# Lab 1

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## Contents



## Tasks

### Task 1

```
getwd()
```

```
## [1] "C:/Users/prith/OneDrive/Documents/MATH4753 FA18/Lab1"
```

### Task 2

```
ddt=read.csv("DDT.csv")
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

#### Task 3.1 Qualitative Variables

1. River
2. Species

### Task 3.2 Quantitative variables

1. Mile
2. Length
3. Weight
4. DDT

### Task 3.3 Number of Species

Number of Species = 3

### Task 3.4 Subset

```
with(ddt, ddt[WEIGHT>800 & SPECIES=="LMBASS",])
```

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

### Task 3.5 Subset River

```
with(ddt, ddt[DDT>4.0 & RIVER=="SCM",])
```

```
##    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
```

## Clicker Questions

### Q1

```
summary(ddt$LENGTH)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   17.50   40.50   45.00   42.81   47.50   52.00
```

Mean length of Fish = 42.81

### Q2

```
sd(ddt$WEIGHT)
```

```
## [1] 376.5461
```

Standard Deviation of weight = 376.5461

### Q3

2- No It is Weight vs Length Graph

### Q4 Value of last v/20

```
v=1:20
v/20
```

```
##  [1] 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.55 0.60 0.65 0.70
## [15] 0.75 0.80 0.85 0.90 0.95 1.00
```

## Task 4

### Task 4.1

```
table(ddt$RIVER)
```

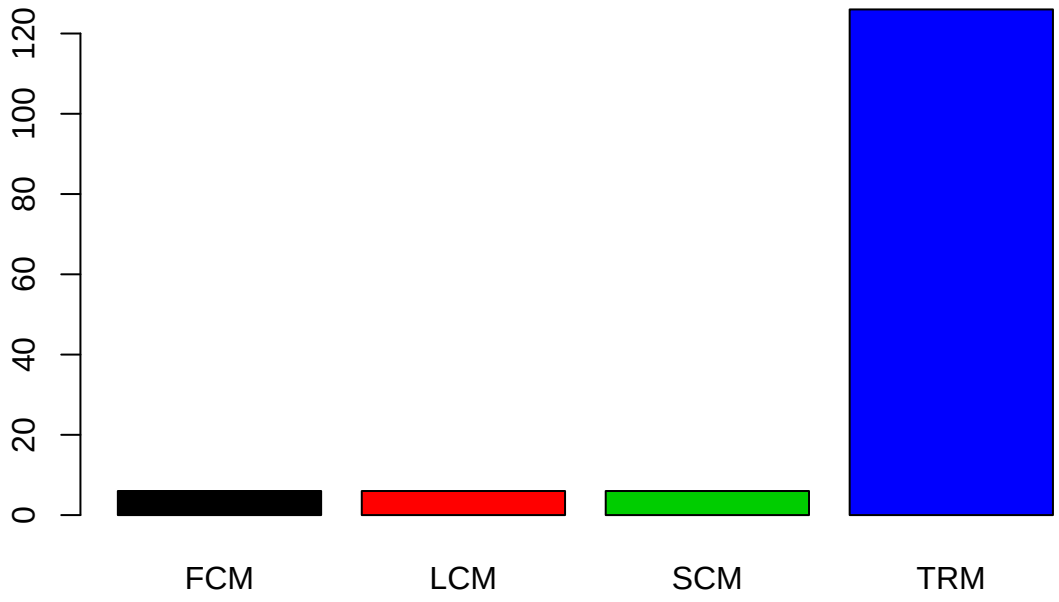
```
##
## FCM LCM SCM TRM
##   6   6   6 126
```

### Task 4.2

```
sp=with(ddt,table(RIVER))
sp
```

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

```
barplot(sp, beside=TRUE, col=1:4)
```




**Task 4.3 table of River vs Fish**

```
table(ddt$SPECIES,ddt$RIVER)
```

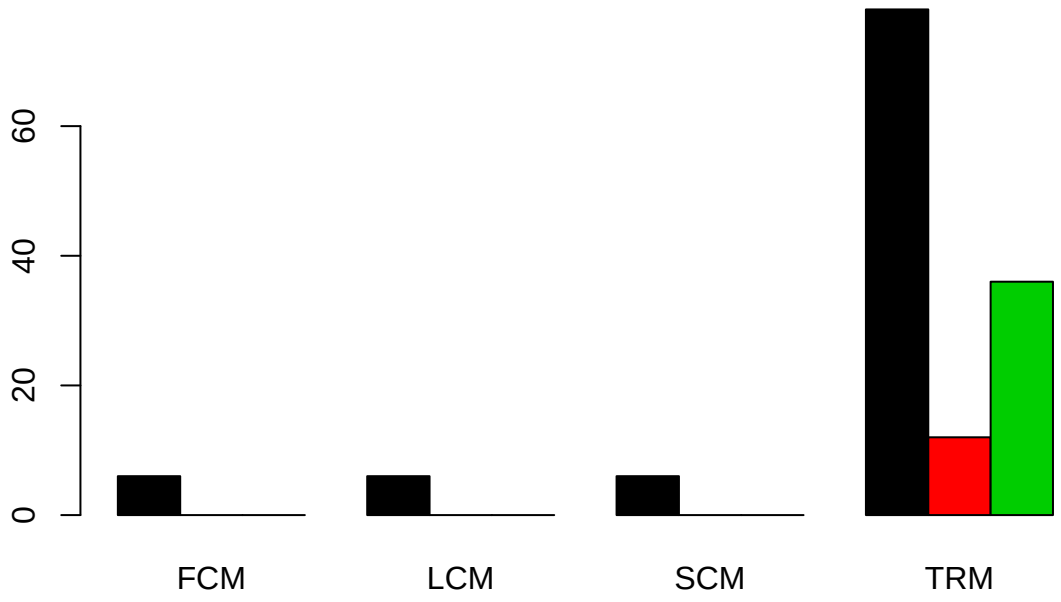
```
##
##              FCM LCM SCM TRM
##   CCATFISH    6   6   6  78
##   LMBASS      0   0   0  12
##   SMBUFFALO   0   0   0  36
```

**Task 4.4 Barplot of River vs Species**

```
spriv=with(ddt,table(SPECIES,RIVER))
spriv
```

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

```
barplot(spriv,beside=TRUE,col=1:3)
```



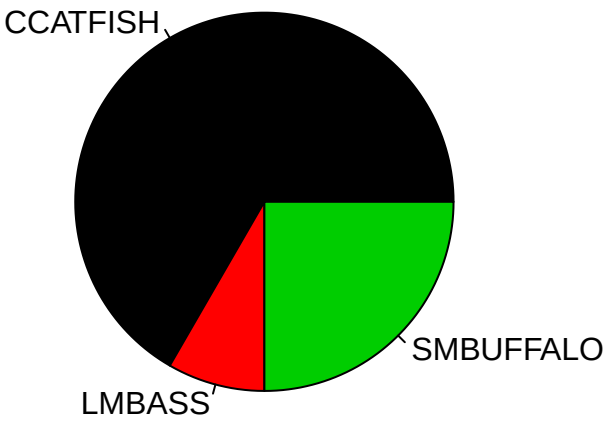

## Task 5

### Task 5.1 Pie of Species

```
sp=with(ddt,table(ddt$SPECIES))
sp
```

```
##
##  CCATFISH    LMBASS SMBUFFALO
##        96        12        36
```

```
pie(sp,col=1:3)
```

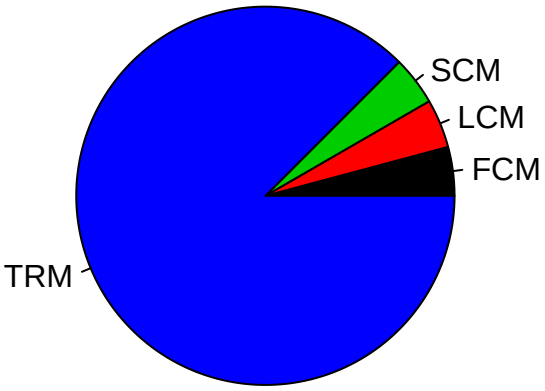



**Task 5.2 Pie of Rivers**

```
sp=with(ddt,table(ddt$RIVER))
sp
```

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

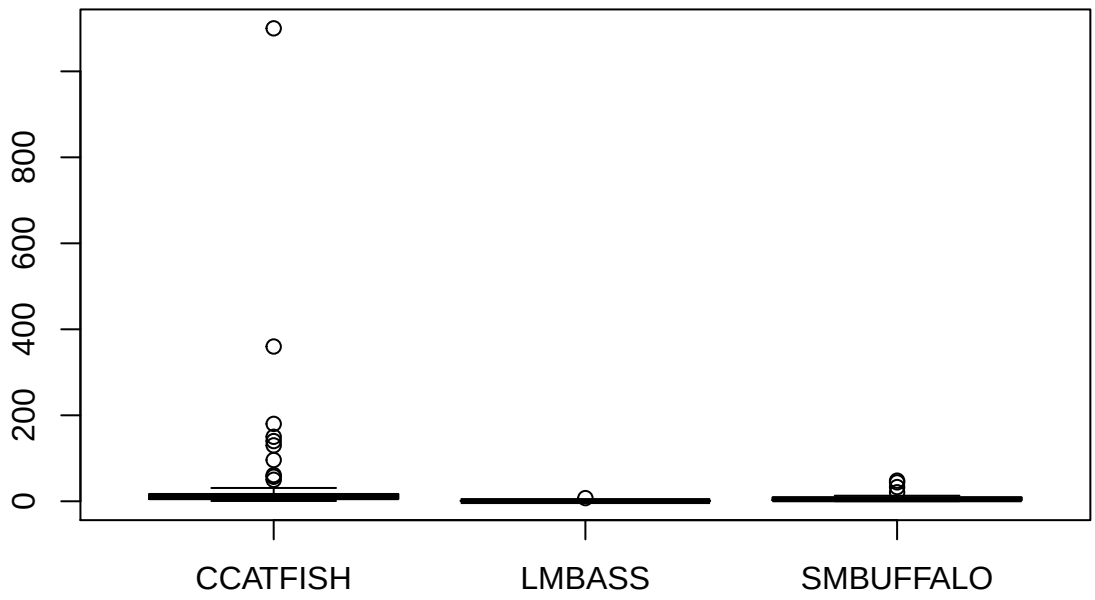
```
pie(sp,col=1:4)
```




## Task 6

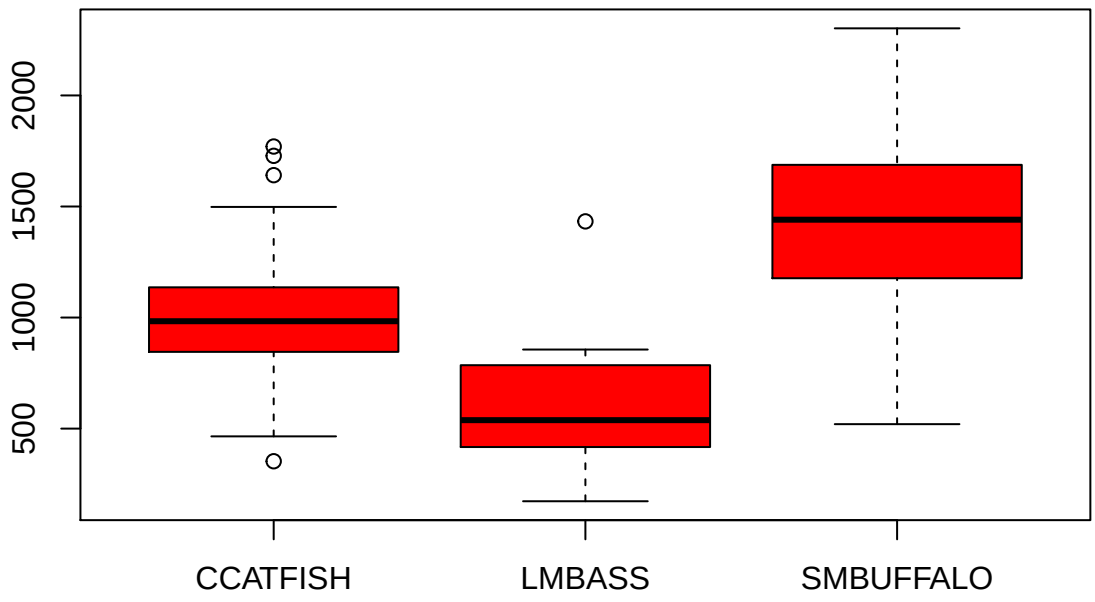
### Task 6.1 Boxplot DDT

```
boxplot(DDT~SPECIES,col="Blue",data=ddt)
```



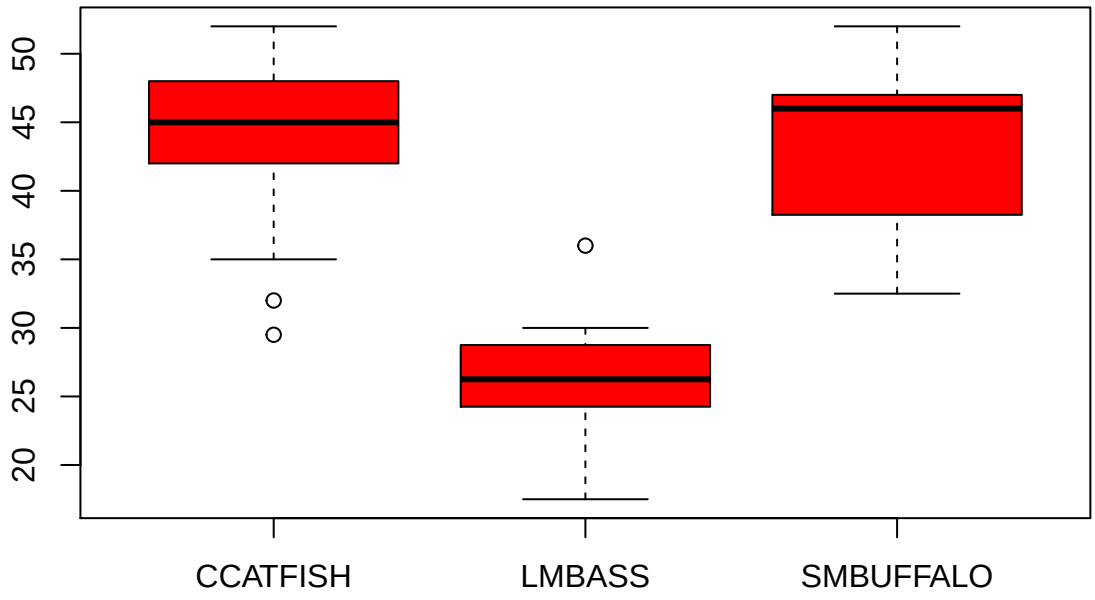

**Task 6.2 Boxplot Weight**

```
boxplot(WEIGHT~SPECIES,col="Red",data=ddt)
```




**Task 6.3 Boxplot Length**

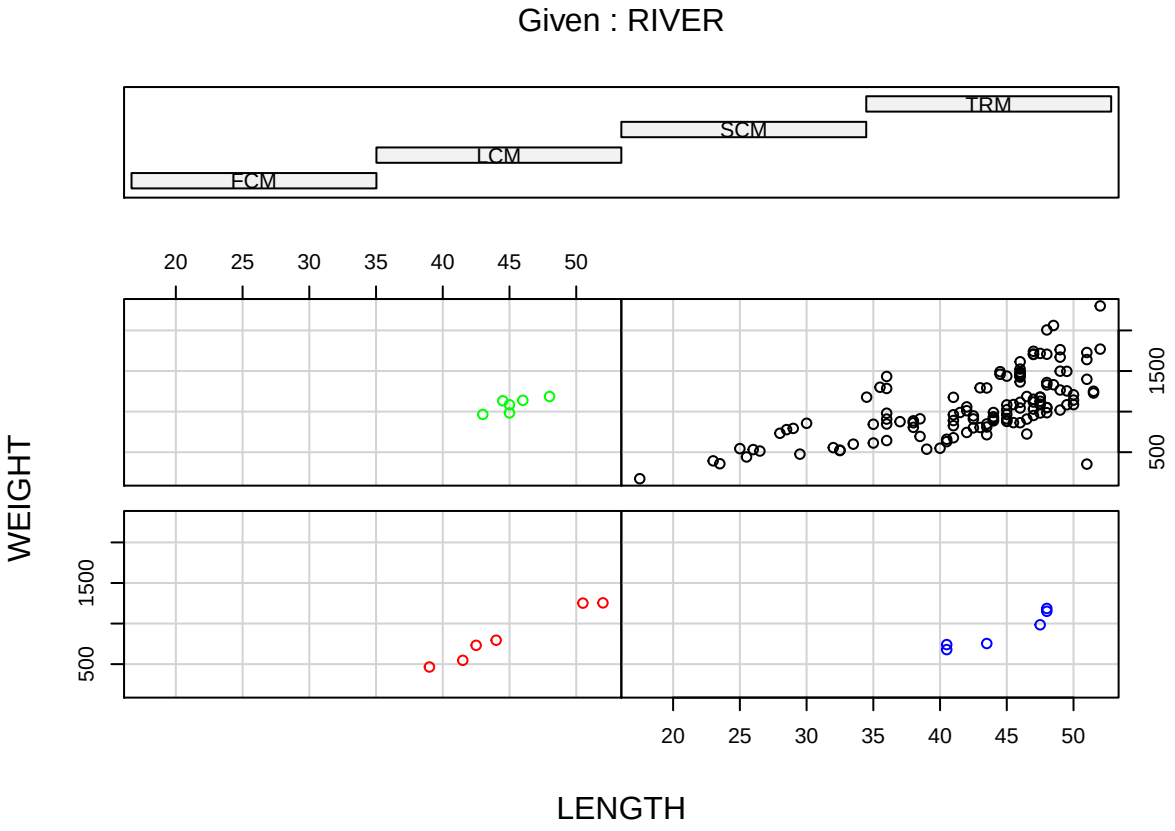
```
boxplot(LENGTH~SPECIES,col="Red",data=ddt)
```




## Task 7 Coplots

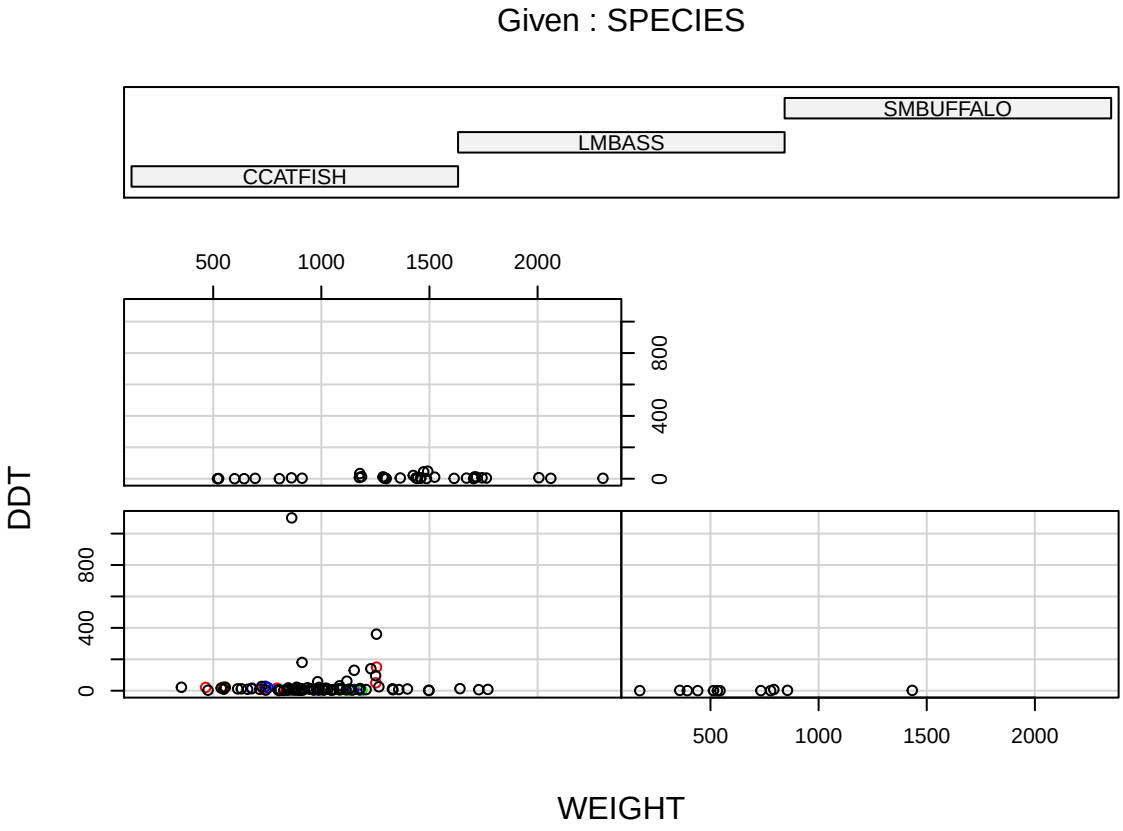
### Task 7.1 colpot Weight vs Length when River is given

```
rivcol=with(ddt, ifelse(RIVER=="FCM","Red",
                        ifelse(RIVER=="LCM","Blue",
                               ifelse(RIVER=="SCM","Green","Black"))))
coplot(WEIGHT~LENGTH|RIVER,data=ddt,col=rivcol)
```




**Task 7.2 Coplot when DDT vs WEIGHT when Species is given**

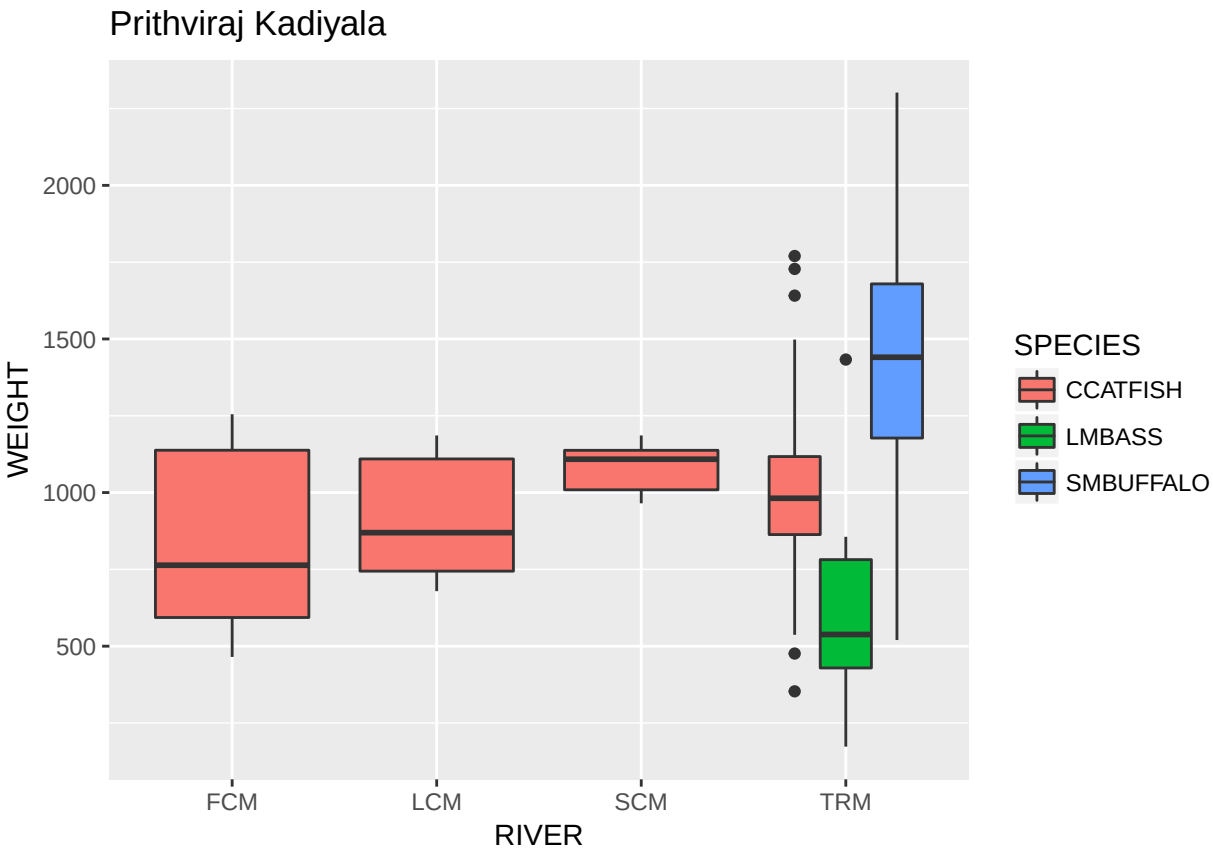
```
rivcol=with(ddt, ifelse(RIVER=="FCM","Red",
                        ifelse(RIVER=="LCM","Blue",
                               ifelse(RIVER=="SCM","Green","Black"))))
coplot(DDT~WEIGHT|SPECIES,data=ddt,col=rivcol)
```




## Task 8

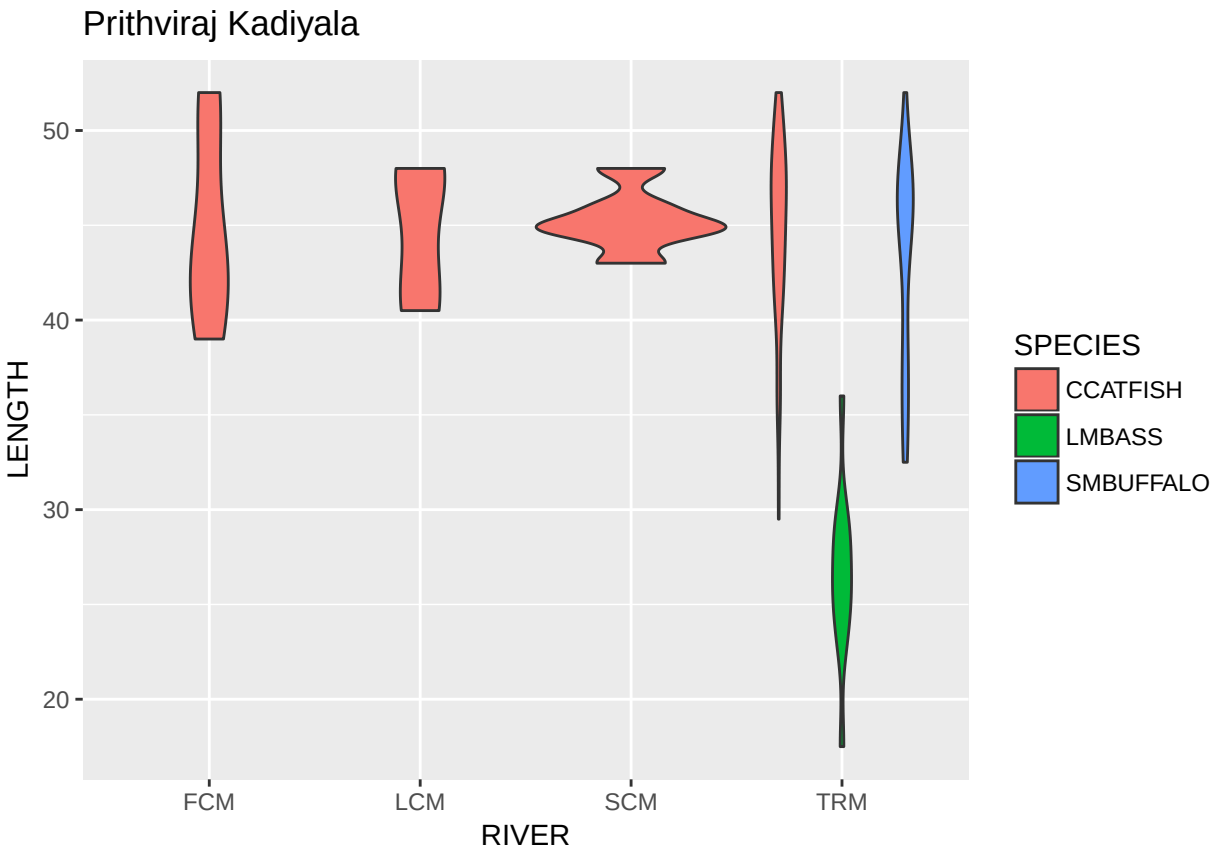
### Task 8.1 Box plot

```
library(ggplot2)
p10 = qplot(RIVER,WEIGHT,data=ddt,fill=SPECIES,geom="boxplot")
p10 + labs(title = "Prithviraj Kadiyala")
```



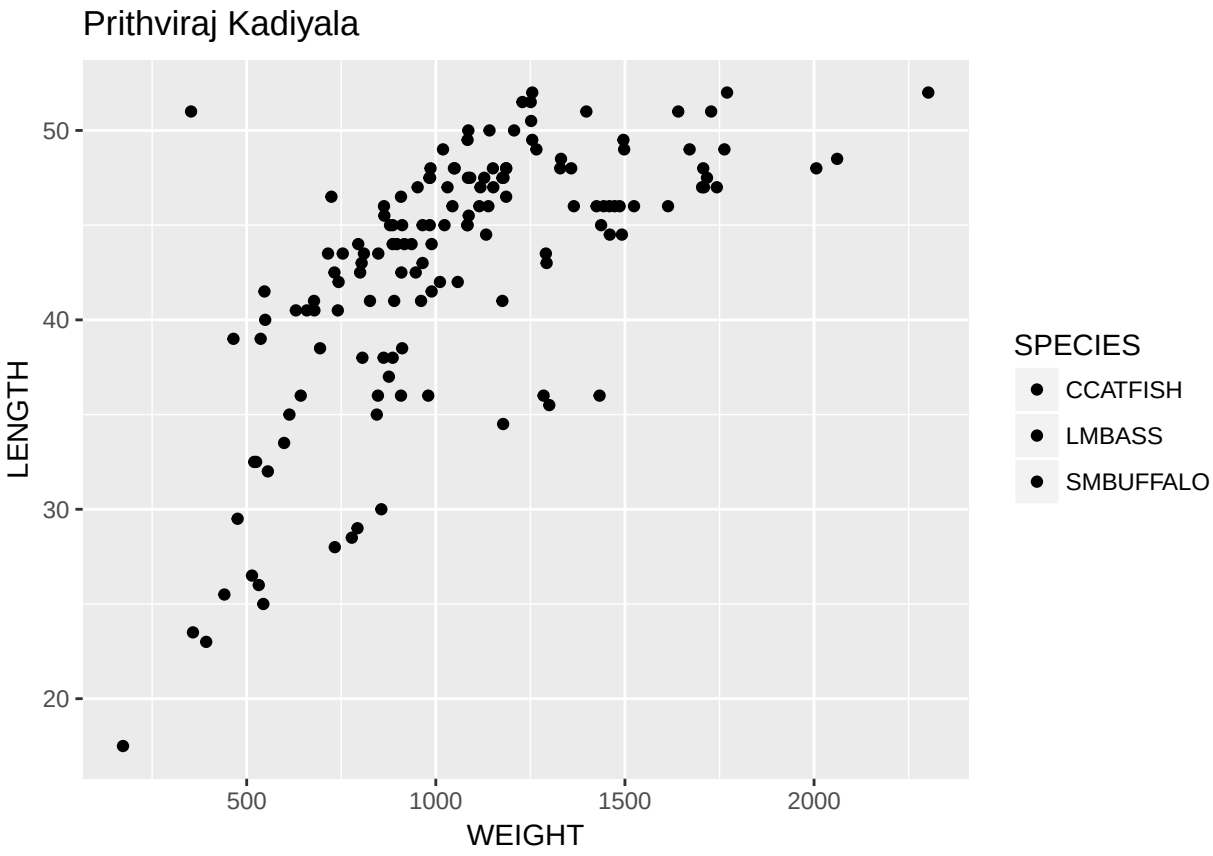

**Task 8.2 Violin Plots**

```
p11 = qplot(RIVER,LENGTH,fill=SPECIES,data=ddt,geom="violin")
p11 + labs(title="Prithviraj Kadiyala")
```




**Task 8.3 Scatter Plot**

```
p12 = qplot(WEIGHT,LENGTH,fill=SPECIES,data=ddt,geom="point")
p12 + labs(title="Prithviraj Kadiyala")
```


Prithviraj Kadiyala
LENGTH
WEIGHT
50
40
30
20
500
1000
1500
2000
SPECIES
CCATFISH
LMBASS
SMBUFFALO