# Assignment3 Report

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## STAT1378 Project Report

## Investigating Relationship Between Height and Weight Between Human Males and Females

### Introduction

The purpose of this analysis is to find if a correlation exists between height and weight of all kinds of people. If a correlation is found, we can determine that there is some biological reasoning for this relationship and be able to accurately predict the healthy weight of individuals from their height.

### Data

The data, project.csv, was provided by the unit. The data was sampled out of a random selection of men and women aged between 26-45.

The data contains 1000 entries that contain the columns as follows:

- ID - A unique identifier for the entry
- gender - Gender of the entry, between 'Male' and 'Female'.
- height - Height of the entry, recorded in cm of two decimal places.
- weight - Weight of the entry, recorded in kg of two decimal places.
- phys - The level of physical activity the entry does, between 'None', 'Moderate', and 'Intense'.

Summary of the data set:

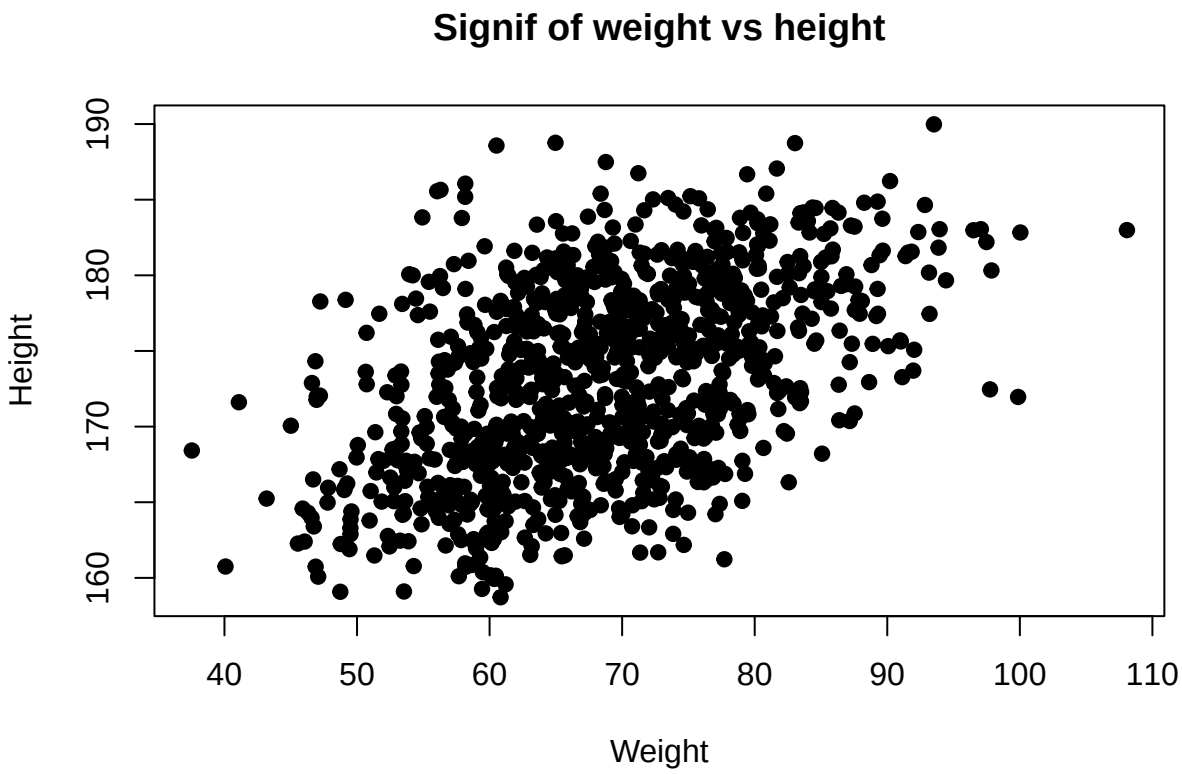
```
##       ID              gender             height          weight      
##  Length:1000        Length:1000        Min.   :158.7   Min.   : 37.54  
##  Class :character   Class :character   1st Qu.:167.9   1st Qu.: 61.08  
##  Mode  :character   Mode  :character   Median :173.2   Median : 68.17  
##                                        Mean   :173.1   Mean   : 68.56  
##                                        3rd Qu.:178.2   3rd Qu.: 75.75  
##                                        Max.   :190.0   Max.   :108.08  
##      phys          
##  Length:1000        
##  Class :character   
##  Mode  :character   
##                     
##                     
##
```

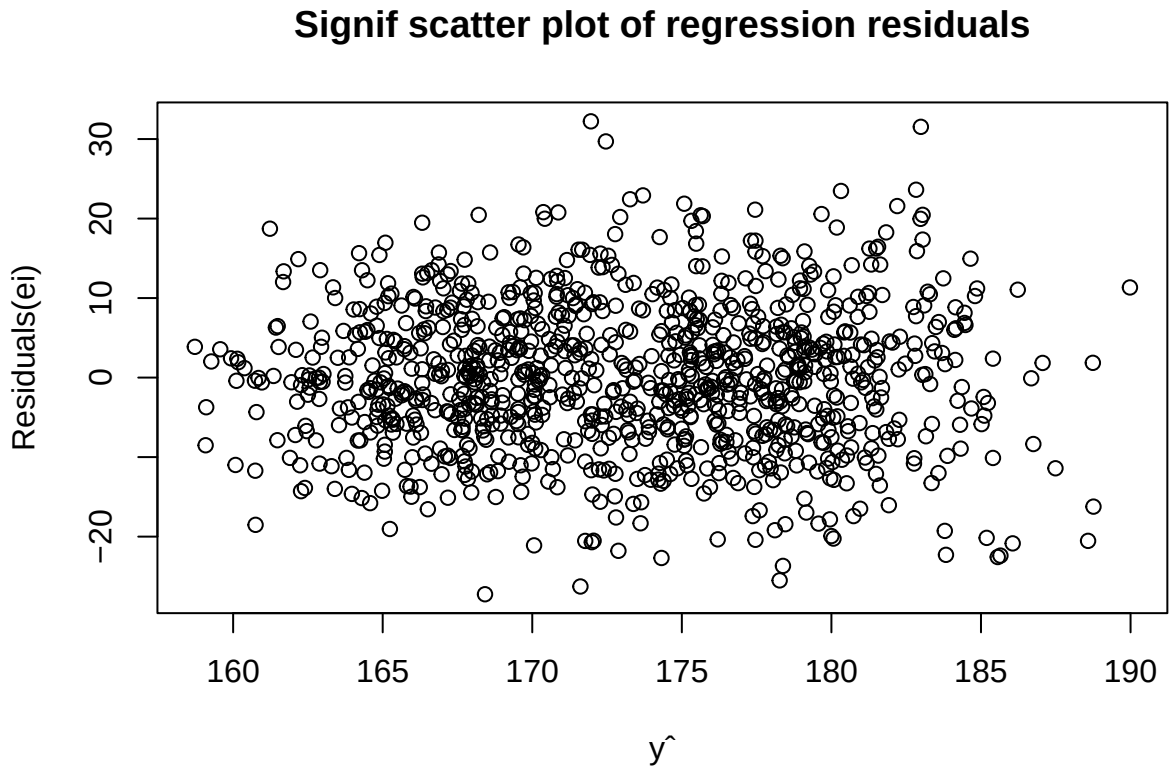
Summary of Females only from data set:

```
##       ID                gender              height          weight
##  Length:493         Length:493         Min.   :158.7   Min.   :37.54
##  Class :character   Class :character   1st Qu.:165.3   1st Qu.:58.19
##  Mode  :character   Mode  :character   Median :167.9   Median :64.14
##                                        Mean   :168.1   Mean   :64.60
##                                        3rd Qu.:170.6   3rd Qu.:71.04
##                                        Max.   :181.2   Max.   :99.87
##      phys
##  Length:493
##  Class :character
##  Mode  :character
##
##
##
```

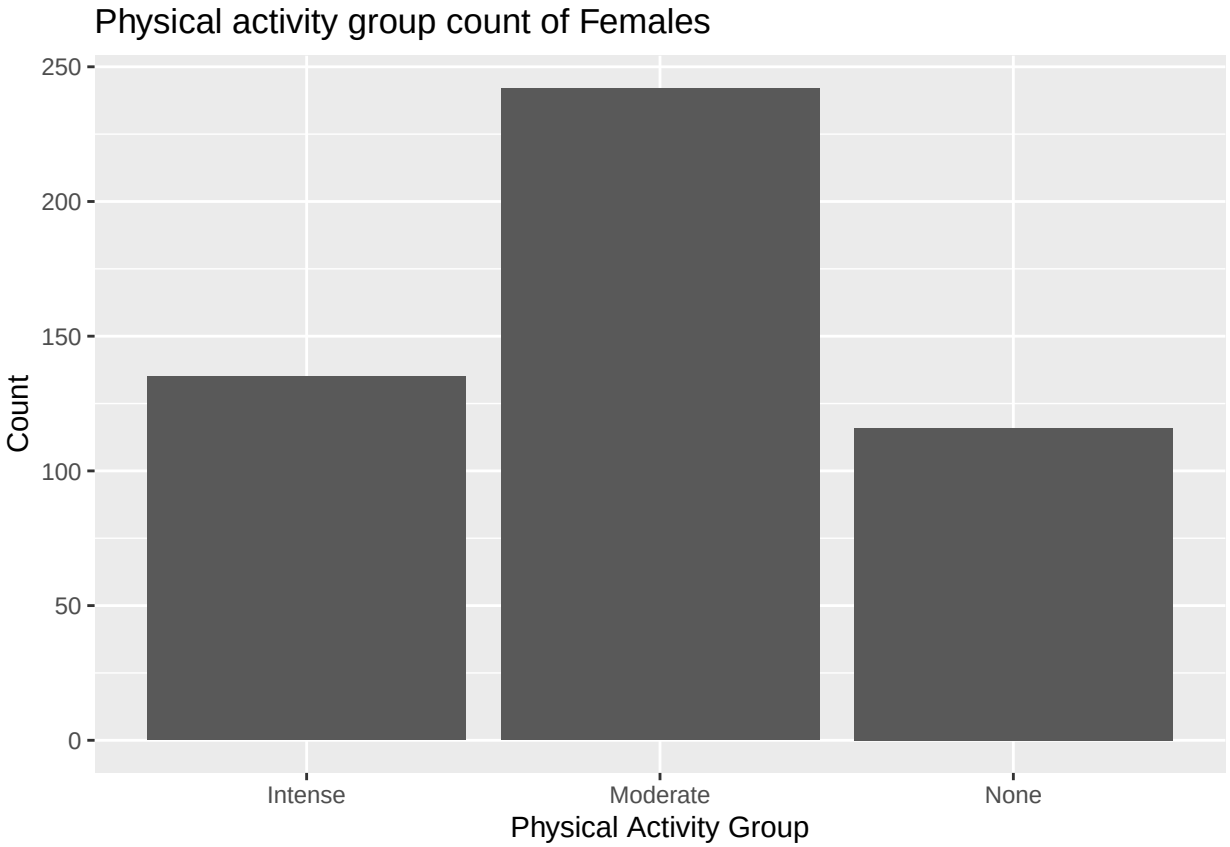
Summary of Males only from data set:

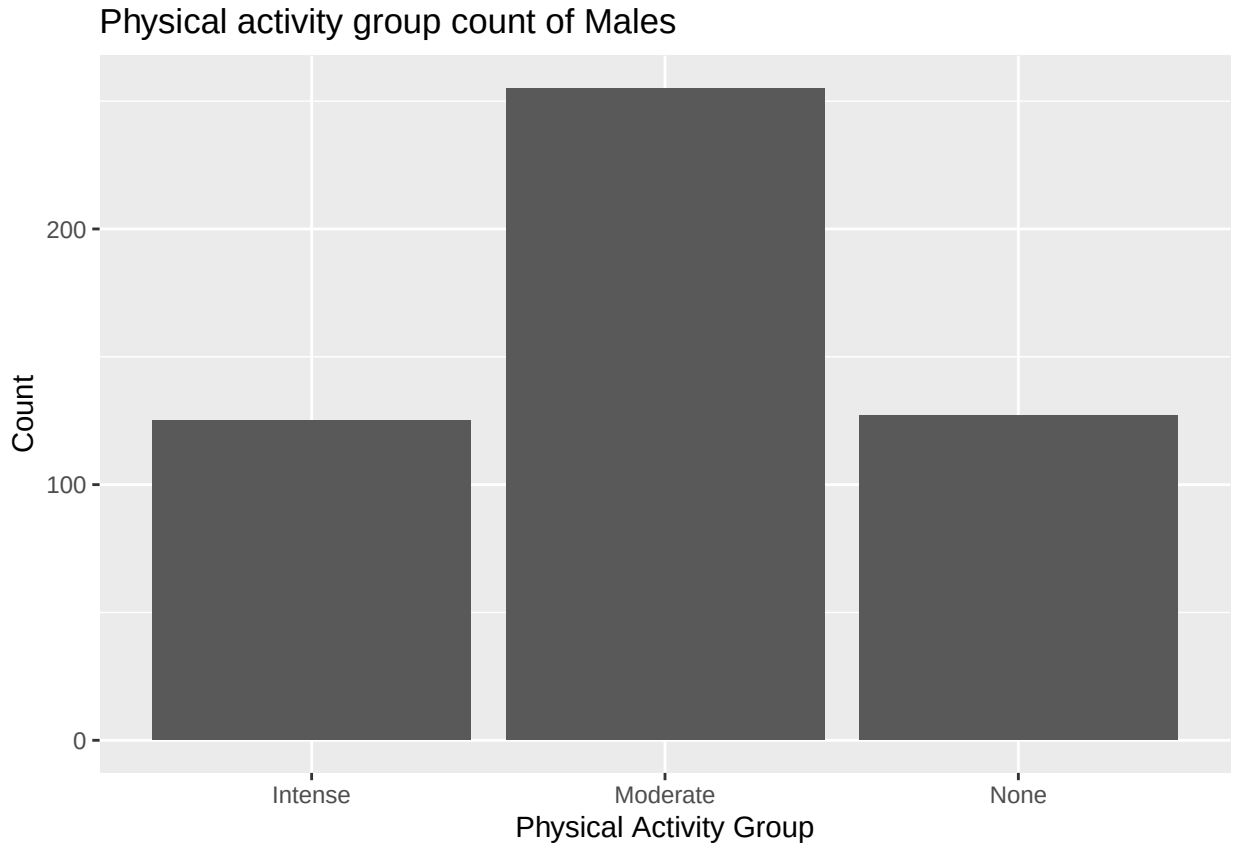
```
##       ID                gender              height          weight
##  Length:507         Length:507         Min.   :165.0   Min.   : 46.60
##  Class :character   Class :character   1st Qu.:175.3   1st Qu.: 65.55
##  Mode  :character   Mode  :character   Median :178.1   Median : 72.10
##                                        Mean   :178.0   Mean   : 72.41
##                                        3rd Qu.:180.5   3rd Qu.: 78.82
##                                        Max.   :190.0   Max.   :108.08
##      phys
##  Length:507
##  Class :character
##  Mode  :character
##
##
##
```


Signif of weight vs height
Height
160
170
180
190
40
50
60
70
80
90
100
110
Weight




```
##
##  Welch Two Sample t-test
##
## data:  data$weight and data$height
## t = -270.33, df = 1640.4, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  -105.2925 -103.7756
## sample estimates:
## mean of x mean of y
##  68.55567 173.08970
```


Physical activity group count of Females
250
200
150
100
50
0
Count
Intense
Moderate
None
Physical Activity Group




```
##
##  Pearson's product-moment correlation
##
## data:  data.phys$females and data.phys$males
## t = 6.4532, df = 1, p-value = 0.09787
## alternative hypothesis: true correlation is not equal to 0
## sample estimates:
##       cor
## 0.9882056

##
##  Pearson's Chi-squared test
##
## data:  data.phys$females and data.phys$males
## X-squared = 6, df = 4, p-value = 0.1991
```

## Methods

## Results

### Relationship Between Height and Weight

### Mean Height Between Male and Female

```
## [1] "The mean height of males and females are not the same."
```

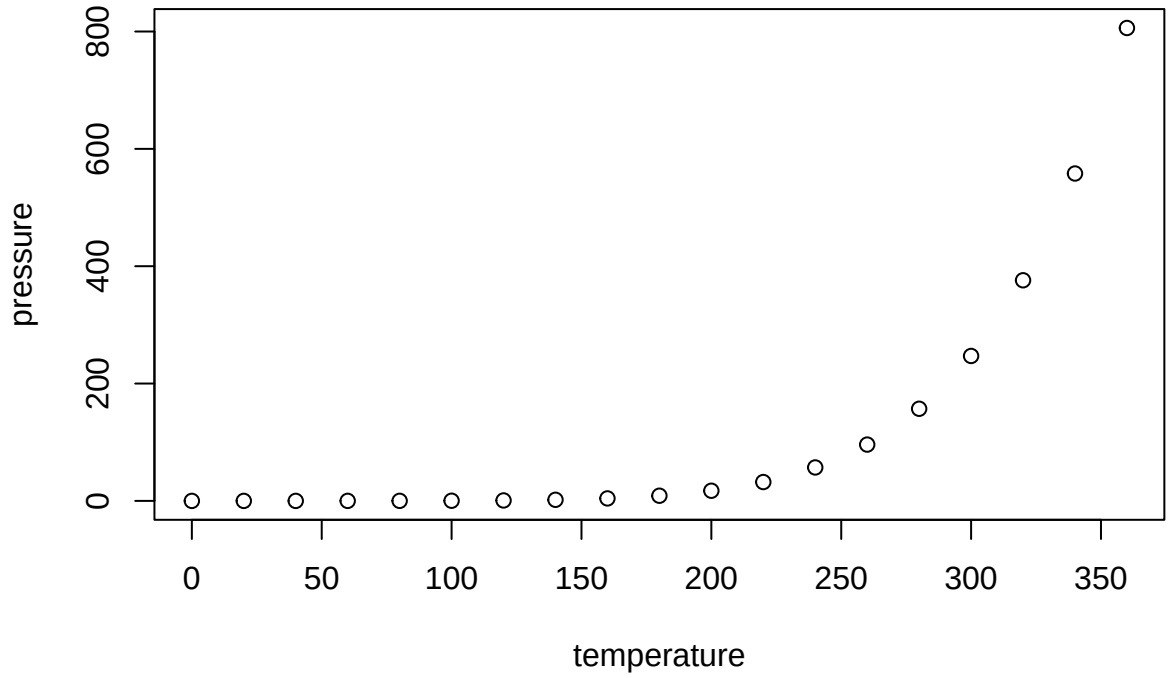
**Association Between Gender and the Amount of Physical Activity**

```
## The p value is greater than the significance value of 0.05, therefore the null
## hypothesis cannot be rejected. This means we can support the null hypothesis and that
## there is no correlation between gender and amount of physical activity.
```

## Conclusion/Discussion

## Including Plots

You can also embed plots, for example:




Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.