

# RWorksheet\_Octavio#4b

2023-11-08

#1

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

matrixA <- matrix(c(0, 0, 0, 0, 0), nrow = 5, ncol = 5)

for (i in 1:5) {
  matrixA[i,] <- abs(vectorA - vectorA[i])
}

print(matrixA)
```

```
##      [,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
```

#2

```
for(i in 1:5) {
  numb <- rep(" ", i)
  print(numb)
}
```

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

#3 Get an input from the user to print the Fibonacci sequence starting from the 1st input up to 500. Use repeat and break statements. Write the R Scripts and its output.

```
userInput <- as.integer(readline("Enter starting number for Fibonacci sequence: "))
```

```
## Enter starting number for Fibonacci sequence:
```

```
if(is.na(userInput) || userInput < 0) {
  cat("Please enter something")
} else {
  x <- userInput
  y <- 0

  cat("Fibonacci sequence starting from", userInput, ":\n")

  repeat {
```

```

next_num <- x + y

if (next_num > 500){
  break
}
cat(next_num, " ")
x <- y
y <- next_num

}

}

```

## Please enter something

#4 Import the dataset as shown in Figure 1 you have created previously.

#4a What is the R script for importing an excel or a csv file? Display the first 6 rows of the dataset? Show your codes and its result

```

library(readr)
Household <- read_csv("Household.csv")

```

```

## New names:
## Rows: 28 Columns: 4
## -- Column specification
## ----- Delimiter: "," chr
## (1): Gender dbl (3): ...1, ShoeSize, Height
## i Use `spec()` to retrieve the full column specification for this data. i
## Specify the column types or set `show_col_types = FALSE` to quiet this message.
## * `` -> `...1`

```

```
head(Household)
```

```

## # A tibble: 6 x 4
##   ...1 ShoeSize Height Gender
##   <dbl>   <dbl>  <dbl> <chr>
## 1     1     6.5    66    F
## 2     2     9     68    F
## 3     3     8.5   64.5  F
## 4     4     8.5    65    F
## 5     5    10.5    70    M
## 6     6     7     64    F

```

#4b Create a subset for gender(female and male). How many observations are there in Male? How about in Female? Write the R scripts and its output.

```

males <- Household[Household$Gender == "M",]
males

```

```

## # A tibble: 14 x 4
##   ...1 ShoeSize Height Gender
##   <dbl>   <dbl>  <dbl> <chr>
## 1     5    10.5    70    M
## 2     9     13     72    M
## 3    11    10.5   74.5  M
## 4    13     12     71    M

```

```
## 5    14    10.5    71    M
## 6    15     13     77    M
## 7    16    11.5    72    M
## 8    19     10     72    M
## 9    22     8.5    67    M
## 10   23    10.5    73    M
## 11   25    10.5    72    M
## 12   26     11     70    M
## 13   27     9      69    M
## 14   28     13     70    M
```

```
females <- Household[Household$Gender == "F",]
females
```

```
## # A tibble: 14 x 4
##   ...1 ShoeSize Height Gender
##   <dbl>   <dbl>   <dbl> <chr>
## 1     1     6.5    66    F
## 2     2     9     68    F
## 3     3     8.5   64.5  F
## 4     4     8.5    65    F
## 5     6     7     64    F
## 6     7     9.5    70    F
## 7     8     9     71    F
## 8    10     7.5    64    F
## 9    12     8.5    67    F
## 10   17     8.5    59    F
## 11   18     5     62    F
## 12   20     6.5    66    F
## 13   21     7.5    64    F
## 14   24     8.5    69    F
```

```
numofMale <- nrow(males)
numofMale
```

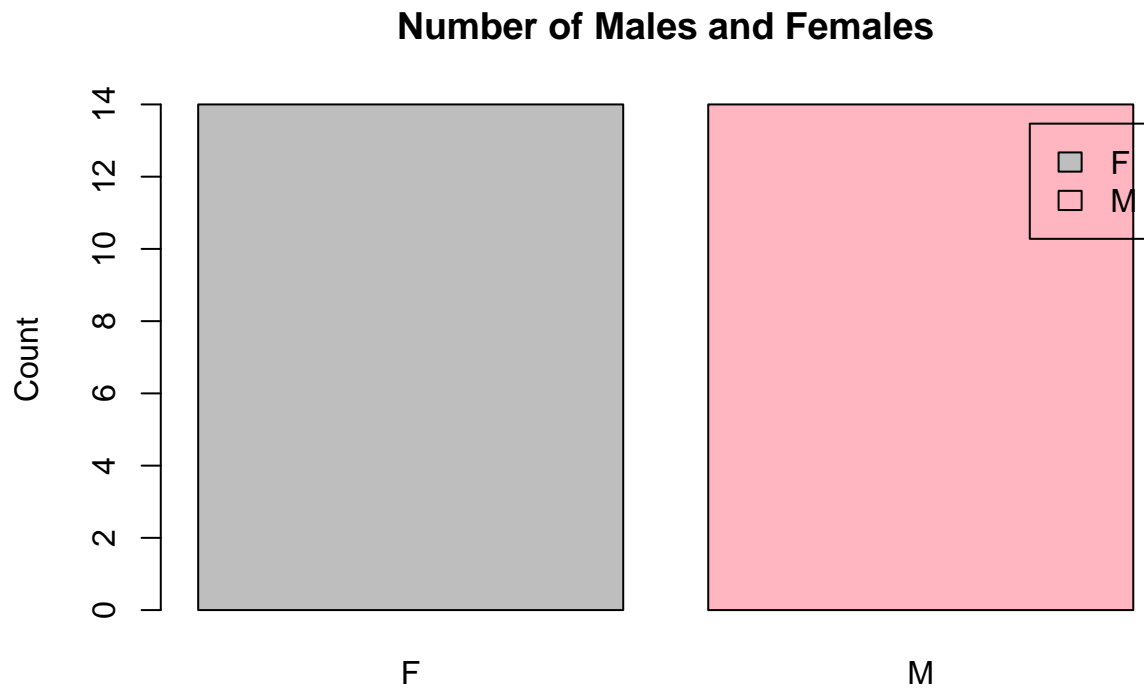
```
## [1] 14
```

```
numofFem <- nrow(females)
numofFem
```

```
## [1] 14
```

#4c Create a graph for the number of males and females for Household Data. Use plot(), chart type = barplot. Make sure to place title, legends, and colors. Write the R scripts and its result.

```
totalMaleFemale <- table(Household$Gender)
barplot(totalMaleFemale,
        main = "Number of Males and Females",
        xlab = "Gender",
        ylab = "Count",
        col = c("gray", "lightpink"),
        legend.text = rownames(totalMaleFemale),
        beside = TRUE)
```



### Gender

#5 The

monthly income of Dela Cruz family was spent on the following: Food Electricity Savings Miscellaneous 60 10 5 25

#a Create a piechart that will include labels in percentage. Add some colors and title of the chart. Write the R scripts and show its output.

```

spending_data <- data.frame(
  Category = c("Food", "Electricity", "Savings", "Miscellaneous"),
  Value = c(60, 10, 5, 25)
)

spending_data$Percentage <- spending_data$Value / sum(spending_data$Value) * 100

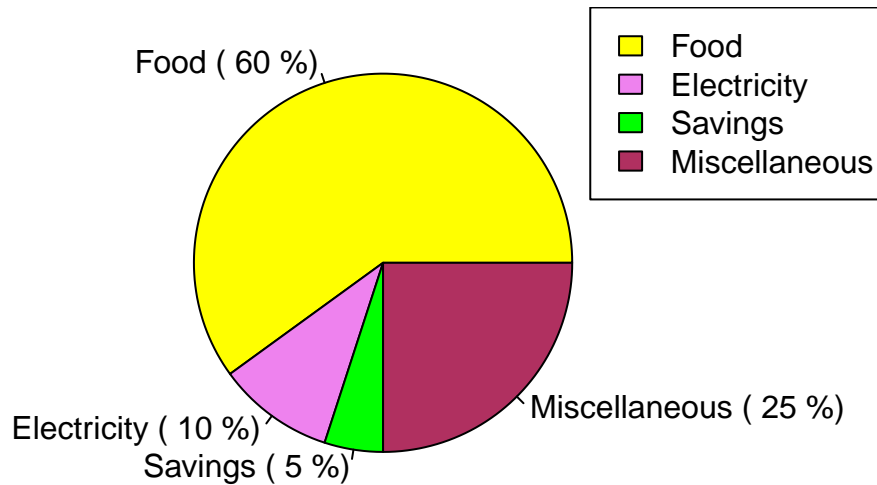
colors <- c("yellow", "violet", "green", "maroon")

pie(spending_data$Value,
    labels = paste(spending_data$Category, "(", spending_data$Percentage, "%)"),
    col = colors,
    main = "Monthly Income Spending of Dela Cruz Family")

legend("topright", spending_data$Category, fill = colors)

```

## Monthly Income Spending of Dela Cruz Family



#6 Use the iris dataset.

```
data(iris)
```

#6a Check for the structure of the dataset using the str() function. Describe what you have seen in the output.

```
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 dataset is a collection of information about iris flowers. It has a collection of data of the len.*

#6b Create an R object that will contain the mean of the sepal.length, sepal.width, petal.length, and petal.width. What is the R script and its result?

```
meanOfpetals <- colMeans(iris[,1:4])
meanOfpetals
```

```
## Sepal.Length Sepal.Width Petal.Length Petal.Width
##      5.843333      3.057333      3.758000      1.199333
```

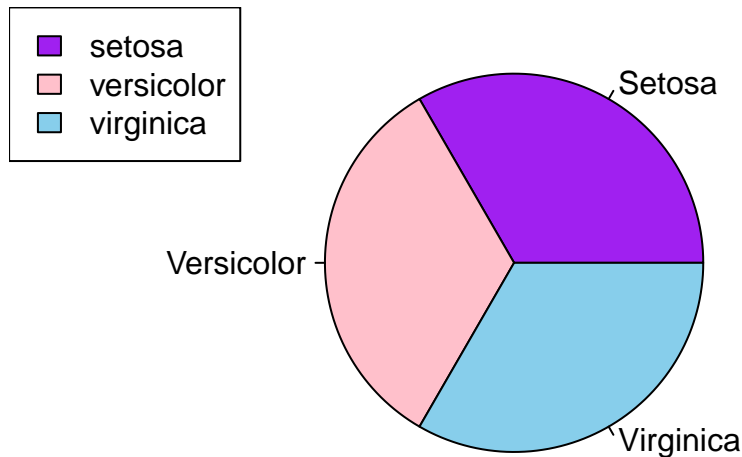
#6c. Create a pie chart for the Species distribution. Add title, legends, and colors. Write the R script and its result.

```
species <- table(iris$Species)
nameOfSpecies <- c("Setosa", "Versicolor", "Virginica")

pie(species,
    labels = nameOfSpecies,
    col = c("purple", "pink", "skyblue"),
    main = "Species Distribution in Iris Dataset")

legend("topleft", legend = levels(iris$Species), fill = c("purple", "pink", "skyblue"),)
```

## Species Distribution in Iris Dataset



#6d Subset the species into setosa, versicolor, and virginica. Write the R scripts and show the last six (6) rows of each species.

```
iris
```

##	Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
## 1	5.1	3.5	1.4	0.2	setosa
## 2	4.9	3.0	1.4	0.2	setosa
## 3	4.7	3.2	1.3	0.2	setosa
## 4	4.6	3.1	1.5	0.2	setosa
## 5	5.0	3.6	1.4	0.2	setosa
## 6	5.4	3.9	1.7	0.4	setosa
## 7	4.6	3.4	1.4	0.3	setosa
## 8	5.0	3.4	1.5	0.2	setosa
## 9	4.4	2.9	1.4	0.2	setosa
## 10	4.9	3.1	1.5	0.1	setosa
## 11	5.4	3.7	1.5	0.2	setosa
## 12	4.8	3.4	1.6	0.2	setosa
## 13	4.8	3.0	1.4	0.1	setosa
## 14	4.3	3.0	1.1	0.1	setosa
## 15	5.8	4.0	1.2	0.2	setosa
## 16	5.7	4.4	1.5	0.4	setosa
## 17	5.4	3.9	1.3	0.4	setosa
## 18	5.1	3.5	1.4	0.3	setosa
## 19	5.7	3.8	1.7	0.3	setosa
## 20	5.1	3.8	1.5	0.3	setosa
## 21	5.4	3.4	1.7	0.2	setosa
## 22	5.1	3.7	1.5	0.4	setosa
## 23	4.6	3.6	1.0	0.2	setosa
## 24	5.1	3.3	1.7	0.5	setosa
## 25	4.8	3.4	1.9	0.2	setosa
## 26	5.0	3.0	1.6	0.2	setosa
## 27	5.0	3.4	1.6	0.4	setosa
## 28	5.2	3.5	1.5	0.2	setosa
## 29	5.2	3.4	1.4	0.2	setosa
## 30	4.7	3.2	1.6	0.2	setosa
## 31	4.8	3.1	1.6	0.2	setosa
## 32	5.4	3.4	1.5	0.4	setosa
## 33	5.2	4.1	1.5	0.1	setosa

## 34	5.5	4.2	1.4	0.2	setosa
## 35	4.9	3.1	1.5	0.2	setosa
## 36	5.0	3.2	1.2	0.2	setosa
## 37	5.5	3.5	1.3	0.2	setosa
## 38	4.9	3.6	1.4	0.1	setosa
## 39	4.4	3.0	1.3	0.2	setosa
## 40	5.1	3.4	1.5	0.2	setosa
## 41	5.0	3.5	1.3	0.3	setosa
## 42	4.5	2.3	1.3	0.3	setosa
## 43	4.4	3.2	1.3	0.2	setosa
## 44	5.0	3.5	1.6	0.6	setosa
## 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
## 51	7.0	3.2	4.7	1.4	versicolor
## 52	6.4	3.2	4.5	1.5	versicolor
## 53	6.9	3.1	4.9	1.5	versicolor
## 54	5.5	2.3	4.0	1.3	versicolor
## 55	6.5	2.8	4.6	1.5	versicolor
## 56	5.7	2.8	4.5	1.3	versicolor
## 57	6.3	3.3	4.7	1.6	versicolor
## 58	4.9	2.4	3.3	1.0	versicolor
## 59	6.6	2.9	4.6	1.3	versicolor
## 60	5.2	2.7	3.9	1.4	versicolor
## 61	5.0	2.0	3.5	1.0	versicolor
## 62	5.9	3.0	4.2	1.5	versicolor
## 63	6.0	2.2	4.0	1.0	versicolor
## 64	6.1	2.9	4.7	1.4	versicolor
## 65	5.6	2.9	3.6	1.3	versicolor
## 66	6.7	3.1	4.4	1.4	versicolor
## 67	5.6	3.0	4.5	1.5	versicolor
## 68	5.8	2.7	4.1	1.0	versicolor
## 69	6.2	2.2	4.5	1.5	versicolor
## 70	5.6	2.5	3.9	1.1	versicolor
## 71	5.9	3.2	4.8	1.8	versicolor
## 72	6.1	2.8	4.0	1.3	versicolor
## 73	6.3	2.5	4.9	1.5	versicolor
## 74	6.1	2.8	4.7	1.2	versicolor
## 75	6.4	2.9	4.3	1.3	versicolor
## 76	6.6	3.0	4.4	1.4	versicolor
## 77	6.8	2.8	4.8	1.4	versicolor
## 78	6.7	3.0	5.0	1.7	versicolor
## 79	6.0	2.9	4.5	1.5	versicolor
## 80	5.7	2.6	3.5	1.0	versicolor
## 81	5.5	2.4	3.8	1.1	versicolor
## 82	5.5	2.4	3.7	1.0	versicolor
## 83	5.8	2.7	3.9	1.2	versicolor
## 84	6.0	2.7	5.1	1.6	versicolor
## 85	5.4	3.0	4.5	1.5	versicolor
## 86	6.0	3.4	4.5	1.6	versicolor
## 87	6.7	3.1	4.7	1.5	versicolor

## 88	6.3	2.3	4.4	1.3 versicolor
## 89	5.6	3.0	4.1	1.3 versicolor
## 90	5.5	2.5	4.0	1.3 versicolor
## 91	5.5	2.6	4.4	1.2 versicolor
## 92	6.1	3.0	4.6	1.4 versicolor
## 93	5.8	2.6	4.0	1.2 versicolor
## 94	5.0	2.3	3.3	1.0 versicolor
## 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
## 101	6.3	3.3	6.0	2.5 virginica
## 102	5.8	2.7	5.1	1.9 virginica
## 103	7.1	3.0	5.9	2.1 virginica
## 104	6.3	2.9	5.6	1.8 virginica
## 105	6.5	3.0	5.8	2.2 virginica
## 106	7.6	3.0	6.6	2.1 virginica
## 107	4.9	2.5	4.5	1.7 virginica
## 108	7.3	2.9	6.3	1.8 virginica
## 109	6.7	2.5	5.8	1.8 virginica
## 110	7.2	3.6	6.1	2.5 virginica
## 111	6.5	3.2	5.1	2.0 virginica
## 112	6.4	2.7	5.3	1.9 virginica
## 113	6.8	3.0	5.5	2.1 virginica
## 114	5.7	2.5	5.0	2.0 virginica
## 115	5.8	2.8	5.1	2.4 virginica
## 116	6.4	3.2	5.3	2.3 virginica
## 117	6.5	3.0	5.5	1.8 virginica
## 118	7.7	3.8	6.7	2.2 virginica
## 119	7.7	2.6	6.9	2.3 virginica
## 120	6.0	2.2	5.0	1.5 virginica
## 121	6.9	3.2	5.7	2.3 virginica
## 122	5.6	2.8	4.9	2.0 virginica
## 123	7.7	2.8	6.7	2.0 virginica
## 124	6.3	2.7	4.9	1.8 virginica
## 125	6.7	3.3	5.7	2.1 virginica
## 126	7.2	3.2	6.0	1.8 virginica
## 127	6.2	2.8	4.8	1.8 virginica
## 128	6.1	3.0	4.9	1.8 virginica
## 129	6.4	2.8	5.6	2.1 virginica
## 130	7.2	3.0	5.8	1.6 virginica
## 131	7.4	2.8	6.1	1.9 virginica
## 132	7.9	3.8	6.4	2.0 virginica
## 133	6.4	2.8	5.6	2.2 virginica
## 134	6.3	2.8	5.1	1.5 virginica
## 135	6.1	2.6	5.6	1.4 virginica
## 136	7.7	3.0	6.1	2.3 virginica
## 137	6.3	3.4	5.6	2.4 virginica
## 138	6.4	3.1	5.5	1.8 virginica
## 139	6.0	3.0	4.8	1.8 virginica
## 140	6.9	3.1	5.4	2.1 virginica
## 141	6.7	3.1	5.6	2.4 virginica



```
## 142      6.9      3.1      5.1      2.3 virginica
## 143      5.8      2.7      5.1      1.9 virginica
## 144      6.8      3.2      5.9      2.3 virginica
## 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
```

```
subsetSetosa <- iris[iris$Species == "setosa",]
subsetSetosa
```

```
##      Sepal.Length Sepal.Width Petal.Length Petal.Width Species
## 1          5.1          3.5          1.4          0.2 setosa
## 2          4.9          3.0          1.4          0.2 setosa
## 3          4.7          3.2          1.3          0.2 setosa
## 4          4.6          3.1          1.5          0.2 setosa
## 5          5.0          3.6          1.4          0.2 setosa
## 6          5.4          3.9          1.7          0.4 setosa
## 7          4.6          3.4          1.4          0.3 setosa
## 8          5.0          3.4          1.5          0.2 setosa
## 9          4.4          2.9          1.4          0.2 setosa
## 10         4.9          3.1          1.5          0.1 setosa
## 11         5.4          3.7          1.5          0.2 setosa
## 12         4.8          3.4          1.6          0.2 setosa
## 13         4.8          3.0          1.4          0.1 setosa
## 14         4.3          3.0          1.1          0.1 setosa
## 15         5.8          4.0          1.2          0.2 setosa
## 16         5.7          4.4          1.5          0.4 setosa
## 17         5.4          3.9          1.3          0.4 setosa
## 18         5.1          3.5          1.4          0.3 setosa
## 19         5.7          3.8          1.7          0.3 setosa
## 20         5.1          3.8          1.5          0.3 setosa
## 21         5.4          3.4          1.7          0.2 setosa
## 22         5.1          3.7          1.5          0.4 setosa
## 23         4.6          3.6          1.0          0.2 setosa
## 24         5.1          3.3          1.7          0.5 setosa
## 25         4.8          3.4          1.9          0.2 setosa
## 26         5.0          3.0          1.6          0.2 setosa
## 27         5.0          3.4          1.6          0.4 setosa
## 28         5.2          3.5          1.5          0.2 setosa
## 29         5.2          3.4          1.4          0.2 setosa
## 30         4.7          3.2          1.6          0.2 setosa
## 31         4.8          3.1          1.6          0.2 setosa
## 32         5.4          3.4          1.5          0.4 setosa
## 33         5.2          4.1          1.5          0.1 setosa
## 34         5.5          4.2          1.4          0.2 setosa
## 35         4.9          3.1          1.5          0.2 setosa
## 36         5.0          3.2          1.2          0.2 setosa
## 37         5.5          3.5          1.3          0.2 setosa
## 38         4.9          3.6          1.4          0.1 setosa
## 39         4.4          3.0          1.3          0.2 setosa
## 40         5.1          3.4          1.5          0.2 setosa
## 41         5.0          3.5          1.3          0.3 setosa
```

```
## 42      4.5      2.3      1.3      0.3 setosa
## 43      4.4      3.2      1.3      0.2 setosa
## 44      5.0      3.5      1.6      0.6 setosa
## 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
```

```
subsetVersicolor <- iris[iris$Species == "versicolor",]
subsetVersicolor
```

```
##      Sepal.Length Sepal.Width Petal.Length Petal.Width  Species
## 51          7.0         3.2         4.7         1.4 versicolor
## 52          6.4         3.2         4.5         1.5 versicolor
## 53          6.9         3.1         4.9         1.5 versicolor
## 54          5.5         2.3         4.0         1.3 versicolor
## 55          6.5         2.8         4.6         1.5 versicolor
## 56          5.7         2.8         4.5         1.3 versicolor
## 57          6.3         3.3         4.7         1.6 versicolor
## 58          4.9         2.4         3.3         1.0 versicolor
## 59          6.6         2.9         4.6         1.3 versicolor
## 60          5.2         2.7         3.9         1.4 versicolor
## 61          5.0         2.0         3.5         1.0 versicolor
## 62          5.9         3.0         4.2         1.5 versicolor
## 63          6.0         2.2         4.0         1.0 versicolor
## 64          6.1         2.9         4.7         1.4 versicolor
## 65          5.6         2.9         3.6         1.3 versicolor
## 66          6.7         3.1         4.4         1.4 versicolor
## 67          5.6         3.0         4.5         1.5 versicolor
## 68          5.8         2.7         4.1         1.0 versicolor
## 69          6.2         2.2         4.5         1.5 versicolor
## 70          5.6         2.5         3.9         1.1 versicolor
## 71          5.9         3.2         4.8         1.8 versicolor
## 72          6.1         2.8         4.0         1.3 versicolor
## 73          6.3         2.5         4.9         1.5 versicolor
## 74          6.1         2.8         4.7         1.2 versicolor
## 75          6.4         2.9         4.3         1.3 versicolor
## 76          6.6         3.0         4.4         1.4 versicolor
## 77          6.8         2.8         4.8         1.4 versicolor
## 78          6.7         3.0         5.0         1.7 versicolor
## 79          6.0         2.9         4.5         1.5 versicolor
## 80          5.7         2.6         3.5         1.0 versicolor
## 81          5.5         2.4         3.8         1.1 versicolor
## 82          5.5         2.4         3.7         1.0 versicolor
## 83          5.8         2.7         3.9         1.2 versicolor
## 84          6.0         2.7         5.1         1.6 versicolor
## 85          5.4         3.0         4.5         1.5 versicolor
## 86          6.0         3.4         4.5         1.6 versicolor
## 87          6.7         3.1         4.7         1.5 versicolor
## 88          6.3         2.3         4.4         1.3 versicolor
## 89          5.6         3.0         4.1         1.3 versicolor
## 90          5.5         2.5         4.0         1.3 versicolor
## 91          5.5         2.6         4.4         1.2 versicolor
```

```
## 92      6.1      3.0      4.6      1.4 versicolor
## 93      5.8      2.6      4.0      1.2 versicolor
## 94      5.0      2.3      3.3      1.0 versicolor
## 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
```

```
subsetVirginica <- iris[iris$Species == "virginica",]
subsetVirginica
```

```
##      Sepal.Length Sepal.Width Petal.Length Petal.Width  Species
## 101      6.3      3.3      6.0      2.5 virginica
## 102      5.8      2.7      5.1      1.9 virginica
## 103      7.1      3.0      5.9      2.1 virginica
## 104      6.3      2.9      5.6      1.8 virginica
## 105      6.5      3.0      5.8      2.2 virginica
## 106      7.6      3.0      6.6      2.1 virginica
## 107      4.9      2.5      4.5      1.7 virginica
## 108      7.3      2.9      6.3      1.8 virginica
## 109      6.7      2.5      5.8      1.8 virginica
## 110      7.2      3.6      6.1      2.5 virginica
## 111      6.5      3.2      5.1      2.0 virginica
## 112      6.4      2.7      5.3      1.9 virginica
## 113      6.8      3.0      5.5      2.1 virginica
## 114      5.7      2.5      5.0      2.0 virginica
## 115      5.8      2.8      5.1      2.4 virginica
## 116      6.4      3.2      5.3      2.3 virginica
## 117      6.5      3.0      5.5      1.8 virginica
## 118      7.7      3.8      6.7      2.2 virginica
## 119      7.7      2.6      6.9      2.3 virginica
## 120      6.0      2.2      5.0      1.5 virginica
## 121      6.9      3.2      5.7      2.3 virginica
## 122      5.6      2.8      4.9      2.0 virginica
## 123      7.7      2.8      6.7      2.0 virginica
## 124      6.3      2.7      4.9      1.8 virginica
## 125      6.7      3.3      5.7      2.1 virginica
## 126      7.2      3.2      6.0      1.8 virginica
## 127      6.2      2.8      4.8      1.8 virginica
## 128      6.1      3.0      4.9      1.8 virginica
## 129      6.4      2.8      5.6      2.1 virginica
## 130      7.2      3.0      5.8      1.6 virginica
## 131      7.4      2.8      6.1      1.9 virginica
## 132      7.9      3.8      6.4      2.0 virginica
## 133      6.4      2.8      5.6      2.2 virginica
## 134      6.3      2.8      5.1      1.5 virginica
## 135      6.1      2.6      5.6      1.4 virginica
## 136      7.7      3.0      6.1      2.3 virginica
## 137      6.3      3.4      5.6      2.4 virginica
## 138      6.4      3.1      5.5      1.8 virginica
## 139      6.0      3.0      4.8      1.8 virginica
## 140      6.9      3.1      5.4      2.1 virginica
## 141      6.7      3.1      5.6      2.4 virginica
```

```
## 142      6.9      3.1      5.1      2.3 virginica
## 143      5.8      2.7      5.1      1.9 virginica
## 144      6.8      3.2      5.9      2.3 virginica
## 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
```

```
tail(subsetSetosa)
```

```
##      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
```

```
tail(subsetVersicolor)
```

```
##      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
```

```
tail(subsetVirginica)
```

```
##      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
```

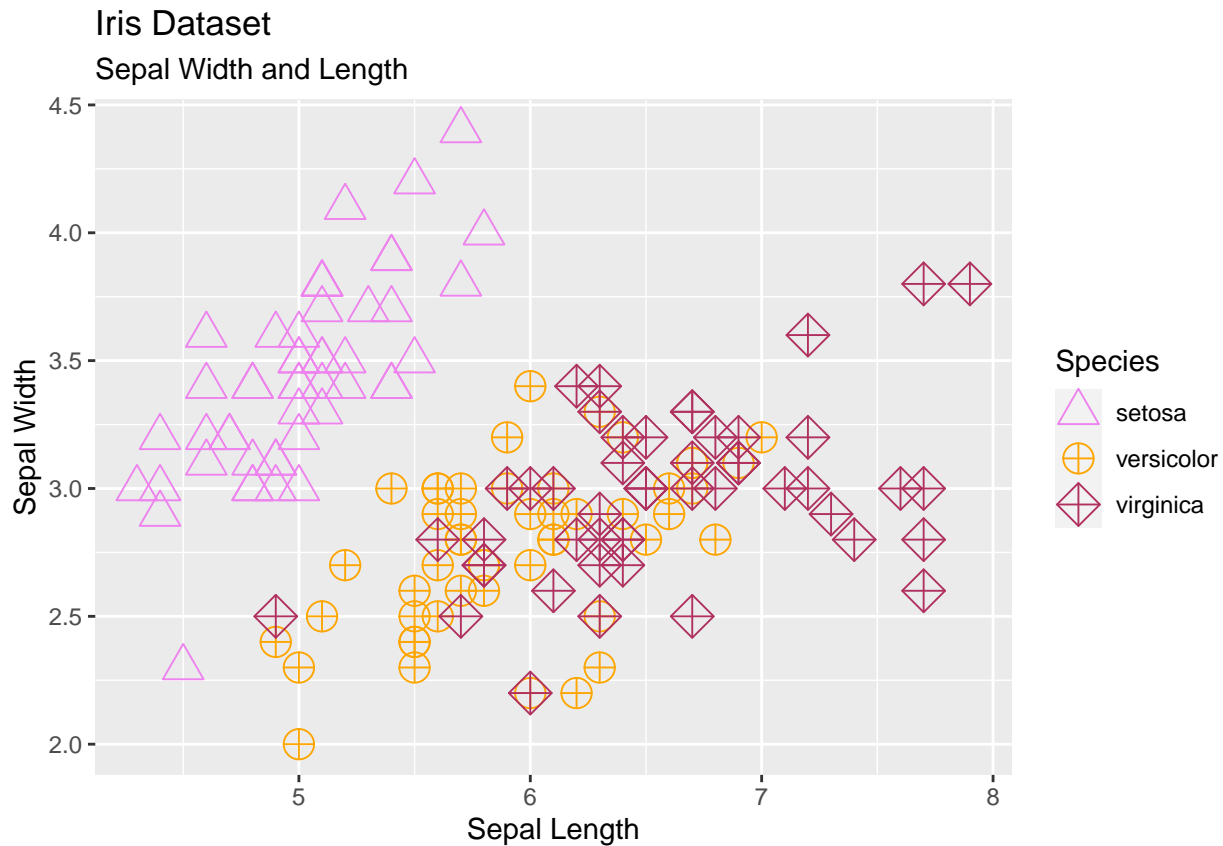
#6e Create a scatterplot of the sepal.length and sepal.width using the different species(setosa,versicolor,virginica). Add a title = "Iris Dataset", subtitle = "Sepal width and length, labels for the x and y axis, the pch symbol and colors should be based onthe species.

```
library(ggplot2)
```

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

```
scatterplot <- ggplot(iris, aes(x = Sepal.Length, y = Sepal.Width, color = Species, shape = Species)) +
  geom_point(size = 5) +
  labs(
    title = "Iris Dataset",
    subtitle = "Sepal Width and Length",
    x = "Sepal Length",
    y = "Sepal Width"
  ) +
  scale_color_manual(values = c("setosa" = "violet", "versicolor" = "orange", "virginica" = "maroon"))
```

```
scale_shape_manual(values = c("setosa" = 2, "versicolor" = 10, "virginica" = 9))
print(scatterplot)
```



#6f Interpret the result.

#The scatterplot help us see how iris flowers of different species differ in terms of sepal length and width.

#The Setosa flowers typically have short sepal length and wide sepal width. They are grouped in the upper left part.

#Versicolor flowers have average sepal length and width. They are in the middle part.

#Virginica flowers are usually long in sepal length and have narrower sepal width. They form a group in the lower right part.

#Based on the plot, it is easy to see the differences between the three iris species based on sepal length and width.

#7 Import the alexa-file.xlsx. Check on the variations. Notice that there are extra whitespaces among black variants (Black Dot, Black Plus, Black Show, BlackSpot). Also on the white variants (White Dot, White Plus, White Show, WhiteSpot).

```
library(readxl)
alexa_file <- read_excel("alexa_file.xlsx")
alexa_file
```

```
## # A tibble: 3,150 x 5
##   rating date          variation verified_reviews feedback
##   <dbl> <dtm>          <chr>          <chr>          <dbl>
## 1     5 2018-07-31 00:00:00 Charcoal Fabric Love my Echo!      1
## 2     5 2018-07-31 00:00:00 Charcoal Fabric Loved it!          1
```

```
## 3      4 2018-07-31 00:00:00 Walnut Finish      Sometimes while play~      1
## 4      5 2018-07-31 00:00:00 Charcoal Fabric    I have had a lot of ~      1
## 5      5 2018-07-31 00:00:00 Charcoal Fabric    Music                        1
## 6      5 2018-07-31 00:00:00 Heather Gray Fabric I received the echo ~      1
## 7      3 2018-07-31 00:00:00 Sandstone Fabric    Without having a cel~      1
## 8      5 2018-07-31 00:00:00 Charcoal Fabric    I think this is the ~      1
## 9      5 2018-07-30 00:00:00 Heather Gray Fabric looks great      1
## 10     5 2018-07-30 00:00:00 Heather Gray Fabric Love it! I've listen~ 1
## # i 3,140 more rows
```

#7a Rename the white and black variants by using gsub() function.

```
alexa_file$variation <- gsub("Black Dot", "BlackDot", alexa_file$variation)
alexa_file$variation <- gsub("Black Plus", "BlackPlus", alexa_file$variation)
alexa_file$variation <- gsub("Black Show", "BlackShow", alexa_file$variation)
alexa_file$variation <- gsub("Black Spot", "BlackSpot", alexa_file$variation)

alexa_file$variation <- gsub("White Dot", "WhiteDot", alexa_file$variation)
alexa_file$variation <- gsub("White Plus", "WhitePlus", alexa_file$variation)
alexa_file$variation <- gsub("White Show", "WhiteShow", alexa_file$variation)
alexa_file$variation <- gsub("White Spot", "WhiteSpot", alexa_file$variation)

alexa_file
```

```
## # A tibble: 3,150 x 5
##   rating date          variation      verified_reviews      feedback
##   <dbl> <dtm>          <chr>          <chr>          <dbl>
## 1      5 2018-07-31 00:00:00 Charcoal Fabric    Love my Echo!      1
## 2      5 2018-07-31 00:00:00 Charcoal Fabric    Loved it!          1
## 3      4 2018-07-31 00:00:00 Walnut Finish      Sometimes while play~ 1
## 4      5 2018-07-31 00:00:00 Charcoal Fabric    I have had a lot of ~ 1
## 5      5 2018-07-31 00:00:00 Charcoal Fabric    Music              1
## 6      5 2018-07-31 00:00:00 Heather Gray Fabric I received the echo ~ 1
## 7      3 2018-07-31 00:00:00 Sandstone Fabric    Without having a cel~ 1
## 8      5 2018-07-31 00:00:00 Charcoal Fabric    I think this is the ~ 1
## 9      5 2018-07-30 00:00:00 Heather Gray Fabric looks great      1
## 10     5 2018-07-30 00:00:00 Heather Gray Fabric Love it! I've listen~ 1
## # i 3,140 more rows
```

#7b Get the total number of each variations and save it into another object. Save the object as variations.RData. Write the R scripts. What is its result?

```
#install.packages("dplyr")
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
```

```
variations_total <- alexa_file %>%
  count(alexa_file$variation)
```

```
variations_total
```

```
## # A tibble: 16 x 2
##   `alexa_file$variation`      n
##   <chr>                    <int>
## 1 Black                    261
## 2 BlackDot                 516
## 3 BlackPlus                270
## 4 BlackShow                265
## 5 BlackSpot                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 WhiteDot                 184
## 14 WhitePlus                78
## 15 WhiteShow                85
## 16 WhiteSpot               109
```

```
save(variations_total, file = "variations.RData")
```

#7c From the variations.RData, create a barplot(). Complete the details of the chart which include the title, color, labels of each bar.

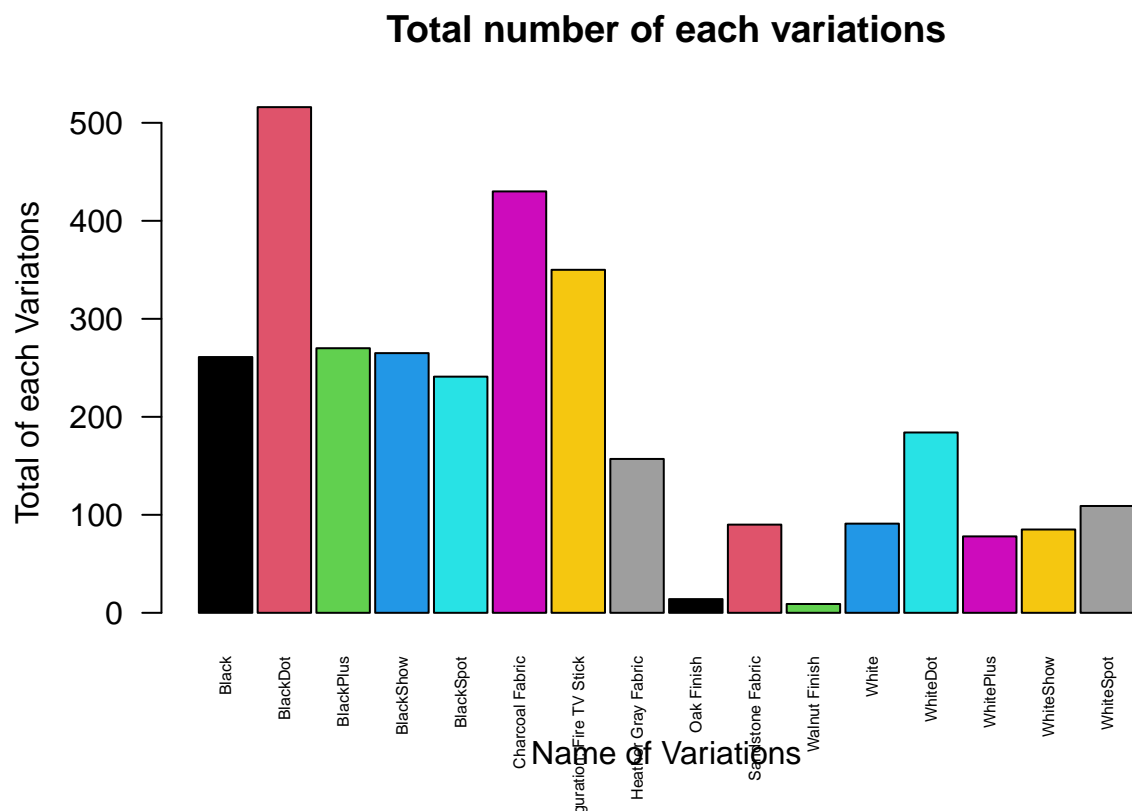
```
load("variations.RData")
variations_total
```

```
## # A tibble: 16 x 2
##   `alexa_file$variation`      n
##   <chr>                    <int>
## 1 Black                    261
## 2 BlackDot                 516
## 3 BlackPlus                270
## 4 BlackShow                265
## 5 BlackSpot                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 WhiteDot                 184
## 14 WhitePlus                78
## 15 WhiteShow                85
## 16 WhiteSpot               109
```

```
varNames <- variations_total$`alexa_file$variation`
```

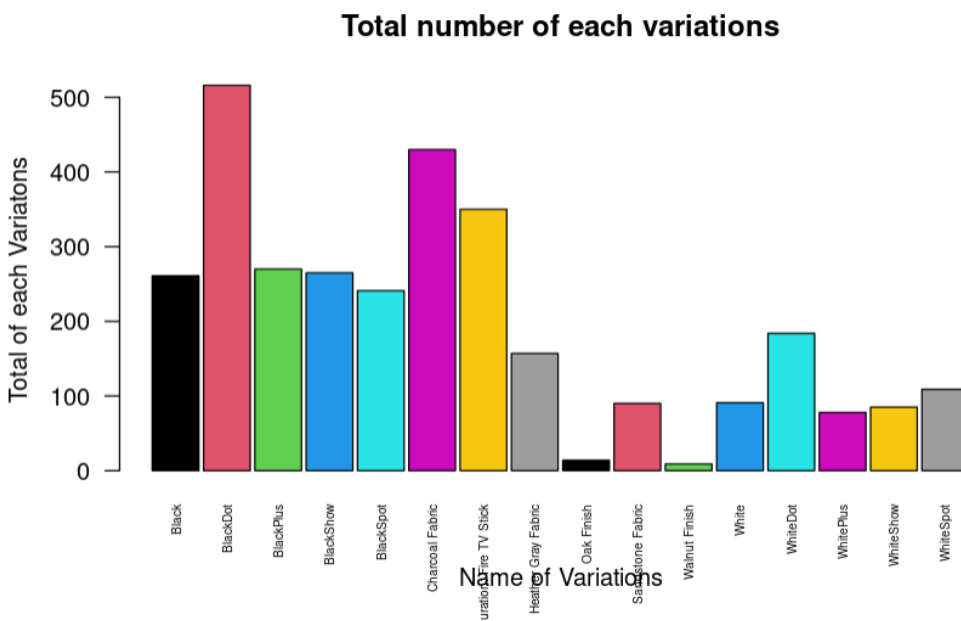
```
totalPlot <- barplot(variations_total$n,
  names.arg = varNames,
  main = "Total number of each variations",
```

```
xlab = "Name of Variations",
ylab = "Total of each Variatons",
col = 1:16,
space = 0.1,
cex.names = 0.5,
las = 2)
```



```
knitr::include_graphics("/cloud/project/RWorksheet_Octavio#4/TotalVariation.png")
```





#7d Create a barplot() for the black and white variations. Plot it in 1 frame, side by side. Complete the details of the chart.

```
blackVariations <- variations_total[variations_total$`alexa_file$variation` %in% c("Black", "BlackPlus", "BlackDot", "BlackShow", "BlackSpot"), ]
whiteVariations <- variations_total[variations_total$`alexa_file$variation` %in% c("White", "WhiteDot", "WhitePlus", "WhiteShow", "WhiteSpot"), ]

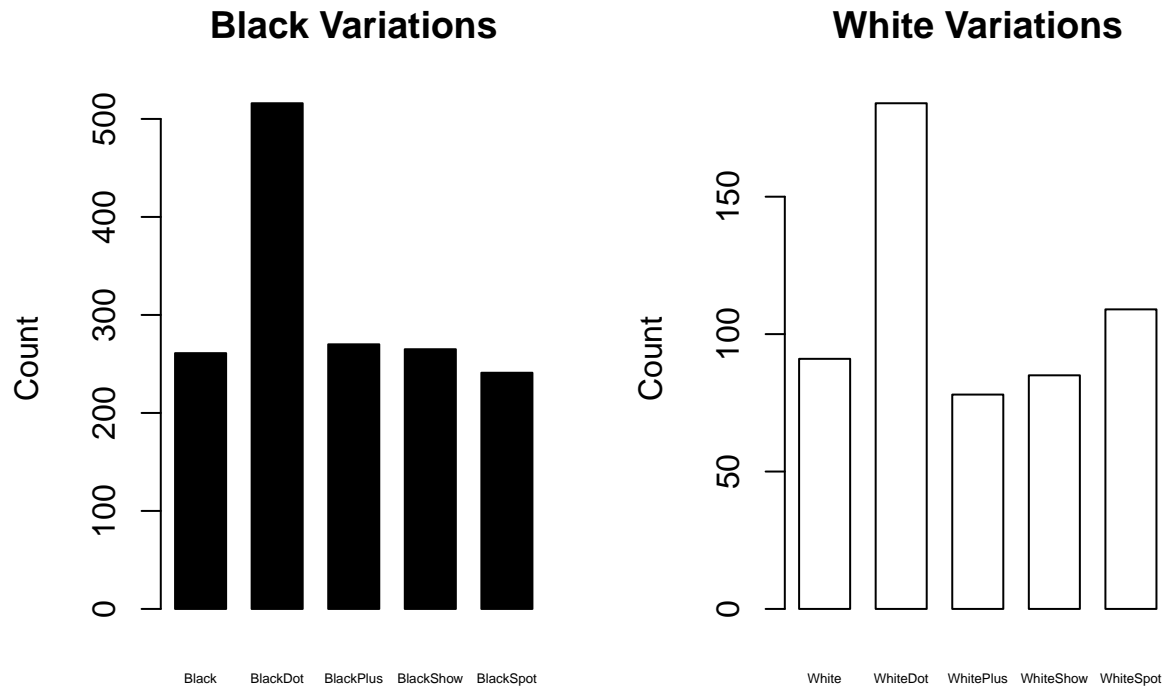
par(mfrow = c(1,2))
blackVariations

## # A tibble: 5 x 2
##   `alexa_file$variation`      n
##   <chr>                  <int>
## 1 Black                  261
## 2 BlackDot               516
## 3 BlackPlus              270
## 4 BlackShow              265
## 5 BlackSpot              241

blackPlot <- barplot(height = blackVariations$n,
  names.arg = blackVariations$`alexa_file$variation`,
  col = c("black"),
  main = "Black Variations",
  xlab = "Variation",
  ylab = "Count",
  border = "black",
  space = 0.5,
  cex.names = 0.4)

whitePlot <- barplot(height = whiteVariations$n,
  names.arg = whiteVariations$`alexa_file$variation`,
  col = c("white"),
  main = "White Variations",
```

```
xlab = "Variation",
ylab = "Count",
border = "black",
space = 0.5,
cex.names = 0.4)
```



```
knitr::include_graphics("/cloud/project/RWorksheet_Octavio#4/BlackandWhiteVars.png")
```

