Stat*3240, Assignment 1
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Q2

```
set.seed(2019-09-19)
dir = "C:\\Users\\...\\Applied Regression Analysis\\"
file1 = "3240_F19_A1_grip.csv"
dfGrip = read.table(file=paste(dir,file1, sep=""), header=TRUE, sep=',')
```

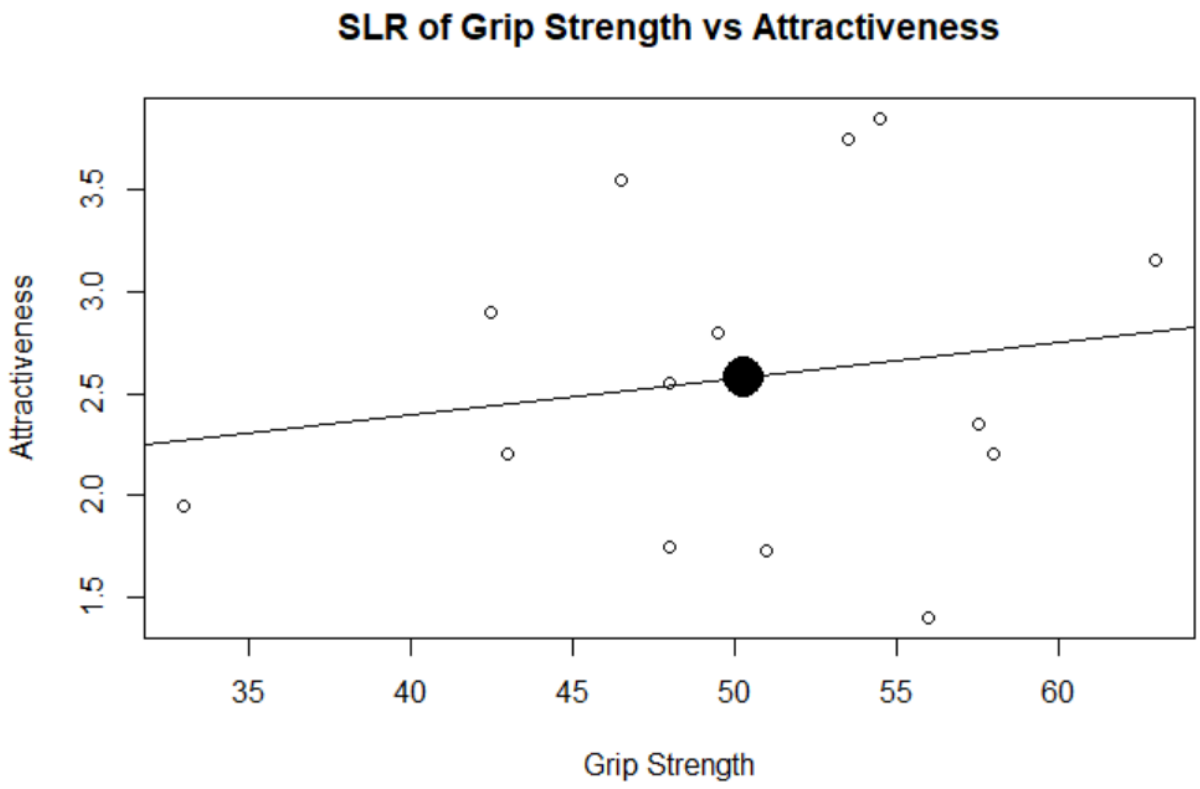
a)

```
lmGrip = lm(dfGrip$attractiveness~dfGrip$grip)
```

```
Call:
lm(formula = dfGrip$attractiveness ~ dfGrip$grip)

Residuals:
    Min      1Q  Median      3Q     Max
-1.2821 -0.4779 -0.1208  0.4290  1.1945

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  1.68829    1.46498   1.152    0.272
dfGrip$grip  0.01775    0.02882   0.616    0.550

Residual standard error: 0.801 on 12 degrees of freedom
Multiple R-squared:  0.03063,   Adjusted R-squared:  -0.05015
F-statistic: 0.3792 on 1 and 12 DF,  p-value: 0.5495
```

b)

```
plot(dfGrip$grip,dfGrip$attractiveness)
abline(lmGrip)
points(mean(dfGrip$grip),mean(dfGrip$attractiveness),pch=16,cex=3)
```



c)
Threshold t-value = qt(0.975, df = 33) = 2.1788

We are testing to see if there exists a linear relationship between Attractiveness and Grip Strength. If there is no relationship, we will have a flat regression line with a slope of zero. So, we set this as our null hypothesis.

Ho: B1 = 0	- null hypothesis:	predicted slope, B1 is equal to 0
Ha: B1 =/= 0	- alternative hypothesis:	predicted slope, B1, is not equal to 0

At a 5% significance, our threshold t-value for a two tailed test with 12 degrees of freedom is 2.1788. Since the t-value from our observations is 0.05 - which is greater than threshold t-value - we do not reject our null hypothesis. It can also be said that because our p-value of 0.55 is greater than our alpha of 0.05, we do not reject the null hypothesis. In conclusion, there is insufficient evidence to show that as one’s grip strength increases one's attractiveness tends to increase.