Assignment 4

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Loading/installing necessary packages:

```
options(repos = c(CRAN = "https://cran.rstudio.com/"))
library(dplyr)
library(ggplot2)
library(ggpmisc)
```

Loading dataset & indexing to only display length & weight data:

```
troutdata <- read.csv("siscowet.csv")
troutdata %>%
  select(7,8) -> lenwgt
```

Linear regression:

```
lw <- lm(lenwgt$len ~ lenwgt$wgt)
summary(lw)
```

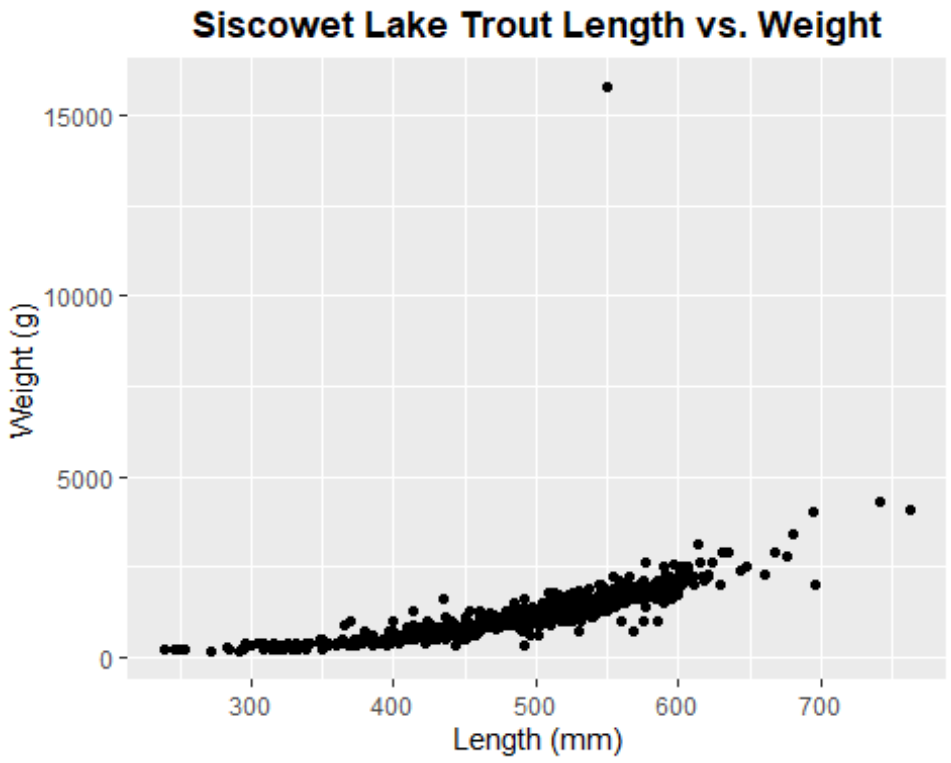
```
##
## Call:
## lm(formula = lenwgt$len ~ lenwgt$wgt)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -904.84  -17.31    8.07   29.33  153.29
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) 4.094e+02  3.572e+00  114.62   <2e-16 ***
## lenwgt$wgt  6.617e-02  2.542e-03   26.03   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 54.65 on 777 degrees of freedom
##   (1 observation deleted due to missingness)
## Multiple R-squared:  0.4658, Adjusted R-squared:  0.4651
## F-statistic: 677.4 on 1 and 777 DF,  p-value: < 2.2e-16
```

Creating exploratory figure:

```
explor <- ggplot(lenwgt, mapping=aes(x=len, y=wgt)) + geom_point() +
labs(x="Length (mm)", y="Weight (g)", title="Siscowet Lake Trout Length vs.
Weight")+
theme(plot.title = element_text(hjust = 0.5, face="bold"))
```

Showing figure:

```
explor
```

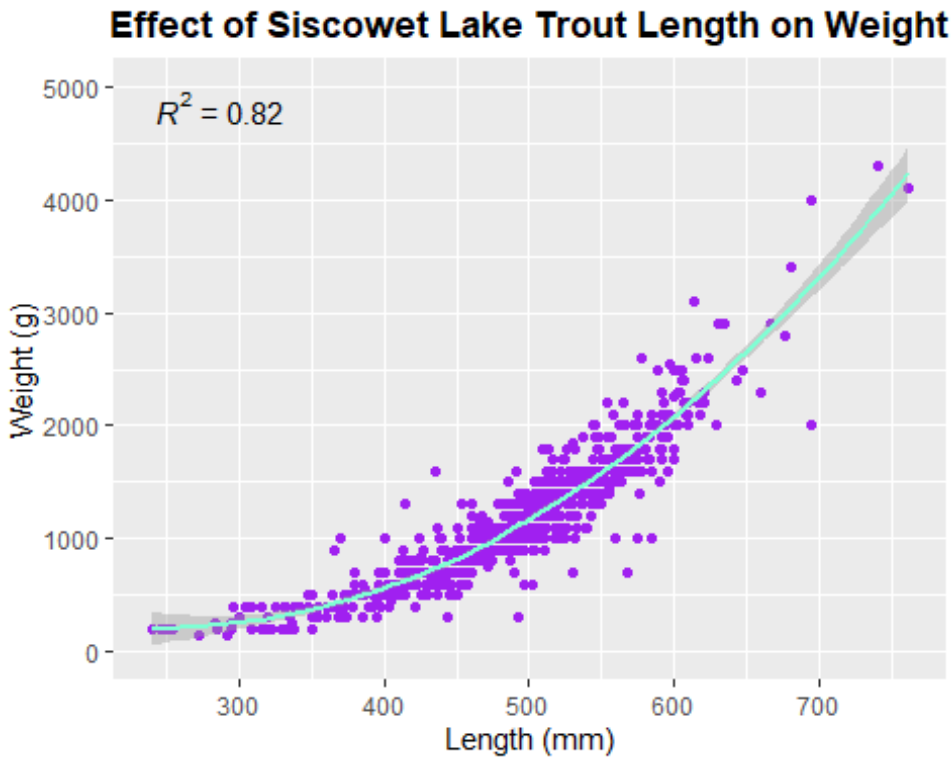


Creating expository figure:

```
exposit <- ggplot(lenwgt, mapping=aes(x=len, y=wgt)) +
geom_point(color="purple") +
geom_smooth(color="aquamarine")+ ylim(0,5000) +
labs(x="Length (mm)", y="Weight (g)", title="Effect of Siscowet Lake Trout
Length on Weight")+
theme(plot.title = element_text(hjust = 0.5, face="bold"))+
stat_poly_eq()
```

Showing figure:

```
exposit
```


Effect of Siscowet Lake Trout Length on Weight
R^2 = 0.82
Weight (g)
5000
4000
3000
2000
1000
0
300
400
500
600
700
Length (mm)