Assignment 5
FISH 549

Marcela Todd Zaragoza

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Intructions

Use the provided dataset to begin by creating an exploratory figure you'd like about any aspect of the data, and create an expository figure that builds upon your original figure.

Your figure can include some aspect of data anlysis (eg, linear regression), but there is no requirement for you to do so. You can use either base graphics or ggplot2 to complete this assignment.

Please make sure to take into consideration the concepts we discussed in class with respect to color palettes and accessibility.

Load the required packages

```
#Getting an idea of what some of the data look like

data <- SiscowetMI2004
str(data)
```

```
## 'data.frame':    780 obs. of  8 variables:
##  $ locID : Factor w/ 4 levels "Blind Sucker",..: 2 2 2 2 2 2 2 2 2 2 ...
##  $ pnldep: num  36.7 40.1 41.5 41.5 43.5 ...
##  $ mesh  : num  2.5 3 5 5 5.5 4 4 4 4 4.5 ...
##  $ fishID: int  19108 19109 19110 19111 19112 19113 19114 19115 19116 19117 ...
##  $ sex   : Factor w/ 2 levels "F","M": NA NA 2 2 NA 2 NA NA NA 1 ...
##  $ age   : int  NA NA NA NA NA NA NA NA NA NA ...
##  $ len   : int  316 396 590 516 414 481 600 494 545 522 ...
##  $ wgt   : int  400 700 1800 1500 800 1000 2500 1100 1600 1500 ...
```

```
#hist(data$len, col="orange", breaks=40)
#hist(data$wgt, col="blue", breaks=20)
```

Exploratory figure looking at length and weight of Siscowet Lake Trout

length vs weight
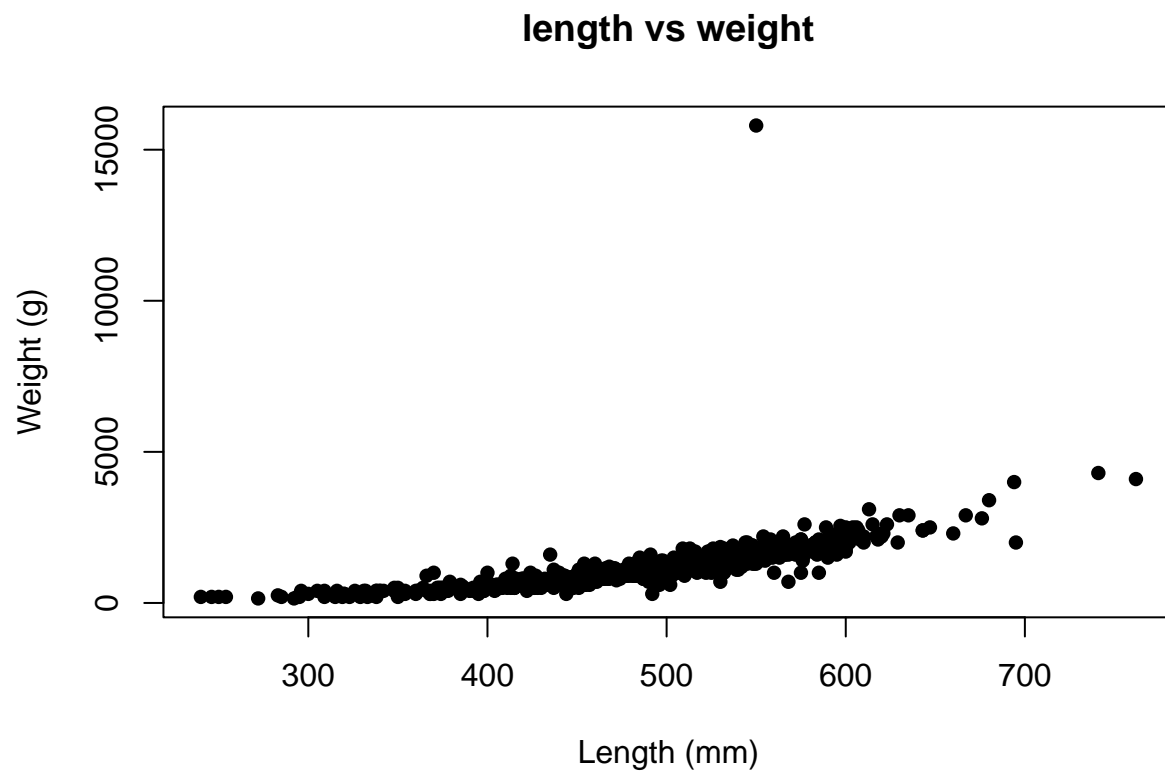
Expository Figure

I did not remove the outlier

```
#### Remove NAs and simplify the data frame name ####
data <- subset(x=SiscowetMI2004,
                 subset=!is.na(wgt) & !is.na(len))

#### log-transformed data ####
data$logL <- log(data$len)
data$logW <- log(data$wgt)

#### More data cleaning ####
data2 <- subset(x=data,
                 subset=logW >= -0.5)

#### Look at the subsetted data ####
#str(data2)

#### Running the linear model using the log-transformed data ####

lm1 <- lm(logW ~ logL, data=data2)
```
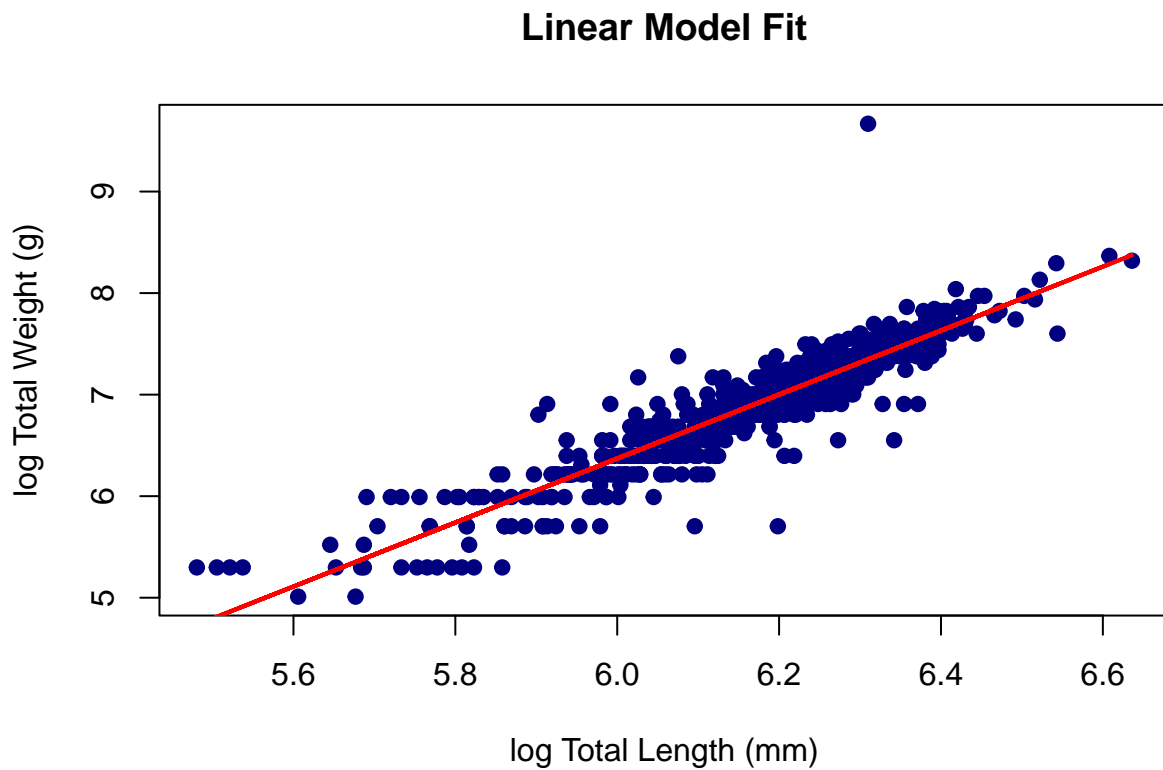
```
# Model output
# str(lm1)
# summary(lm1)
# confint(lm1)
# coef(lm1)

# Plot the observed data from the experiment
plot(x=data2$logL,
     y=data2$logW,
     xlab="log Total Length (mm)",
     ylab="log Total Weight (g)",
     pch=19,
     col="navy",
     main="Linear Model Fit")

lines(x=data2$logL,
      y=lm1$fitted.values,
      lwd=2,
      col="red")
```

Linear Model Fit


```
#plot(lm1)
```