Lab1-R

Clayton Glenn

January 18, 2018

Tasks

Task 1

Get Working Directory

```
getwd()
```

```
## [1] "C:/Users/cglen/Documents/Stat Methods/Labs/Stats Lab1"
```

Task 2

Read DDT into Data Frame Object

```
ddt <- read.csv("DDT.csv", header = TRUE)
head(ddt)
```

```
##   RIVER MILE  SPECIES LENGTH WEIGHT DDT
## 1   FCM    5 CCATFISH   42.5    732  10
## 2   FCM    5 CCATFISH   44.0    795  16
## 3   FCM    5 CCATFISH   41.5    547  23
## 4   FCM    5 CCATFISH   39.0    465  21
## 5   FCM    5 CCATFISH   50.5   1252  50
## 6   FCM    5 CCATFISH   52.0   1255 150
```

Task 3

What are the qualitative variables in "ddt"?

River and Species

What are the quantitative variables in "ddt"?

Mile, Length, Weight, and DDT

How many SPECIES are in the ddt data set?

3 Species

Subset of DDT With Large Mouth Bass and Weight > 800

```
lmb800 <- subset(ddt, (SPECIES=="LMBASS" & WEIGHT > 800))
show(lmb800)
```

```
##     RIVER MILE SPECIES LENGTH WEIGHT DDT
## 141   TRM  345  LMBASS     30    856 2.2
## 144   TRM  345  LMBASS     36   1433 1.9
```

Subset of DDT With SCM and DDT > 4.0

```
scmddt <- subset(ddt, (RIVER=="SCM" & DDT > 4.0))
show(scmddt)
```

```
##     RIVER MILE  SPECIES LENGTH WEIGHT DDT
## 16    SCM    1 CCATFISH     45    984 9.1
## 17    SCM    1 CCATFISH     43    965 7.8
## 18    SCM    1 CCATFISH     45   1084 4.1
```
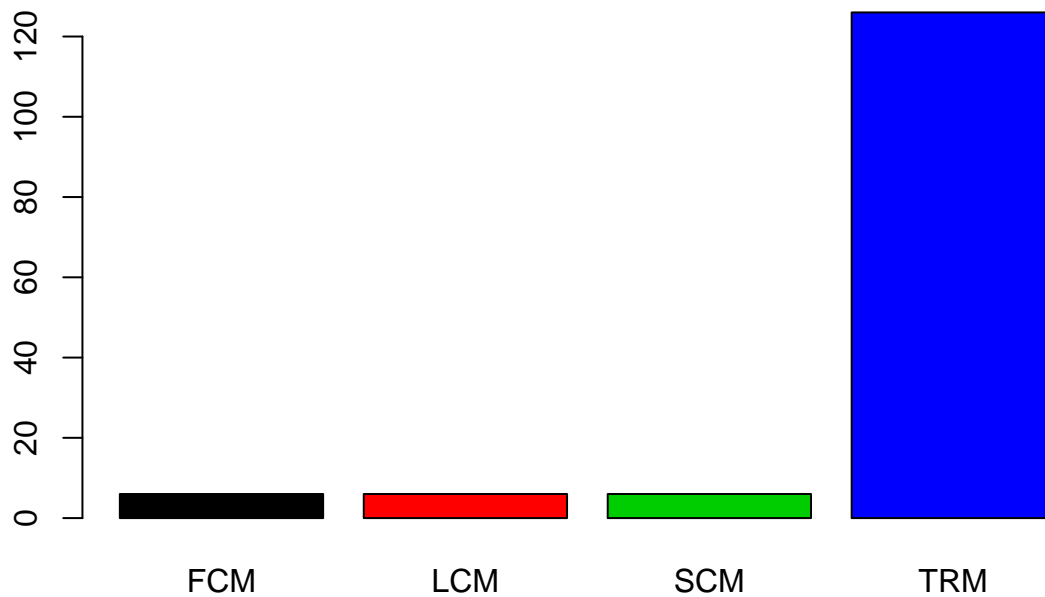
Task 4

Table of Rivers

```
rT <- with(ddt, table(RIVER))
show(rT)
```

```
## RIVER
## FCM LCM SCM TRM
##   6   6   6 126
```

Barplot of Rivers

```
rB <- barplot(rT, beside=TRUE, col=1:4)
```

```
show(rB)
```

```
##      [,1]
## [1,]  0.7
## [2,]  1.9
## [3,]  3.1
## [4,]  4.3
```
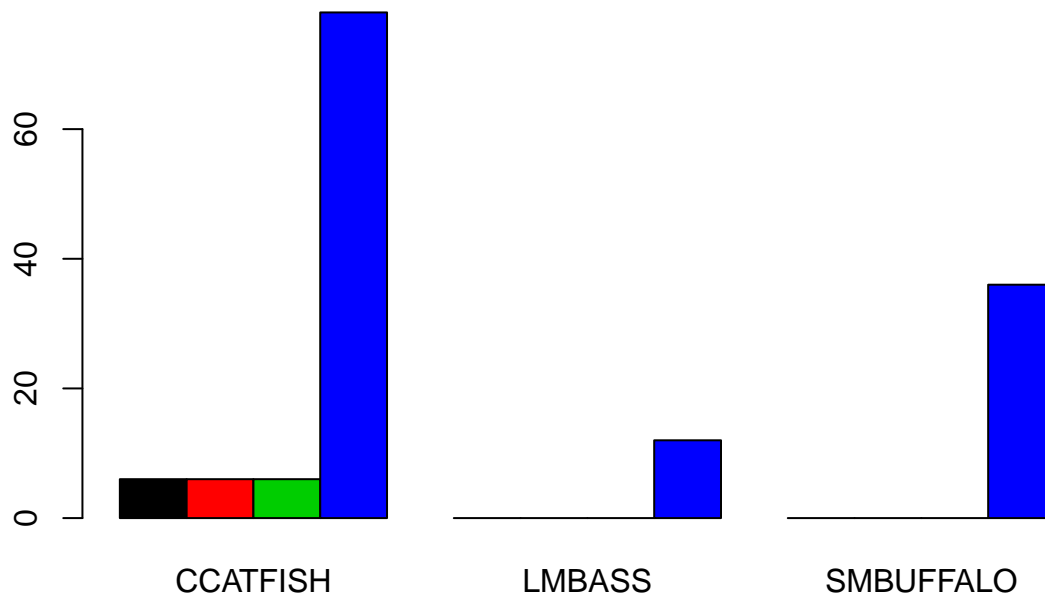
Table of Rivers Crossed With Species

```
rsT <- with(ddt, table(RIVER, SPECIES))
show(rsT)
```

```
##      SPECIES
## RIVER CCATFISH LMBASS SMBUFFALO
##   FCM        6      0         0
##   LCM        6      0         0
##   SCM        6      0         0
##   TRM       78     12        36
```

Barplot of Rivers Crossed With Species

```
rcsB <- barplot(rsT, beside=TRUE, col=1:4)
```
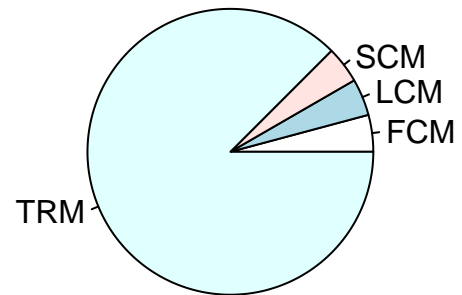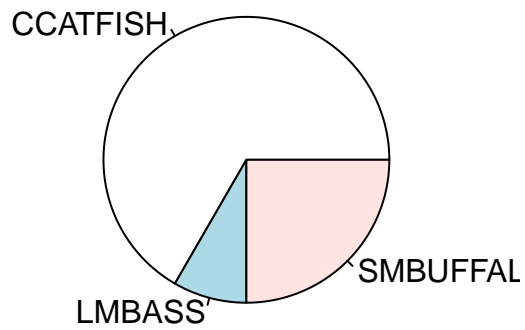
```
show(rcsB)
```

```
##      [,1] [,2] [,3]
## [1,]  1.5  6.5 11.5
## [2,]  2.5  7.5 12.5
## [3,]  3.5  8.5 13.5
## [4,]  4.5  9.5 14.5
```
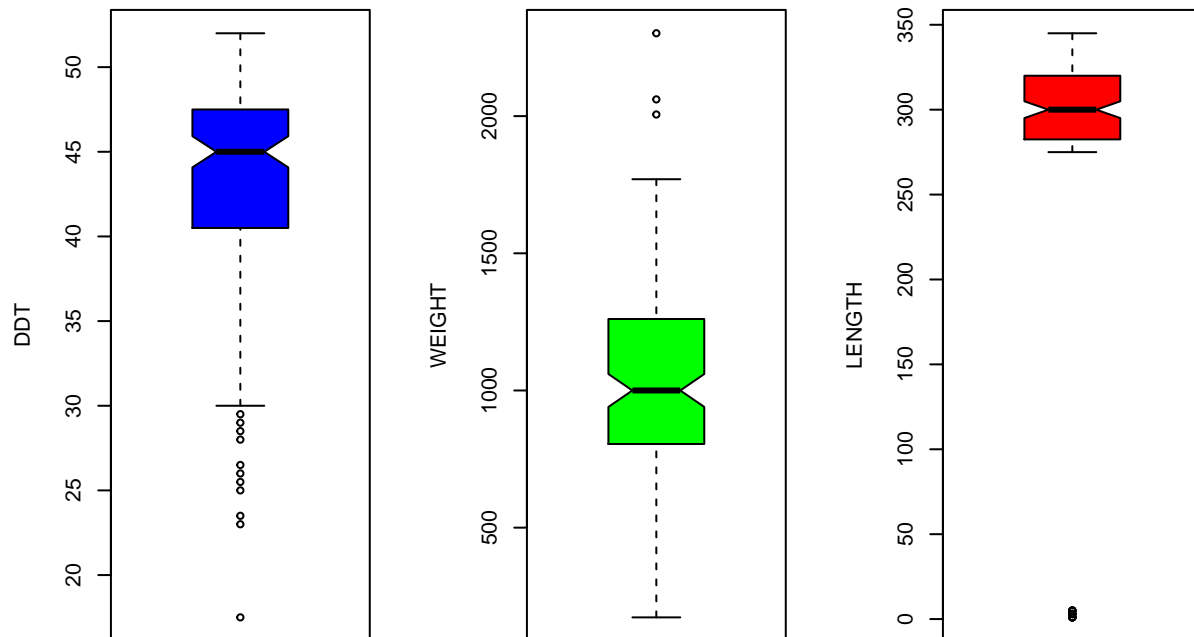
Task 5

PieCharts of Species and Rivers

```
sT <- with(ddt, table(SPECIES))
layout(matrix(c(1, 2),nr=1,nc=2))
pie(sT)
pie(rT)
```

Task 6

BoxPlots of DDT, Weight, and Length

```
layout(matrix(c(1,2,3),nr=1,nc=3))
with(ddt,boxplot(LENGTH,ylab="DDT",col="Blue",notch=TRUE))
with(ddt,boxplot(WEIGHT,ylab="WEIGHT",col="Green",notch=TRUE))
with(ddt,boxplot(MILE,ylab="LENGTH",col="Red",notch=TRUE))
```
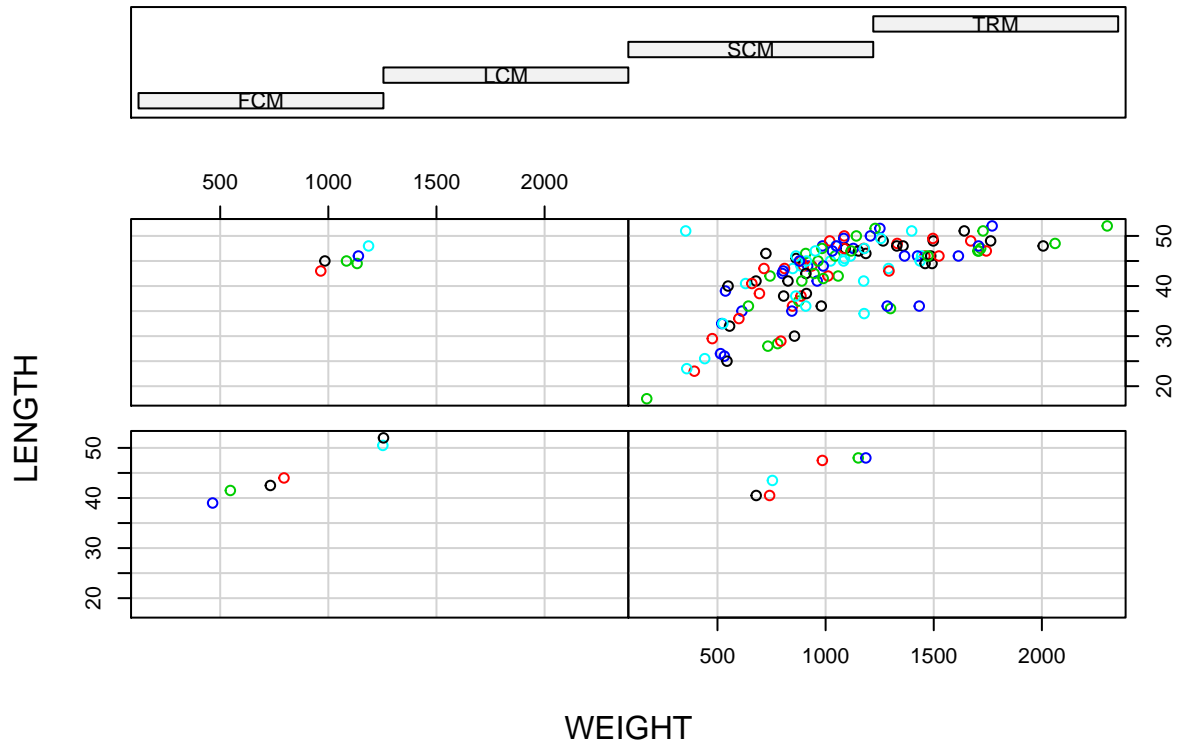
Task 7

Coplot of Length V Weight Given River

```
lwC <- coplot(LENGTH ~ WEIGHT | RIVER, ddt, col = 1:5)
```
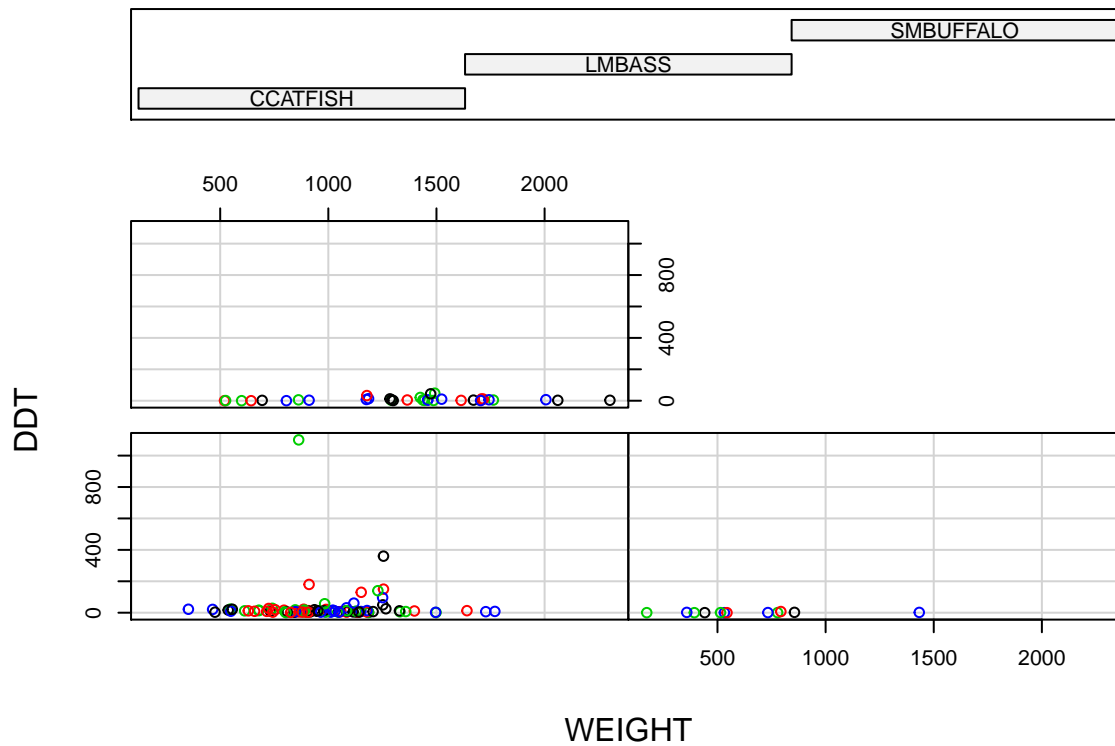
Given : RIVER

LENGTH

WEIGHT

Coplot of DDT V Weight Given Species

```r
dwC <- coplot(DDT ~ WEIGHT | SPECIES, ddt, col = 1:4)
```
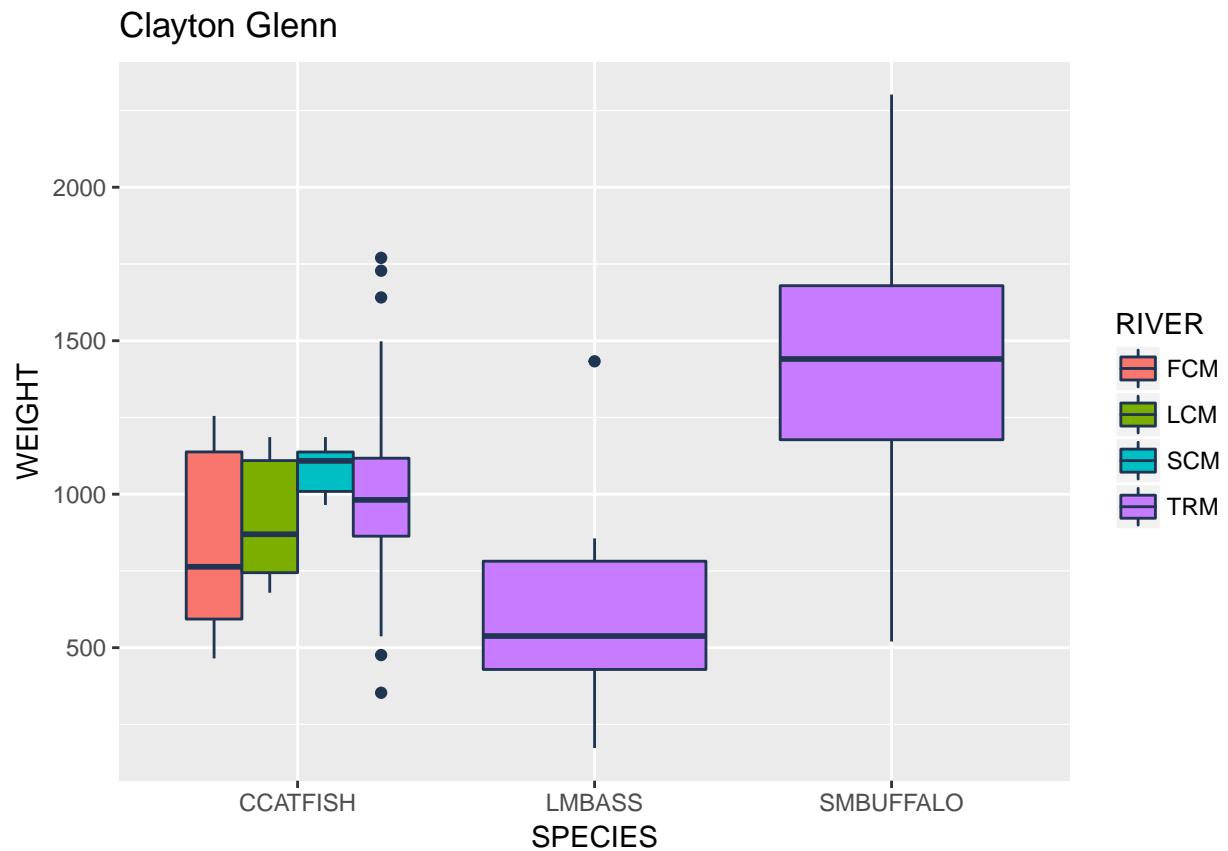
Given : SPECIES

## Task 8

ggplot Box Plot Given Species and Weight

```
library(ggplot2)
swgg <- ggplot(ddt, aes(x=SPECIES, y=WEIGHT, color=RIVER, fill = RIVER))
swgg <- swgg + geom_boxplot(colour = "#1F3552")
swgg <- swgg + ggtitle("Clayton Glenn")
show(swgg)
```

Clayton Glenn

Violin Plot given River and Length

```
library(ggplot2)
rlgg <- ggplot(ddt, aes(x=RIVER, y=LENGTH, color=SPECIES, fill = SPECIES))
rlgg <- rlgg + geom_violin(colour = "#1F3552")
rlgg <- rlgg + ggtitle("Clayton Glenn")
show(rlgg)
```
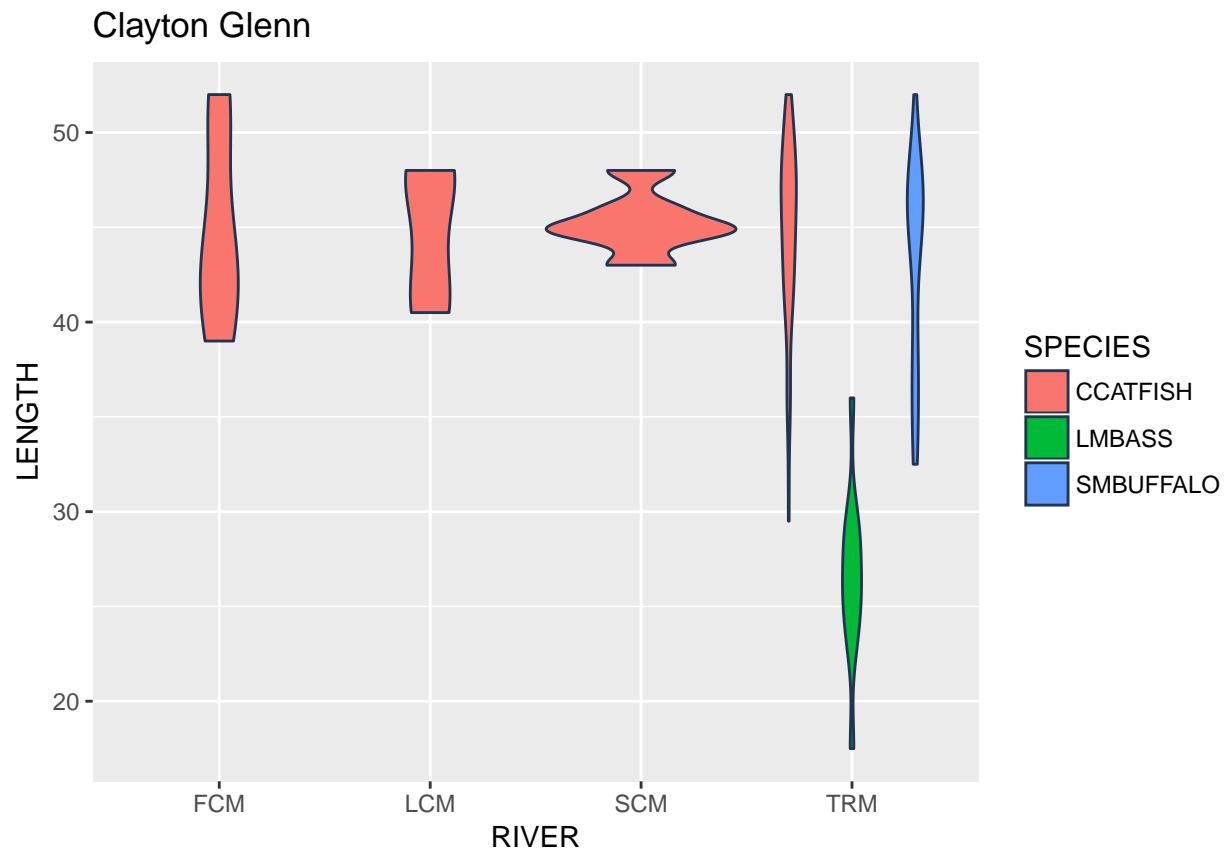
gg Scatter Plot given Weight and Length

```r
library(ggplot2)
ggplot(ddt, aes(x=WEIGHT, y=LENGTH, color=SPECIES, fill = SPECIES)) + geom_point() + ggtitle("Clayton G
```

Clayton Glenn

Clicker Questions

Length Mean

```r
mean(ddt$LENGTH)
```

```
## [1] 42.8125
```

Weight Standard Deviation

```r
sd(ddt$LENGTH)
```

```
## [1] 6.882093
```