Untitled

2023-11-08

1.

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

  zeroMatrix <- matrix(0, nrow = 5, ncol = 5)


  for (i in 1:5) {
  for (j in 1:5) {

    diff <- abs(vectorA[i] - j)

    cat(diff, " ")
  }
  cat("\n")
}
```

```
## 0  1  2  3  4
## 1  0  1  2  3
## 2  1  0  1  2
## 3  2  1  0  1
## 4  3  2  1  0
```

2.

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

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

3.

```
userInput <- as.numeric(readline("Enter a number to start the Fibonacci sequence: "))
```

```
## Enter a number to start the Fibonacci sequence:
```

```
a <- 0
b <- 1

cat("Fibonacci sequence starting from", userInput, ": ")
```

```
## Fibonacci sequence starting from NA :
```

```
cat(userInput, " ")
```

```
## NA
```

```
repeat {

  nextFibo <- a + b


  if (nextFibo > 500) {
    break
  }


  cat(nextFibo, " ")


  a <- b
  b <- nextFibo
}
```

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

4a.

```
  library(readr)
householdData <- read.csv("householdData.csv")
householdData
```

```
##    shoeSize Height Gender
## 1       6.5   66.0      F
## 2       9.0   68.0      F
## 3       8.5   64.5      F
## 4       8.5   65.0      F
## 5      10.5   70.0      M
## 6       7.0   64.0      F
## 7       9.5   70.0      F
## 8       9.0   71.0      F
## 9      13.0   72.0      M
## 10      7.5   64.0      F
## 11     10.5   74.5      M
## 12      8.5   67.0      F
## 13     12.0   71.0      M
## 14     10.5   71.0      M
## 15     13.0   77.0      M
## 16     11.5   72.0      M
## 17      8.5   59.0      F
## 18      5.0   62.0      F
## 19     10.0   72.0      M
## 20      6.5   66.0      F
## 21      7.5   64.0      F
## 22      8.5   67.0      M
## 23     10.5   73.0      M
## 24      8.5   69.0      F
## 25     10.5   72.0      M
## 26     11.0   70.0      M
```

```
## 27      9.0   69.0      M
## 28     13.0   70.0      M
```

4b.

```
male <- householdData[householdData$Gender == "M", ]
female <- householdData[householdData$Gender == "F", ]

maleCount <- nrow(male)
femaleCount <- nrow(female)

cat("Numbers of male: ", maleCount, "\n")
```

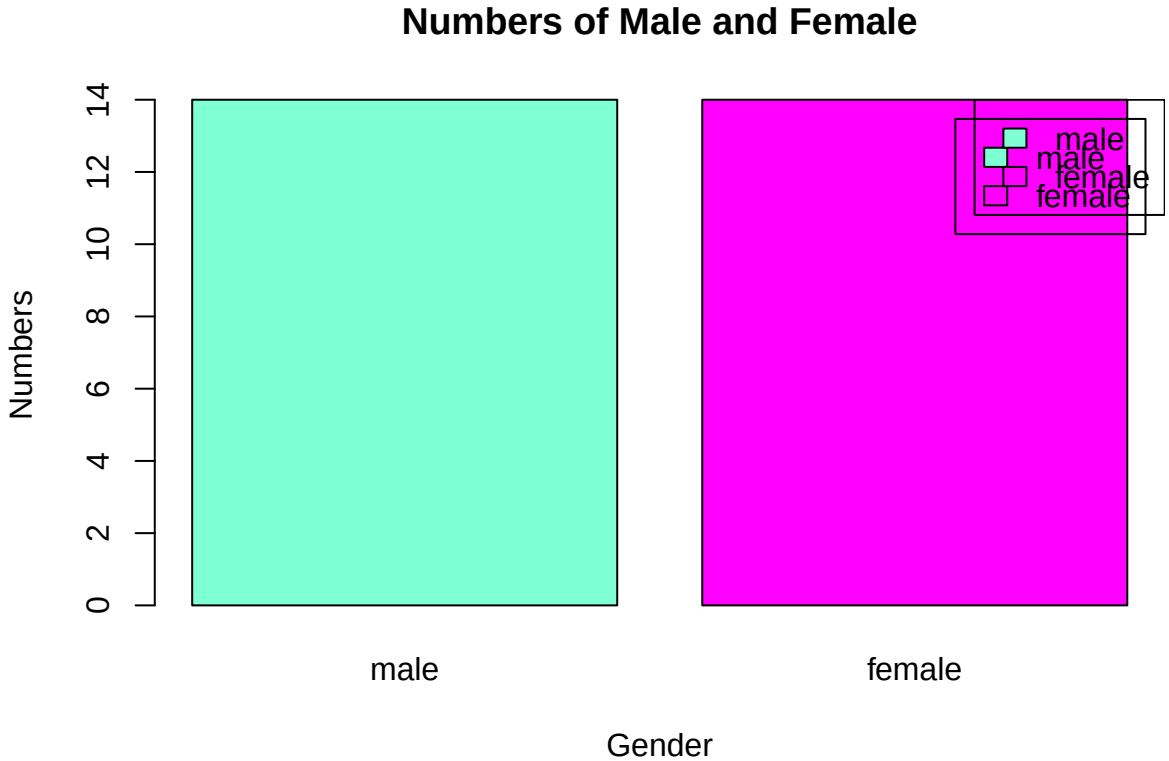
```
## Numbers of male:  14
```

```
cat("Numbers of female: ", femaleCount, "\n")
```

```
## Numbers of female:  14
```

4c.

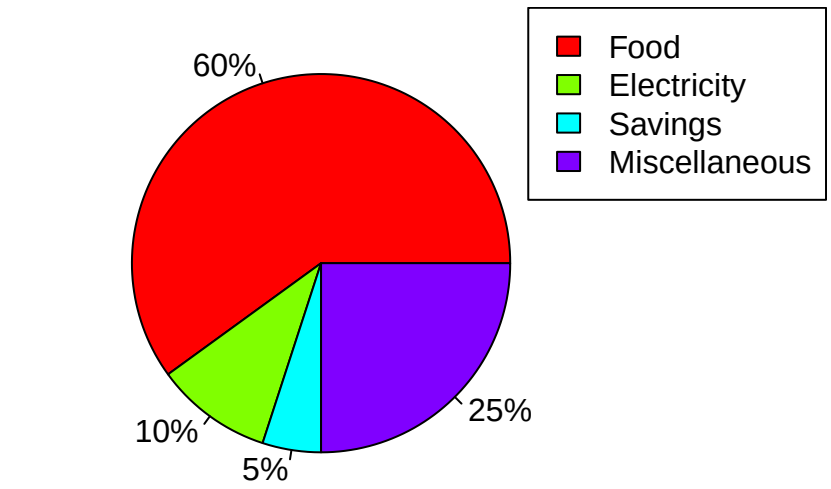
```
gendCount <- c(male = maleCount, female = femaleCount)

barplot(gendCount, main = "Numbers of Male and Female",
        xlab = "Gender", ylab = "Numbers", col = c("aquamarine", "magenta"),
        legend.text = TRUE, width = c(0.2, 0.2))
legend("topright", legend = names(gendCount), fill =  c("aquamarine", "magenta"))
```



5.

```
# Define the data
mypie <- c(60, 10, 5, 25)

# Create the pie chart
pie(mypie,
```

```
    main = "Monthly Income of Dela Cruz family",
    col = rainbow(length(mypie)),
    labels = c("60%", "10%", "5%","25%"),

)
legend("topright", legend = c("Food", "Electricity", "Savings", "Miscellaneous"), fill = rainbow(length
```



6a.

```
        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 ...
```

```
#This output shows the structure of the data(iris) that contains the sepal length, sepal width, petal l
```

6b.

```
    sepalen <- mean(iris$Sepal.Length)

    sepalwim <- mean(iris$Sepal.Width)

    petle <- mean(iris$Petal.Length)

    petwi <- mean(iris$Petal.Width)


    print(sepalen)
```

```
## [1] 5.843333
```

```
    print(sepalwim)
```

```
## [1] 3.057333
```

```
    print(petle)
```

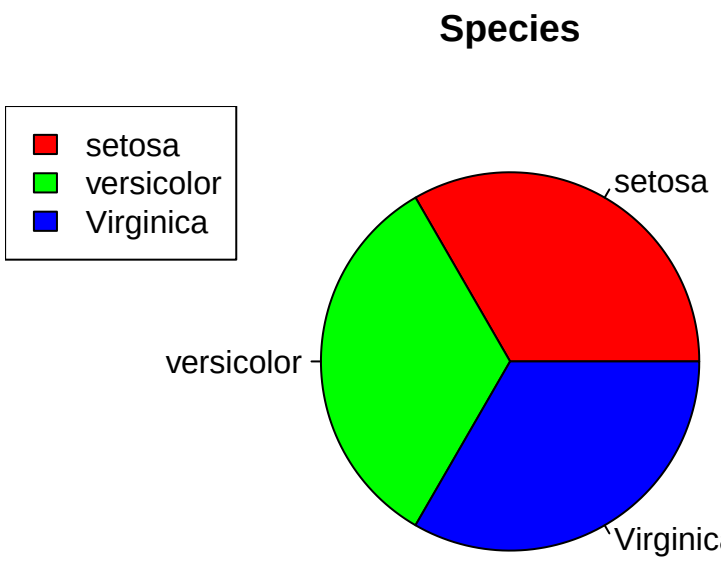
```
## [1] 3.758
```

```
    print(petwi)
```

```
## [1] 1.199333
```

6c.

```
    specount <- table(iris$Species)

    pie(specount,
        main = "Species",
        col = rainbow(length(specount)),
        labels = c("setosa", "versicolor", "Virginica")
        )
    legend("topleft", legend = c("setosa", "versicolor", "Virginica"), fill = rainbow(length(specount)
```



6d.

```
    setsub <- iris[iris$Species == "setosa" | iris$Species == "Versicolor" | iris$Species == "virgini
    setsub
```

```
##     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
## 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
```

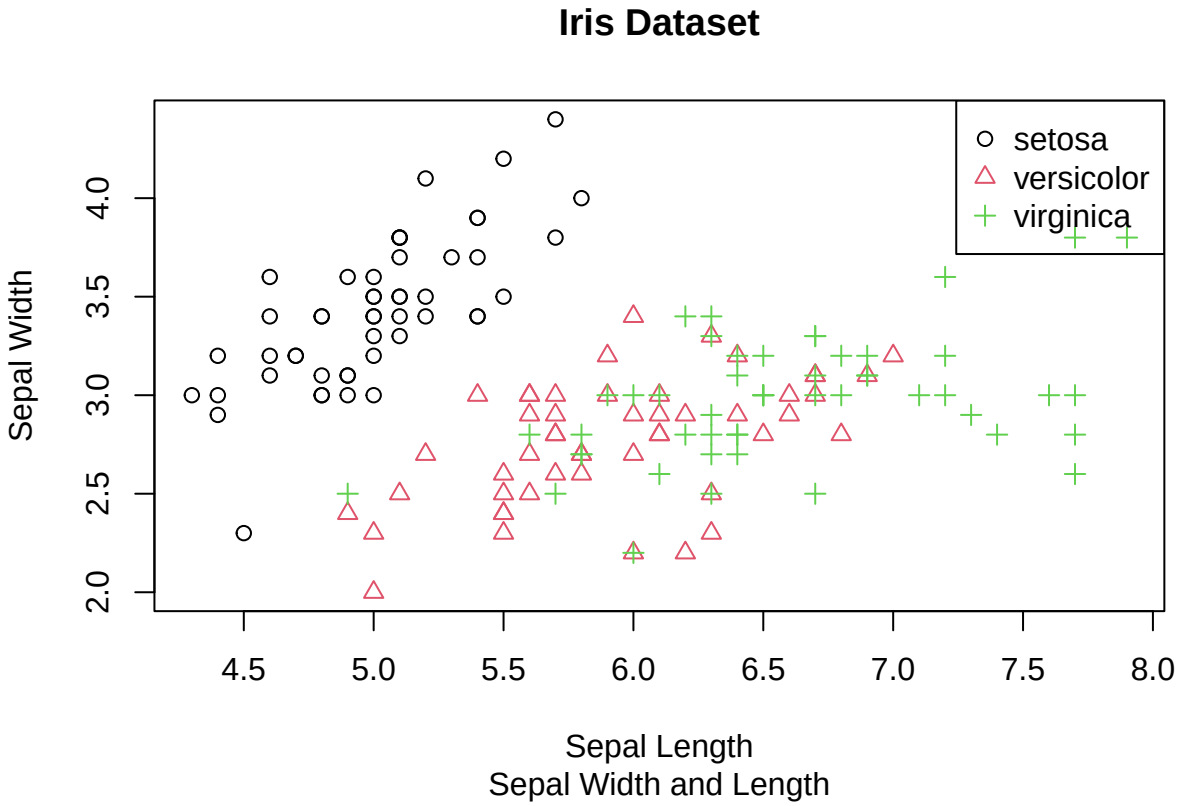
```
## 120          6.0         2.2          5.0         1.5 virginica
## 121          6.9         3.2          5.7         2.3 virginica
## 122          5.6         2.8          4.9         2.0 virginica
## 123          7.7         2.8          6.7         2.0 virginica
## 124          6.3         2.7          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(setsub, 6)
```

```
##     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.

```
plot(iris$Sepal.Length, iris$Sepal.Width,
     col = as.numeric(iris$Species),  # Color based on species
     pch = as.numeric(iris$Species),  # Different symbol for each species
     main = "Iris Dataset",
     sub = "Sepal Width and Length",
     xlab = "Sepal Length", ylab = "Sepal Width"
)

legend("topright", legend = levels(iris$Species), col = unique(as.numeric(iris$Species)), pch = unique(a
```




```
#6f the scatterplot displays the relationship between the sepal length and width.
```

7.

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

```
## # A tibble: 3,150 x 5
##    rating date                variation           verified_reviews      feedback
##     <dbl> <dttm>              <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.

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

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

    excimp
```

```
## # A tibble: 3,150 x 5
##    rating date                variation           verified_reviews      feedback
##     <dbl> <dttm>              <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.

```
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
```

```
varitot <- excimp %>%
  count(excimp$variation)

varitot
```

```
## # A tibble: 16 x 2
##    `excimp$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
```

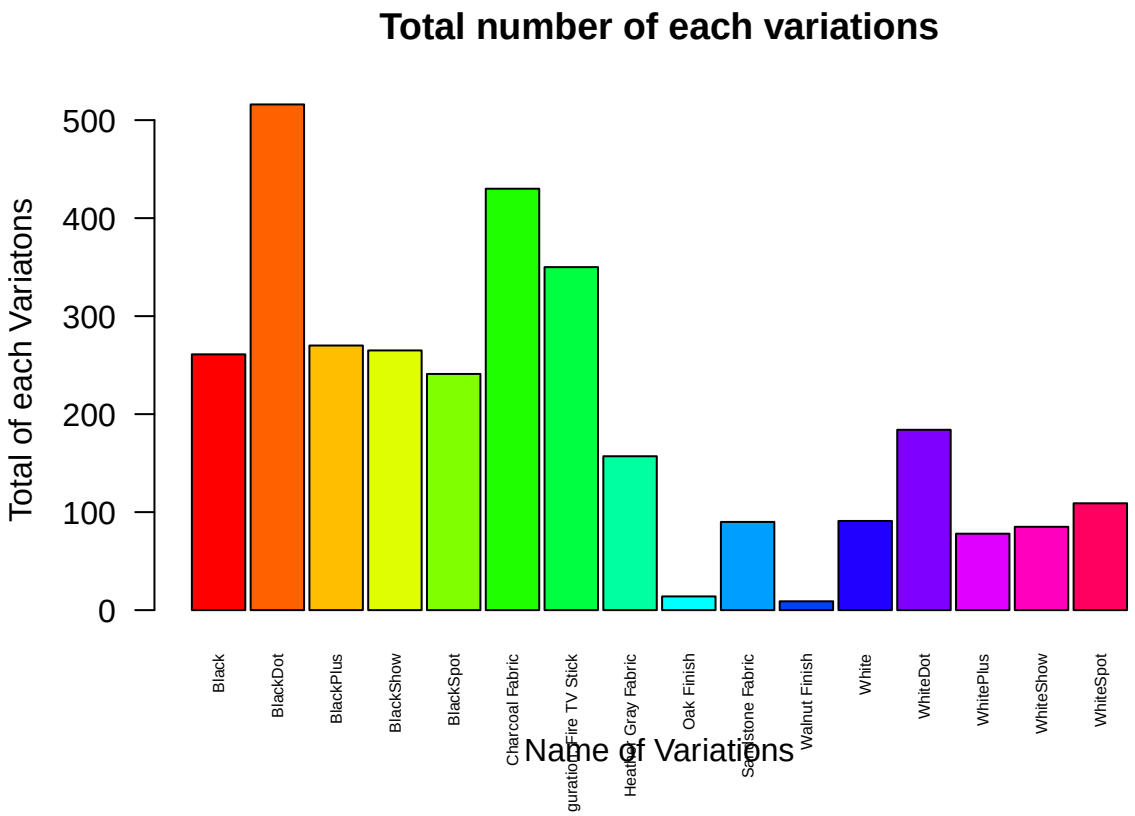
```
save(varitot, file = "variations.RData")
```

7c.

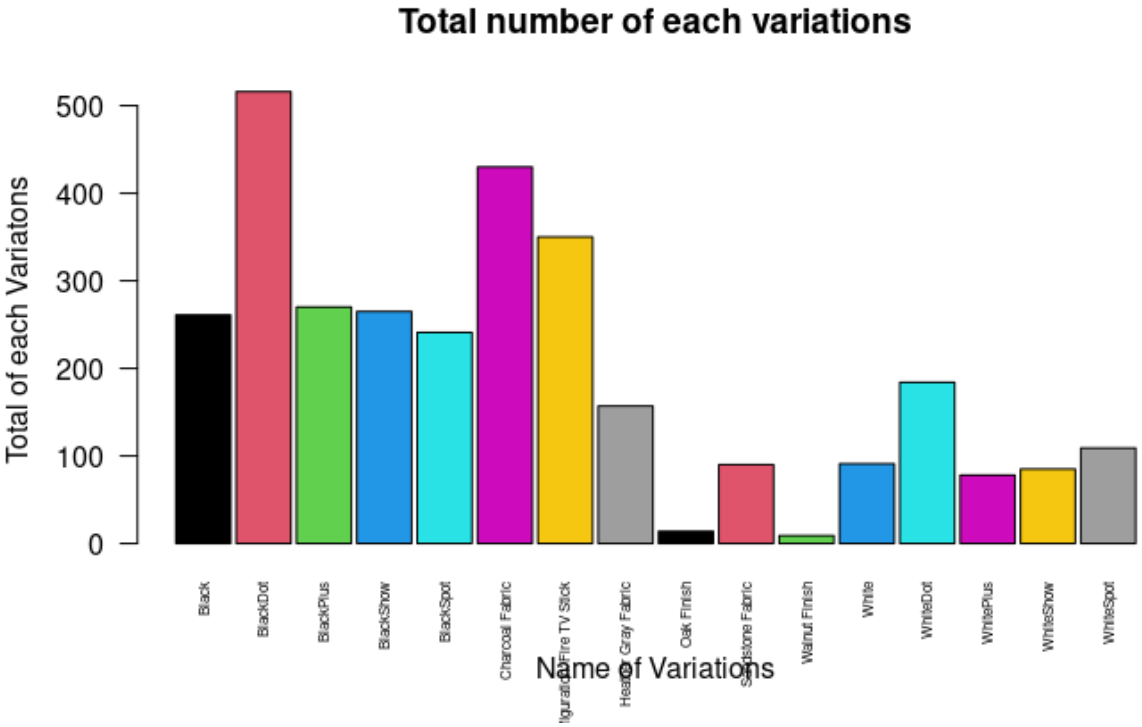
```
    load("variations.RData")
  varitot
```

```
## # A tibble: 16 x 2
##    `excimp$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
```

```
  namevari <- varitot$`excimp$variation`

  plotot <- barplot(varitot$n,
                    names.arg = namevari,
                    main = "Total number of each variations",
                    xlab = "Name of Variations",
                    ylab = "Total of each Variatons",
                    col = rainbow(length(namevari)),
                    space = 0.1,
                    cex.names = 0.5,
                    las = 2)
```




```
knitr::include_graphics("/cloud/project/Worksheet#4/barplot.png")
```

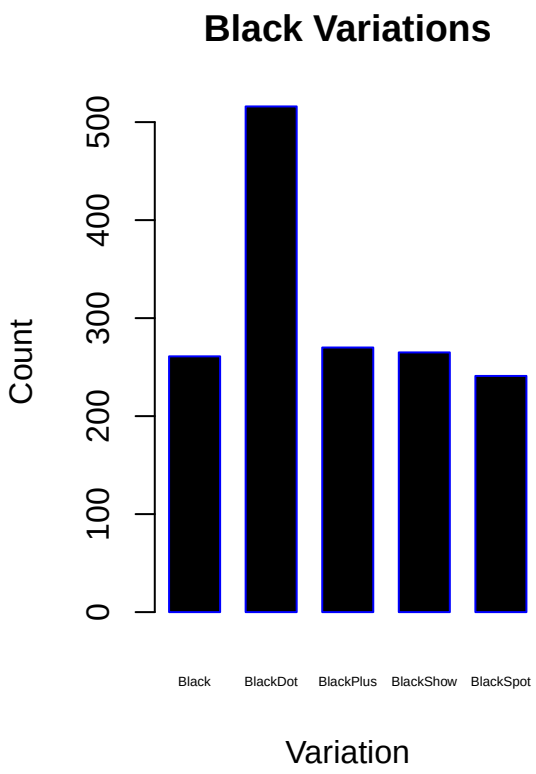


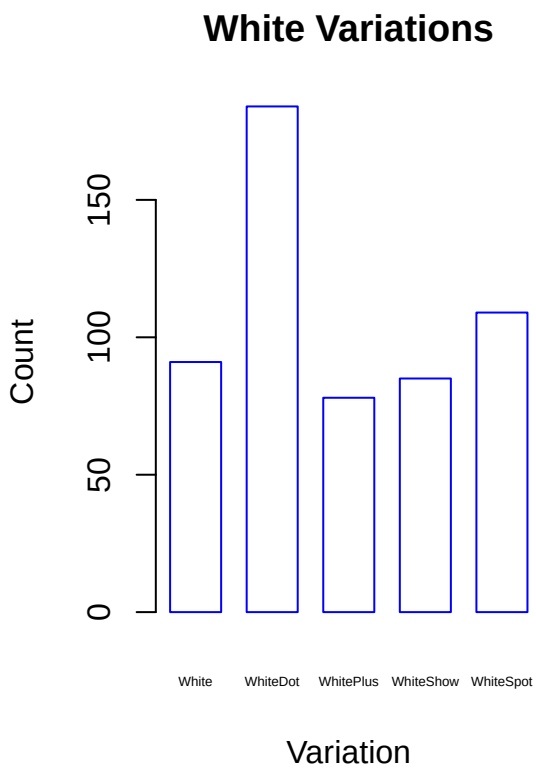
7d.

```r
variblk <- varitot[varitot$`excimp$variation` %in% c("Black", "BlackPlus" , "BlackShow" ,"BlackSpot" ,

variwht <- varitot[varitot$`excimp$variation` %in% c("White", "WhiteDot", "WhitePlus", "WhiteShow", "Whi

par(mfrow = c(1,2))
variblk
```

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

```r
blkplo <- barplot(height = variblk$n,
                  names.arg = variblk$`excimp$variation`,
                  col = c("black"),
                  main = "Black Variations",
                  xlab = "Variation",
                  ylab = "Count",
                  border = "blue",
                  space = 0.5,
                  cex.names = 0.4)


whtPlo <- barplot(height = variwht$n,
                  names.arg = variwht$`excimp$variation`,
                  col = c("white"),
                  main = "White Variations",
                  xlab = "Variation",
                  ylab = "Count",
                  border = "blue",
                  space = 0.5,
                  cex.names = 0.4)
```


Black Variations
Count
0
100
200
300
400
500
Black
BlackDot
BlackPlus
BlackShow
BlackSpot
Variation


White Variations
Count
0
50
100
150
White
WhiteDot
WhitePlus
WhiteShow
WhiteSpot
Variation