

```
/* Note: whenever I refer to time spent playing video games in this file, I am referring to
time spent playing games PER WEEK. Not mentioning it to remove redundancy */
```

```
/* Reading in the data from a CSV file.
```

```
Note: Giving Variables Platform and Employment length 20 as otherwise
```

```
SAS does not read in the entirety of the string */
```

```
Data survey;
```

```
INFILE '/home/aliparacha19960/EPG194/Survey.csv' delimiter=',';
```

```
Length Platform $20;
```

```
Length Employment $20;
```

```
Input
```

```
Gender $ Age Platform $ Hours_Spent_Gaming Employment $
```

```
;
```

```
run;
```

```
/*1.
```

```
* Main Question to Answer: Does Age, Gender and Employment affect time spent playing video games?
```

```
Variables in Question: 1. Gender 2. Employment 3. Hours Spent gaming per week 4. Age
```

```
Note: All survey questions for this part have been attached below. */
```

```
/* 2.
```

```
* Part 1: Analyzing Quantitative Data
```

```
*/
```

```
/* Creating formats for hours spent gaming and age. These might prove helpful later on */
```

```
proc format;
```

```
value hours 0-10='0-10'
```

```
11-20='11-20'
```

```
21-30='21-30'
```

```
other = 'Greater than 30';
```

```
value AGEGRP 15-20='15-20'
```

```
21-25='21-25'
```

```
26-30='26-30'
```

```
31-35='31-35'
```

```
other = 'Greater than 35';
```

```
run;
```

```
/* Finding the frequency of both age and hours_spent_gaming to get a feel for the data.
```

```
grouping them by the formats defined above. */
```

```
proc freq data=survey;
```

```
Title "Frequency Table for Age and Hours Spent Gaming (Figure 1)";
```

```
tables age hours_spent_gaming;
```

```
format age agegrp. hours_spent_gaming hours.;
```

```
run;
```

```
/* Creating Histogram for both age and hours_spent_gaming. Using buckets (defined by endpoint)
because we want the frequency of hours within a specific range. This will help us later on in
doing analysis.*/
```

```
proc univariate data=survey noprint;
```

```
Title "Histograms For Age and Hours Spent Gaming (Figure 2)";
```

```
histogram age / endpoints= 15 to 50 by 5;
```

```
histogram hours_spent_gaming / endpoints= 0 to 65 by 5;
```

```
run;
```

```
/* From the above results we can see that both age and hours are skewed right
and we have a few outliers in both as well. */
```

```
/* Since, the plot for both hours and age was skewed right and had outliers, we
will use the five number summary to describe the data as it is the best measure
of center and spread */
```

```
proc means data=survey min Q1 median Q3 max;
Title "Five Number Summary for age and Hours Spent Gaming (Figure 3)";
var age hours_spent_gaming;
run;
```

/* From the above analysis we can see that people aged 15 to 25 are most likely to play video games and that 35% of people spend around 0 to 5 hours gaming per week. */

/* Part 2: Analyzing Qualitative Data */

/* Displaying the frequencies of our categorical data*/

```
proc freq data=survey;
Title "Frequency Table for Gender, Employment and Platform (Figure 4)";
tables gender employment platform;
run;
```

/* Plotting pie and bar charts to better visualize our data and see its distribution*/
 /* Comparing males and females and also Students and Employees, to check who our data consists more of. Also, checking what people are more likely to play video games on. */

```
proc gchart data=survey;
Title "Graphs For Gender and Employment Type (Figure 5)";
vbar gender employment platform;
pie gender employment platform ;
run;
```

/* Looking at the above results we can easily see that our data consists of more males than females and more students than employees. We can use this fact to help our analysis later on. Since, we don't have an even count of frequencies in our categories we will use the average across each category to analyze our data.

One thing the above plot does prove however, is that people prefer playing video games on PC rather than XBOX or PlayStation.*/

/* Part 3: Analysis

We now want to see how gender and type of employment affect time spent playing games, for this reason

we will draw a graph that groups our data first by gender and then by employment type, and then creates a bar graph to see how much each of these subgroupings spends time playing video games on average.

```
*/
proc gchart data=survey;
Title "Time each subgroup spends playing video games on average (Figure 6)";
vbar gender / subgroup=employment type=mean sumvar=hours_spent_gaming;
run;
```

/* From the above graph we can clearly see that Males on average spend more time playing video games than females.

However it also implies that employees of either type spend more time playing video games than students. In order to analyse this better and to figure out whether part time employees or full time employees spend more time playing video games, we will draw two different scatter plots and then means tables to see how our data is distributed (so we can) disregard outliers if any and then use the median value to reach a conclusion as to which gender and which employment type spends the most time playing video games.

```
*/
Symbol1 v= o color=red;
symbol2 v= x color=blue;
proc gplot data=survey;
Title "Scatter Plot of hours against Age for genders (Figure 7)";
plot hours_spent_gaming*age = gender;
run;
```

```
/* This plot shows us the distribution of males and females and the time they spent playing
videoe games. It shows us a few outliers and implies that males within the age range of
15-25 spend alot more time gaming than women of the same age range do. These men spend
around 5 to 30 hours gaming per week, whereas women only spend 0 to 5 hours per week. */
```

```
/* To confirm the above implication, we plot the average time both males and females spend
playing video games */
```

```
proc sort data=survey;
```

```
by gender;
```

```
run;
```

```
proc means data=survey median;
```

```
Title "Average Time spent playing video games by gender (Figure 8)";
```

```
by gender;
```

```
run;
```

```
/* From the above results we can easily conculde that on average men, spend more time playing
video games than women do. */
```

```
Symbol1 v= o color=red;
```

```
symbol2 v= x color=blue;
```

```
symbol3 v= dot color=green;
```

```
proc gplot data=survey;
```

```
Title "Hours Spent Gaming against Age by employment (Figure 9)";
```

```
plot hours_spent_gaming*age = employment;
```

```
run;
```

```
/* This plot implies that for the most part (disregarding the outliers), both students
and employees (whether part time or full time) spend a similar amount of time playing
video games. Also, as we saw in the previous plot, most people who play video games are
within the age range of 15-25. */
```

```
/* To check the implication of whether or not the above statement is true that both students and
employees (whether part time or full time) spend a similar amount of time playing video games, we
find the mean value of hours spent playing games for students and both employment types */
```

```
proc sort data=survey;
```

```
by employment;
```

```
run;
```

```
proc means data=survey median;
```

```
Title "Average Time spent playing video games by employment (Figure 10)";
```

```
by employment;
```

```
run;
```

```
/*After looking at the above results, we actually see that employees on average spend more
time playing video games than students and that Part - time Employees Spend more time playing
than full time ones but the difference between the two employee types is minimal. */
```

```
/* Now finally to check whether age effects time spent playing video games, we find the
median time spent playing video games for each age group */
```

```
proc gchart data=survey;
```

```
Title "Time Spent playing video games by ages (Figure 11)";
```

```
vbar age / subgroup= gender type=mean sumvar=hours_spent_gaming;
```

```
run;
```

```
/* Looking at the above results it seems like age does not effect how much time is spent playing
video games as the above plot shows that the time spent playing video games is similar in
most age groups in our data, except the last one but that may be because of outliers and because
the age group in our data set is heavily centered around 20-30 years. This plot also
shows us that men spend alot more time playing video games than women, a conclusion we
reached before. */
```

```
/* To confirm the above implication of age not effect playing time we see the median playing
time for each age group */
```

```
proc sort data=survey;
```

```
by age;
```

```
run;
```

```
proc means data=survey median;
```

```
Title "Average Time spent playing video games by age group (Figure 12)";
by age;
format age agegrp.;
run;
/* Again the medians in each age group are close together, so in general we can say that age does
not effect the time spent playing video games */

/* The different Conclusions, We can reach from the plots and the descriptions above.
1. People prefer playing video games on PC rather tha XBOX or PlayStation (Refer to figure 5).
2. Men spend a lot more time playing video games than women do (Refer to Figures 7,8 and 11).
3. Employees on average spend more time playing video games than students and that
Part-time Employees Spend more time playing than full time ones. (Reger to Figures 9 and 10)
4. Age does not effect time spent playing video games (Refer to Figures 11 and 12).
More conclusions:
5. People within the age range 15-25 spend the most time playing video games (mostly men).
6. Part time employees spend the most time playing video games per week (15 hours on avg).
7. Most people play video games on a PC. The ones who don't are equally likely to play on
either an XBOX or a PlayStation.

FINAL CONCLUSION/MAIN RESULT/MAIN ANSWER:
Hence, looking at all of the above conclusions we can answer our question:
Gender and Employment DO affect the time spent playing video games but Age does NOT.
People of all ages spend a similar amount of time playing video games.

Bringing all of our conclusions together we can see that:
Part-Time Employees, who are 15 to 25 year olds are the most likely to play video games
and they spend between 5 to 30 hours gaming every week, probably on a PC.

*/
```