Rworksheet#4b_Caballero

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```
#1
vectorA <- c(1,2,3,4,5)
vectorA
```

```
## [1] 1 2 3 4 5
```

```
mat <- matrix(0, nrow=5, ncol=5)
mat
```

```
##      [,1] [,2] [,3] [,4] [,5]
## [1,]    0    0    0    0    0
## [2,]    0    0    0    0    0
## [3,]    0    0    0    0    0
## [4,]    0    0    0    0    0
## [5,]    0    0    0    0    0
```

```
#     [,1] [,2] [,3] [,4] [,5]
#[1,]    0    0    0    0    0
#[2,]    0    0    0    0    0
#[3,]    0    0    0    0    0
#[4,]    0    0    0    0    0
#[5,]    0    0    0    0    0


for(i in 1:5){
  for(j in 1:5){
      mat[i,j] <- abs(vectorA[i] - vectorA[j])
    }
  }
print(mat)
```

```
##      [,1] [,2] [,3] [,4] [,5]
## [1,]    0    1    2    3    4
## [2,]    1    0    1    2    3
## [3,]    2    1    0    1    2
## [4,]    3    2    1    0    1
## [5,]    4    3    2    1    0
```

```
#     [,1] [,2] [,3] [,4] [,5]
#[1,]    0    1    2    3    4
#[2,]    1    0    1    2    3
#[3,]    2    1    0    1    2
#[4,]    3    2    1    0    1
#[5,]    4    3    2    1    0
```

```r
#2
rightTriangle <- c()

for (i in 1:5){
  for(j in 1:i+1){
    rightTriangle = c(rightTriangle,"*")
  }
  print(rightTriangle)
  rightTriangle <- c()
}
```

```
## [1] "*"
## [1] "*" "*"
## [1] "*" "*" "*"
## [1] "*" "*" "*" "*"
## [1] "*" "*" "*" "*" "*"
```

```r
#[1] "*"
#[1] "*" "*"
#[1] "*" "*" "*"
#[1] "*" "*" "*" "*"
#[1] "*" "*" "*" "*" "*"
```

```r
#3
n <- as.integer(readline(prompt = "Enter the number of terms: "))
```

```
## Enter the number of terms:
```

```r
#n <- as.integer(readline(prompt = "Enter the number of terms: "))
#Enter the number of terms:

a<- 0
b<- 1

cat("Fibonacci sequnce: ",a,b)
```

```
## Fibonacci sequnce:  0 1
```

```r
#Fibonacci sequnce:  0 1

repeat{
  c<-a+b
  if (c>500){
    break
  }
  cat(",",c)
  a<-b
  b<-c
}
```

```
## , 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377
```

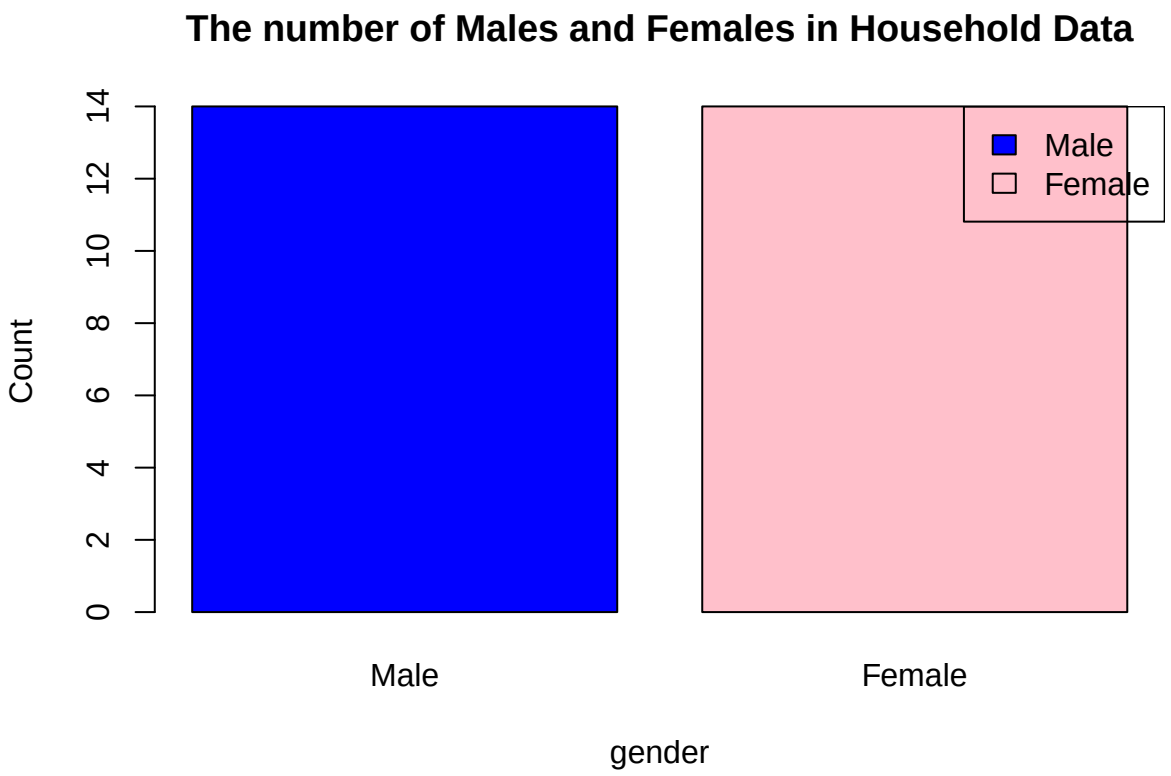
```r
#, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377

#using basic Graphics(plot(),barplot(),pie(),hist())
```

```r
#4

#a
library(readr)
library(openxlsx)

HouseholdData <- read.table("/cloud/project/CaballeroRworksheet#4/FinalHouseholdData.csv", header = TRU
#View(HouseholdData)
#head(HouseholdData,6)
#  X shoe_size Height  Gender
#1 1       6.5   66.0   F
#2 2       9.0   68.0   F
#3 3       8.5   64.5   F
#4 4       8.5   65.0   F
#5 5      10.5   70.0   M
#6 6       7.0   64.0   F
```

#b

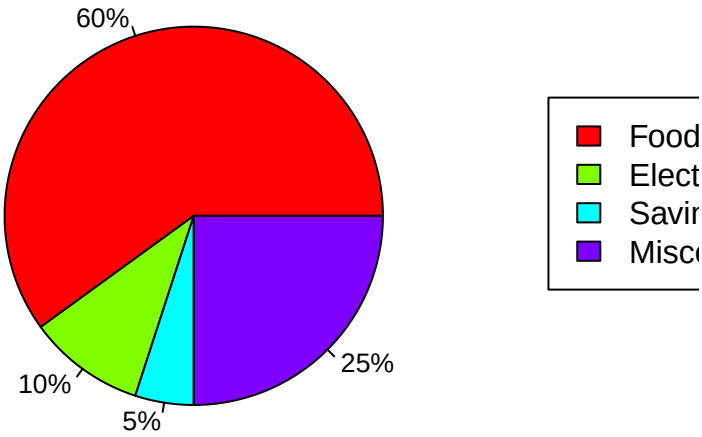
```r
maleSubset <- subset(HouseholdData, HouseholdData$Gender == 'M')
femaleSubset <- subset(HouseholdData, HouseholdData$Gender == 'F')


male_count <- nrow(maleSubset)
#[1] 14
female_count <- nrow(femaleSubset)
#[1] 14

#C
```

```r
count <- c(male_count, female_count)
gender <- c("Male", "Female")

barplot(count,
        names.arg = gender,
        main = "The number of Males and Females in Household Data",
        xlab = "gender",
        ylab = "Count",
        col = c("blue", "pink"),
        border = "black")

# Add legend
legend("topright",
       legend = gender,
       fill = c("blue", "pink"))
```




```r
#5

#a
monthly_income<- c(60,10,5,25)

month_labels <- round(monthly_income/sum(monthly_income)*100,1)
month_labels <- paste(month_labels,"%", sep = "")

pie(monthly_income, main = "The monthly income of Dela Cruz family",
    col = rainbow(length(monthly_income)),
    labels = month_labels,
    cex = 0.8)

legend(1.5,0.5,
       c("Food","Electricity","Savings","Miscellaneous"),
       fill = rainbow(length(monthly_income)))
```

The monthly income of Dela Cruz family




```
data(iris)
str(iris)
```

```
## 'data.frame':    150 obs. of  5 variables:
##  $ Sepal.Length: num  5.1 4.9 4.7 4.6 5 5.4 4.6 5 4.4 4.9 ...
##  $ Sepal.Width : num  3.5 3 3.2 3.1 3.6 3.9 3.4 3.4 2.9 3.1 ...
##  $ Petal.Length: num  1.4 1.4 1.3 1.5 1.4 1.7 1.4 1.5 1.4 1.5 ...
##  $ Petal.Width : num  0.2 0.2 0.2 0.2 0.2 0.4 0.3 0.2 0.2 0.1 ...
##  $ Species     : Factor w/ 3 levels "setosa","versicolor",..: 1 1 1 1 1 1 1 1 1 1 ...
```

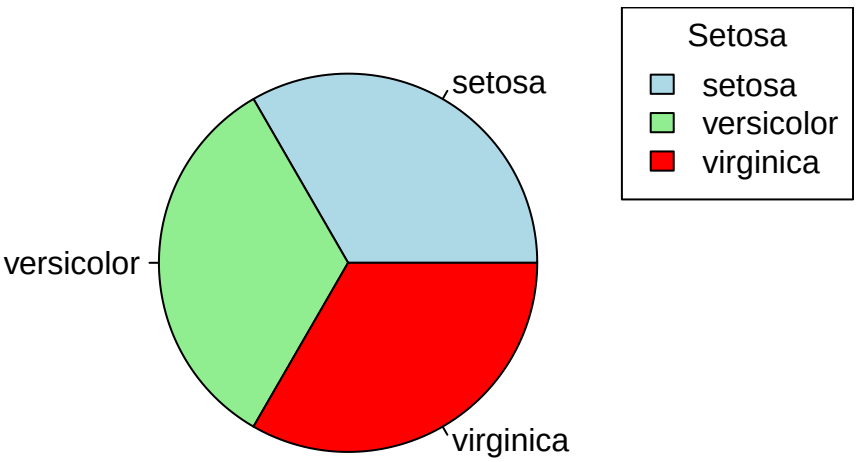
#the str(iris)output give us the dataset of iris

```
mean<-colMeans(iris[, c("Sepal.Length","Petal.Length", "Petal.Width")])
mean
```

```
## Sepal.Length Petal.Length  Petal.Width
##     5.843333     3.758000     1.199333
```

#c

```
pie(table(iris$Species),
    main = "Species distribution",
    labels = levels(iris$Species),
    col = c("lightblue","lightgreen","red"))

legend("topright", legend = levels(iris$Species),
       fill = c("lightblue","lightgreen","red"),
       title = "Setosa", "Versicolor", "Virginica")
```



#d

```
setosa_lastsix<- tail(subset(iris,Species == "setosa"), n = 6)
versicolor_lastsix<- tail(subset(iris,Species == "versicolor"), n =6)
virginica_lastsix<- tail(subset(iris,Species == "virginica"), n = 6)
setosa_lastsix
```

```
##    Sepal.Length Sepal.Width Petal.Length Petal.Width Species
## 45          5.1         3.8          1.9         0.4  setosa
## 46          4.8         3.0          1.4         0.3  setosa
## 47          5.1         3.8          1.6         0.2  setosa
## 48          4.6         3.2          1.4         0.2  setosa
## 49          5.3         3.7          1.5         0.2  setosa
## 50          5.0         3.3          1.4         0.2  setosa
```

```
versicolor_lastsix
```

```
##     Sepal.Length Sepal.Width Petal.Length Petal.Width    Species
## 95           5.6         2.7          4.2         1.3 versicolor
## 96           5.7         3.0          4.2         1.2 versicolor
## 97           5.7         2.9          4.2         1.3 versicolor
## 98           6.2         2.9          4.3         1.3 versicolor
## 99           5.1         2.5          3.0         1.1 versicolor
## 100          5.7         2.8          4.1         1.3 versicolor
```

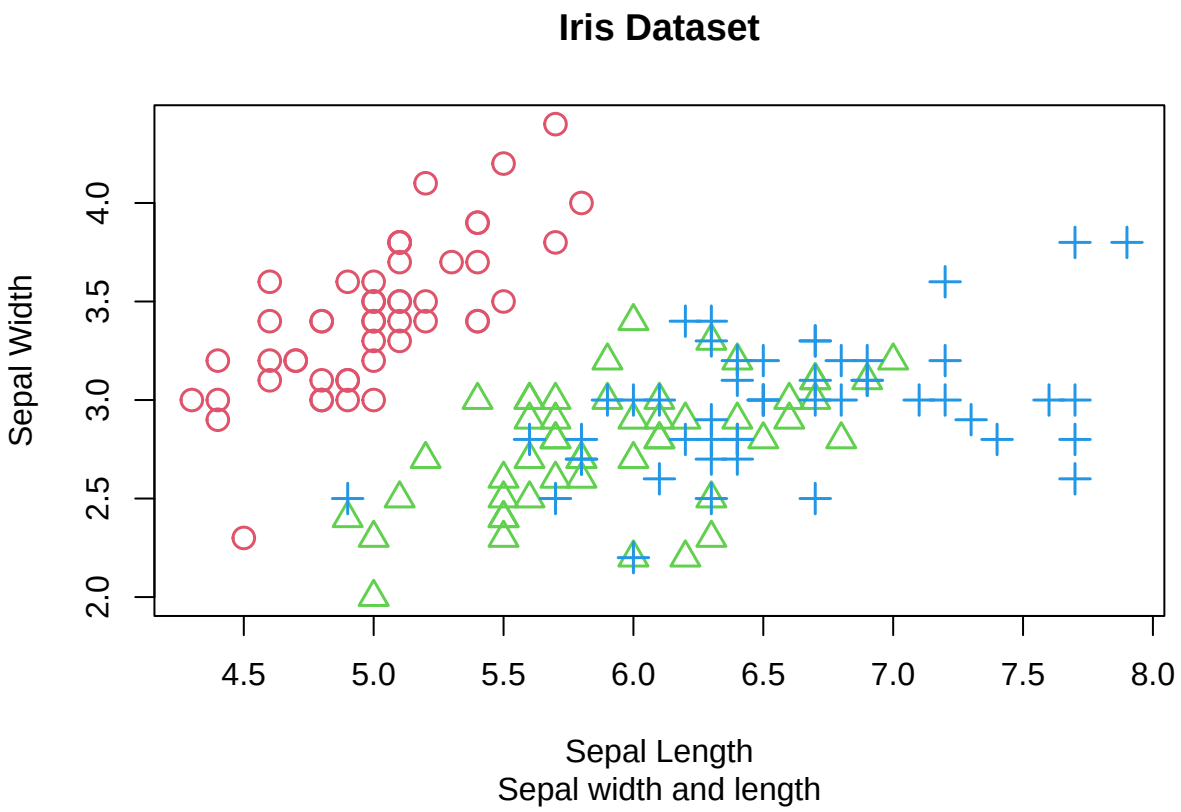
```
virginica_lastsix
```

```
##     Sepal.Length Sepal.Width Petal.Length Petal.Width   Species
## 145          6.7         3.3          5.7         2.5 virginica
## 146          6.7         3.0          5.2         2.3 virginica
## 147          6.3         2.5          5.0         1.9 virginica
## 148          6.5         3.0          5.2         2.0 virginica
## 149          6.2         3.4          5.4         2.3 virginica
## 150          5.9         3.0          5.1         1.8 virginica
```

#E

```
plot(iris$Sepal.Length, iris$Sepal.Width,
pch = as.integer(iris$Species),
col = as.integer(iris$Species) + 1,
main = "Iris Dataset",
```

```
sub = "Sepal width and length",
xlab = "Sepal Length",
ylab = "Sepal Width",
cex = 1.5,
lwd = 1.5)
```




```
as.factor(iris$Species)
```

```
##   [1] setosa     setosa     setosa     setosa     setosa     setosa
##   [7] setosa     setosa     setosa     setosa     setosa     setosa
##  [13] setosa     setosa     setosa     setosa     setosa     setosa
##  [19] setosa     setosa     setosa     setosa     setosa     setosa
##  [25] setosa     setosa     setosa     setosa     setosa     setosa
##  [31] setosa     setosa     setosa     setosa     setosa     setosa
##  [37] setosa     setosa     setosa     setosa     setosa     setosa
##  [43] setosa     setosa     setosa     setosa     setosa     setosa
##  [49] setosa     setosa     versicolor versicolor versicolor versicolor
##  [55] versicolor versicolor versicolor versicolor versicolor versicolor
##  [61] versicolor versicolor versicolor versicolor versicolor versicolor
##  [67] versicolor versicolor versicolor versicolor versicolor versicolor
##  [73] versicolor versicolor versicolor versicolor versicolor versicolor
##  [79] versicolor versicolor versicolor versicolor versicolor versicolor
##  [85] versicolor versicolor versicolor versicolor versicolor versicolor
##  [91] versicolor versicolor versicolor versicolor versicolor versicolor
##  [97] versicolor versicolor versicolor versicolor virginica  virginica
## [103] virginica  virginica  virginica  virginica  virginica  virginica
## [109] virginica  virginica  virginica  virginica  virginica  virginica
## [115] virginica  virginica  virginica  virginica  virginica  virginica
```

```
## [121] virginica  virginica  virginica  virginica  virginica  virginica
## [127] virginica  virginica  virginica  virginica  virginica  virginica
## [133] virginica  virginica  virginica  virginica  virginica  virginica
## [139] virginica  virginica  virginica  virginica  virginica  virginica
## [145] virginica  virginica  virginica  virginica  virginica  virginica
## Levels: setosa versicolor virginica
```

##as.factor(iris$Species) is a way of telling R that the "Species" variable should be treated as a categorical variable.

##Basic Cleaning and Transformation of Objects

#7

#A

```
library(readr)
library(readxl)
alexa_file <- read_excel("/cloud/project/CaballeroRworksheet4b/alexa_file.xlsx")
#View(alexa_file)
```

```
alexaVaration <- gsub("Black Plus", "Black Plus", alexa_file$variation)
alexa_file$variation <- gsub("Black Show", "Black Show", alexa_file$variation)
alexa_file$variation <- gsub("Black Spot", "Black Spot", alexa_file$variation)
alexa_file$variation <- gsub("Black Dot", "Black Dot", alexa_file$variation)
alexa_file$variation <- gsub("White Dot", "White Dot", alexa_file$variation)
alexa_file$variation <- gsub("White Plus", "White Plus", alexa_file$variation)
alexa_file$variation <- gsub("White Show", "White Show", alexa_file$variation)
alexa_file$variation <- gsub("White Spot", "White Spot", alexa_file$variation)
```

#B

```
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
save(alexa_file, file = "variations.RData")
load("variations.RData")
alexaVaration <- alexa_file%>%count(alexa_file$variation)
alexaVaration
```

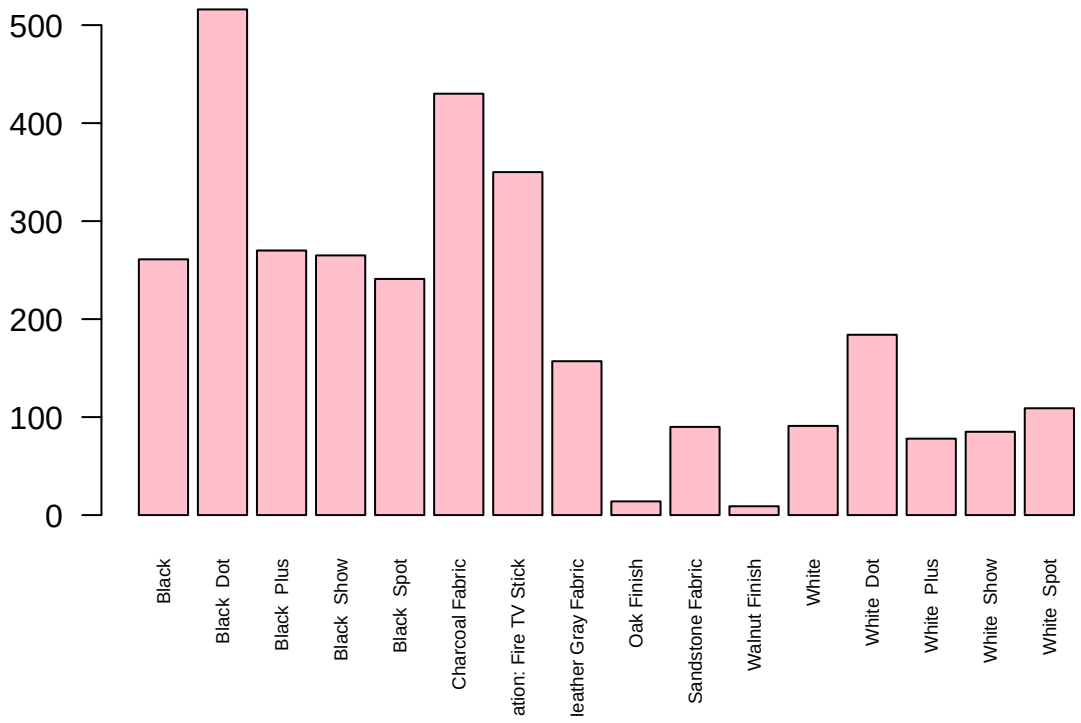
```
## # A tibble: 16 x 2
##    `alexa_file$variation`           n
##    <chr>                        <int>
##  1 Black                          261
##  2 Black  Dot                    516
##  3 Black  Plus                   270
##  4 Black  Show                   265
##  5 Black  Spot                   241
##  6 Charcoal Fabric               430
```

```
##  7 Configuration: Fire TV Stick   350
##  8 Heather Gray Fabric            157
##  9 Oak Finish                      14
## 10 Sandstone Fabric                90
## 11 Walnut Finish                    9
## 12 White                           91
## 13 White  Dot                     184
## 14 White  Plus                     78
## 15 White  Show                     85
## 16 White  Spot                    109
```

#alexa_file$variation # #n # #Black 261
#Black Dot 516
#Black Plus 270
#Black Show 265
#Black Spot 241
#Charcoal Fabric 430
#Configuration: Fire TV Stick 350
#Heather Gray Fabric 157
#Oak Finish 14
#Sandstone Fabric 90
#Walnut Finish 9
#White 91
#White Dot 184
#White Plus 78
#White Show 85
#White Spot 109

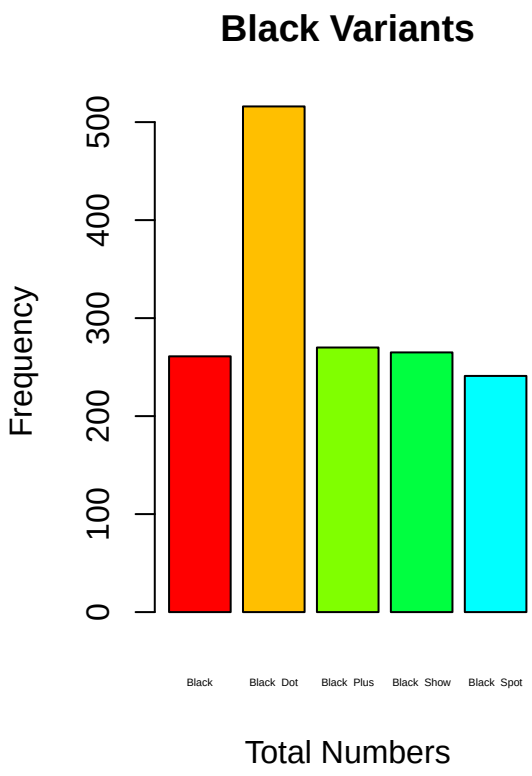
#C

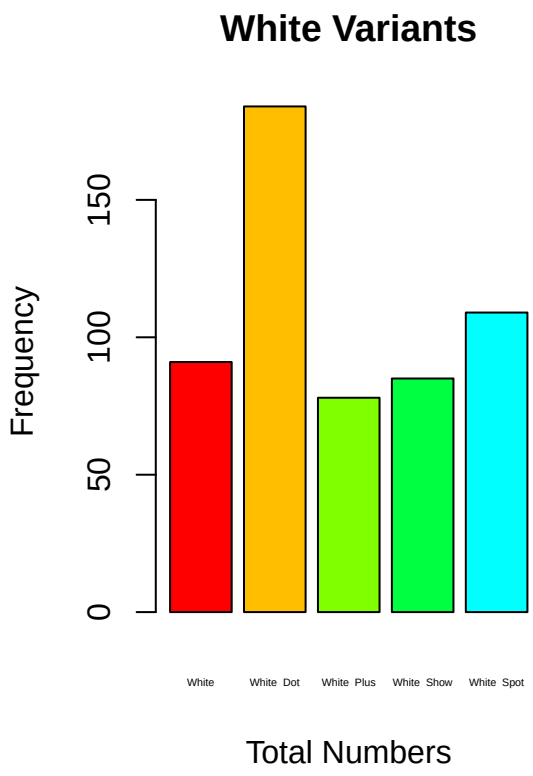
```
barplot(
height = alexaVaration$n,
names.arg = alexaVaration$`alexa_file$variation`,
col = "pink",
main = "Alexa Varations",
las = 2,
cex.names = 0.58
)
```



#D

```
par(mfrow = c(1, 2))
black_variants <- alexaVaration[1:5,]
white_variants <- alexaVaration[12:16,]
barplot(
height = black_variants$n,
names.arg = black_variants$`alexa_file$variation`,
main = "Black Variants",
col = rainbow(8),
xlab = 'Total Numbers',
ylab = 'Frequency',
cex.names = 0.35,
)
barplot(
height = white_variants$n,
names.arg = white_variants$`alexa_file$variation`,
main = "White Variants",
col = rainbow(8),
xlab = 'Total Numbers',
ylab = 'Frequency',
cex.names = 0.35,
)
```


Black Variants
Frequency
0
100
200
300
400
500
Black
Black Dot
Black Plus
Black Show
Black Spot
Total Numbers


White Variants
Frequency
0
50
100
150
White
White Dot
White Plus
White Show
White Spot
Total Numbers