prioritize gaming events over homework and sometimes join the gaming events if they have more free time.

6.You will rather miss your meal time than miss the gaming event

Score	Frequency
1	16
2	11
3	9
4	6
5	8

The above frequency distribution was based on the responses of the statement that we give to the students about whether they will rather miss their meal time than miss the gaming event. The responses were measured with likert scale (1 to 5) with 1 being strongly disagree and 5 being strongly agreed. Eating is very important to all humans. Every human needs to eat in order to store energy inside their bodies as energy comes from the food. Even if someone skipped a meal once, it would take a toll on his energy throughout the day and not worth their time to skip a meal because of a gaming event which does not give any health benefits to them. This is why (16) students strongly disagree and (11) students disagree with the statement given. Other than that, (9) students chose to be neutral on this statement, due to the fact that they sometimes missed their meal time based on the gaming event that they wanted to participate. If the gaming event has limited stuff that any other gaming events have, then they probably would not mind missing a meal time or two. Beside that, there are (8) students who strongly agree respectively with the statement given. These students are categorized as die-hard gamers and could not see themselves skipping any gaming events especially if the gaming events is for their favourite game and they don't care at all if they missed their meal time throughout the day. There are only (6) students who agreed on the statement.

7.How much time do you spend your day playing games?



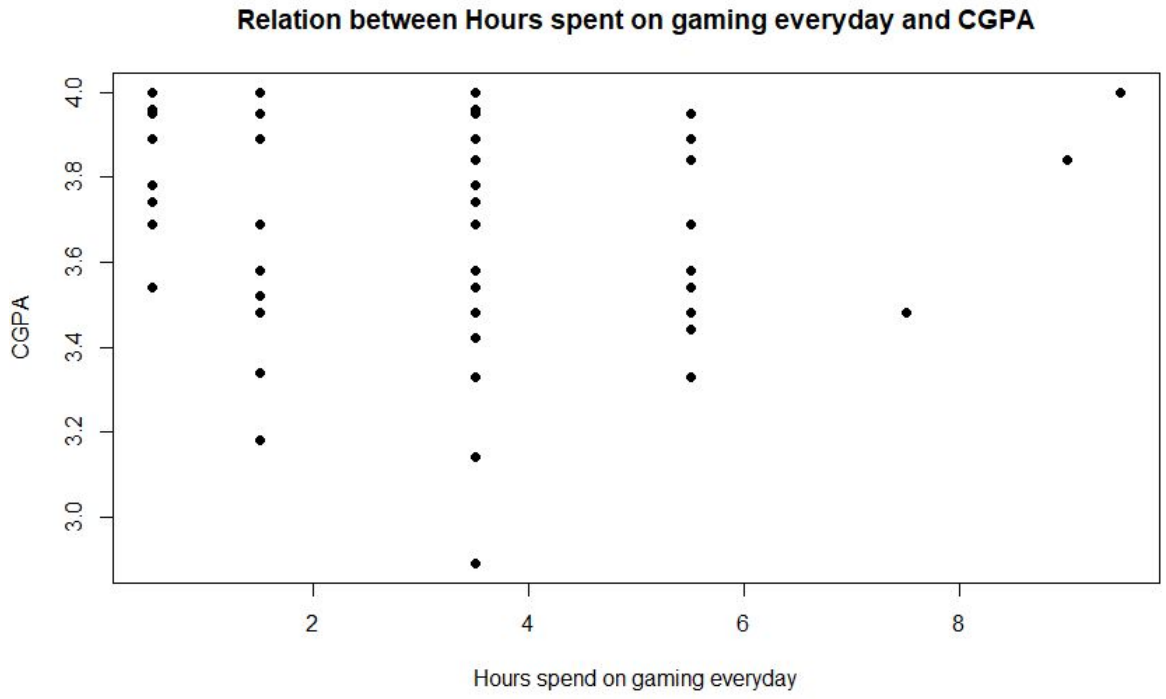
The diagram above shows Histogram of Hours Spent in Gaming based on 50 respondents The graph shows that students tend to spend at least 1-2 hour of their daily activities in gaming.The class of 0-2 hours is the mode class with a total of 20 respondents spent their time in gaming.Next, the class interval of 2-4 hours receive up to 17 respondents.The next following class which is 4-6 hours has a frequency of 10 person.For 6-8 hours spent in gaming,we receive only 1 respondent.Lastly, for 8-10 hours, We have recorded that only 2 person spent most of their time in gaming.From here, we can see that 6-8 hours and 8-10 does not describe the Hours spent on gaming in UTM because it receives less total of respondent compared to other classes. Based on the graph, we have also calculated the mean of hours spent on gaming which is 3.21 hours.Based on the data, the students spent an average of 3.21 hours on gaming in their daily life activities.

8.How much money do you spend on games per month?

stem	leaf									
0	0	0	2	3	3	4	5	6		
1	0	0	1	4	6	9				
2	0	2	3	5	5	8	9			
3	0	0	0	2	3	4	5	7		
4	0	1	1	2	3	5	6			
5	0	2	5							
6	9									
7	2									
8	0									
9	5									
14	5									
15	0							KEY :		
20	5							1	4	Means 14
21	0									
23	0									
24	0	5								

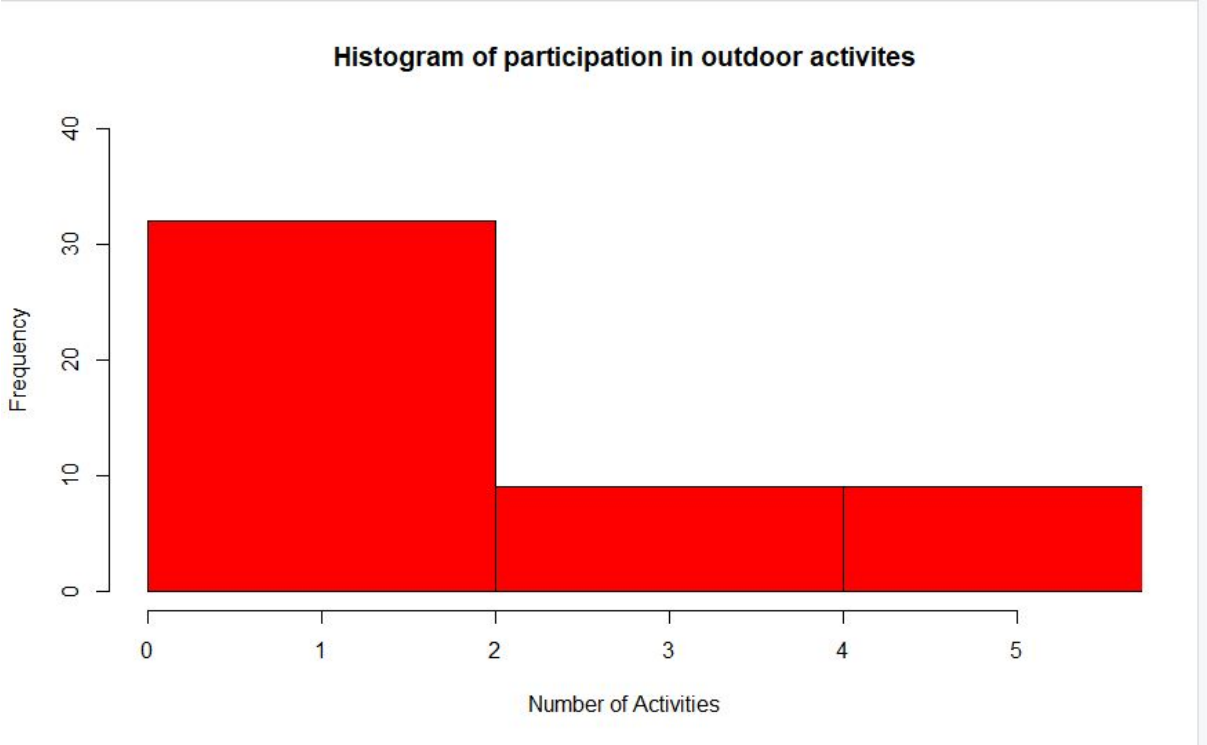
The stem and leaf diagram above shows the amount of money these 50 students have spent on their games per month. Based on the diagram, there are 8 students who only spend below RM10 monthly for games as probably most of them are casual gamers or free-to-play gamers. We can see that 2 of them spend no money at all on games. There are also 8 students who spend within the range of RM30-RM39 as most of the in-game items on most popular games right now that are worth within this range. Other than that, there are 7 students who spend between RM20 to RM29 monthly and also another 7 students that spend within the range of RM40 to RM49 per month. Beside that, 6 students spend between RM10 to RM19 while 3 students spend more than RM50 but below RM60. We can also note that 7 students spend more than RM100 per month on games. We can categorised them as hardcore gamers or the games that they played are pay-to-win type of games. Furthermore, the most frequent amount is RM30 as 3 students spend that amount monthly on games. In addition to that, the mean for all the data values is RM54.64. The mean is bigger than it should be because some data values that are so big causing them to become outliers and mean can be affected by outliers.

9.Your current Hours Spent on gaming vs CGPA



From the scatter plot above, we can clearly see that on the left side of the diagram, there are many dots that have been plotted. This shows that students who play games 0-6 hours daily performed better in their studies and got CGPA scores higher than 3.40. However there are two students who managed to also perform excellently in their studies even though they spent more than 8 hours gaming daily. This shows that it is not impossible for someone who likes to spend hours gaming extensively to achieve higher CGPA results. Not only that, notice that there are afe students who play games 0-6 hours daily who have CGPA results below 3.40. This is probably due to the fact they spend their time doing other things other than studying. This shows that spending less time in gaming daily does not ensure you to have better CGPA results than those who like to play games for a long period of time daily.

10.How often you are involved in outdoor activity per week?



The histogram above shows the frequency of students participating in outdoor activities per week. Based on the histogram, most of the students only participated in 0 to 2 activities only per week with the total of 32 students out of 50 who answered. We can already conclude that most of the students are prefered playing games rather than engaging in outdoor activities. The other reason why it has the highest frequency is due to the fact that the survey was distributed around School of Computing students, who doesn't need to go outside as most of the assignments or homework assign to them has to be done on the computer, unlike students from other faculties like Civil Engineering which their assignments involve outdoor activities. Other than that, there are 9 students who join 2 to 4 outdoor activities weekly. Not only that, there are also 9 other students who partake in 4 to 6 outdoor activities. We can deduce that these types of students are casual gamers or like to enjoy the scenery outside rather than facing the computer all the time. The mean for all the values of the histogram is 2.08, meaning that the average of the students join 2 outdoor activities per week.

Discussion and Conclusion

For the first part, we are gonna discuss whether games affect study performance.So how we measured the study performance? Students whose CGPA >3.5 are considered excellent while CGPA <3.5 but still above 3 are considered good and students who get less than 3 are considered poor performance. Based on the scatter plot that was drawn, the graph is biased to the left which means on average most students who spend less time playing games are doing good or excellent in their study. This is because students can spend more time and focus more on their study. However, If we see the scatter plot,the graph shows that students who actively play games get the same or better result in study compared to other students who spend less time playing games. The data also shows there's one person who spends tremendously more than 8 hour and still manages to get a 4.00 CGPA. In addition, the student also shows neither priotize nor ignores games over homework.This shows students manage to balance their time well. Therefore, we unanimously conclude that it doesn't matter whether the student spends more or less of their time playing games, their study performance is still the same.

Other than that, we can see that on average most students manage to spend their resources well by not spending too much on games. The stem-leaf plot showed that 86% of the students spend less than or equal to RM50 a month. It is quite low considering how much they get monthly pocket money from PTPTN which is RM318 (assumed full loan). Although, there were 7 students so called "Hard core gamer" who spend a whopping RM100 or more in a month and because of that it affects the value of mean. Otherwise, we will get a lower mean than before which is RM54.64.To conclude, we can safely say that students manage their money well on games.

Finally the health part, we can also see that most of the students spend a quite significant amount of time with outdoor activities.The graph shows that most of the people tend to participate in at least 1 outdoor activity per week. This shows that people who play games not only focus on playing games, they also make sure that their health is in good condition too. With that being said, thus our objective is achieved that students are taking care of their physical development too.

In Conclusion,we are able to prove our objective that gaming does not affect students performance because there are students who spend quite some time with games but still be able to maintain their grade.We are also be able to prove that students who play games still concern about their health by participating outdoor activities at least once a week.Other than that, we also be able to prove the myth that always being talk by the society where play games will make you less intelligent is actually not true.

References

Casey, M. (2014, November 12). Could playing video games make you smarter? CBS News, p. 1. Retrieved from https://www.cbsnews.com

APPENDIX

Gaming and Lifestyle Among students.

Greetings! We are from 1st year Software Engineering (SECJ) students are currently conducting a survey to study about how addicted to games affect their lifestyle in order to complete a statistics project.

Our aim on this project to study on how gaming can affect someone lifestyle consciously or unconsciously.

Please help us answer the following questions as it will help us improve our study, it will only take a minute.

Your response is much appreciated! Thank you in advance.

* Required

Your Gender *

- ○ Male
- ○ Female

Gaming Platform Preference *

- ○ PC/Laptop
- ○ Console
- ○ Mobile Phone
- ○ Arcade

Type of game played *

- ○ First Person Shooter(FPS)
- ○ Multiplayer Online Battle Arena(MOBA)
- ○ Role Playing(RPG)
- ○ Puzzle
- ○ Other: _____

You always games till midnight *

	1	2	3	4	5	
Infrequent	○	○	○	○	○	Frequent

You will put more priority on gaming event than on homework *

	1	2	3	4	5	
Not agree at all	○	○	○	○	○	Strongly Agree

You will rather miss your meal time than miss the gaming event *

	1	2	3	4	5	
Not agree at all	○	○	○	○	○	Strongly Agree

How much time you spend your day playing games? *

- ○ Less than an hour
- ○ 1-2 hour
- ○ 3-4 hour
- ○ 5-6 hour
- ○ Other: _____

How much money do you spent on games per month? *

- ○ <RM50
- ○ RM 50 - RM 100
- ○ RM 100 - RM 200
- ○ >RM200

Your current CGPA *

- 0.00 - 2.00
- 2.01 - 3.00
- 3.01 - 3.50
- 3.51 - 4.00

How often you involved in outdoor activity per week? *

- 0
- 1-2
- 3-4
- 5-6
- Other: _____

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