# RWorksheet_loredo#4b.Rmd

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#1.

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

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

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

print(matrixs)
```

```
##      [,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

```
start_num <- as.numeric(readline("Enter the starting number for the Fibonacci sequence: "))
```

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

```
if (is.na(start_num)) {
  cat("Please enter a valid numeric starting number.\n")
} else {
  num1 <- 0
  num2 <- 1

  while (num2 <= 500) {
    if (!is.na(start_num) && num2 >= start_num) {
```

```
      cat(num2, " ")
    }

    fib_sum <- num1 + num2
    num1 <- num2
    num2 <- fib_sum
  }

  cat("\n")
}
```

```
## Please enter a valid numeric starting number.
```

#4 A

```
imprt <- read.csv("Householddata.csv")
head(imprt)
```

```
##   X ShoeSize 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
```

#4 b

```
Household <- read.csv("Householddata.csv")

# Filter the data based on Gender
males <- Household[Household$Gender == "M",]
females <- Household[Household$Gender == "F",]

# Display the results
males
```

```
##     X ShoeSize Height Gender
## 5   5     10.5   70.0      M
## 9   9     13.0   72.0      M
## 11 11     10.5   74.5      M
## 13 13     12.0   71.0      M
## 14 14     10.5   71.0      M
## 15 15     13.0   77.0      M
## 16 16     11.5   72.0      M
## 19 19     10.0   72.0      M
## 22 22      8.5   67.0      M
## 23 23     10.5   73.0      M
## 25 25     10.5   72.0      M
## 26 26     11.0   70.0      M
## 27 27      9.0   69.0      M
## 28 28     13.0   70.0      M
```

```
females
```

```
##     X ShoeSize 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
## 6   6      7.0   64.0      F
## 7   7      9.5   70.0      F
## 8   8      9.0   71.0      F
## 10 10      7.5   64.0      F
## 12 12      8.5   67.0      F
## 17 17      8.5   59.0      F
## 18 18      5.0   62.0      F
## 20 20      6.5   66.0      F
## 21 21      7.5   64.0      F
## 24 24      8.5   69.0      F
```

```r
# Calculate the number of observations for each gender
f <- nrow(females)
m <- nrow(males)

# Display the number of observations
cat("Number of Female Observations:", f, "\n")
```

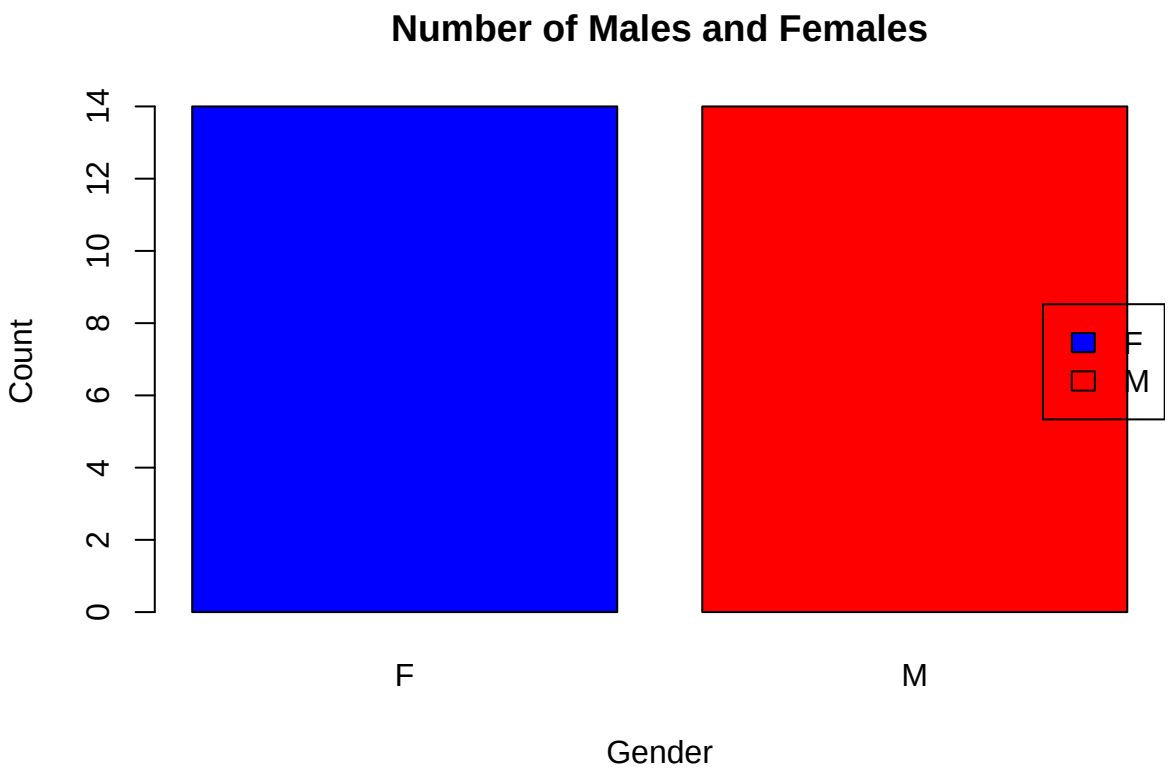
```
## Number of Female Observations: 14
```

```r
cat("Number of Male Observations:", m, "\n")
```

```
## Number of Male Observations: 14
```

#4 c

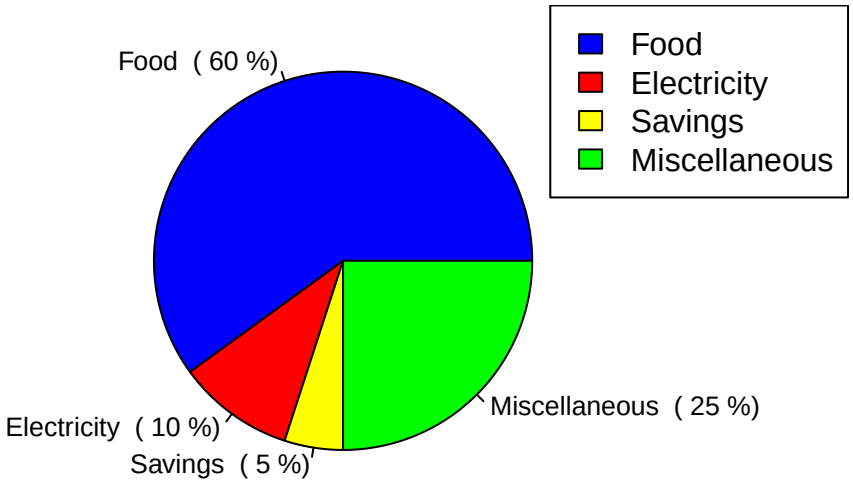
```r
totalFM <- table(Household$Gender)
barplot(totalFM,
main = "Number of Males and Females", xlab = "Gender", ylab = "Count", col = c("blue", "red"))
legend("right",
legend = rownames(totalFM),
fill = c("blue", "red"))
```




#5.

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

costspend$Percentage <- costspend$Value / sum(costspend$Value) * 100
colors <- c("blue", "red", "yellow", "green")

# Adjust the font size with the cex parameter
pie(costspend$Value,
    labels = paste(costspend$Category, " (", costspend$Percentage, "%)"),
    col = colors,
    main = "The Monthly Income Spending of Dela Cruz Family",cex = 0.8)

legend("topright", costspend$Category, fill = colors)
```

## The Monthly Income Spending of Dela Cruz Family




#6 a.

```
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 ...
```

```
#1. The dataset comprises 150 observations and 5 variables.
#2. Sepal.Length the sepal length of iris flowers.
#3. Sepal.Width the sepal width of iris flowers.
#4. Petal.Length the petal length of iris flowers.
#5. Petal.Width the petal width of iris flowers.
#6. Species This is the categorized variables.
```

#6 b.

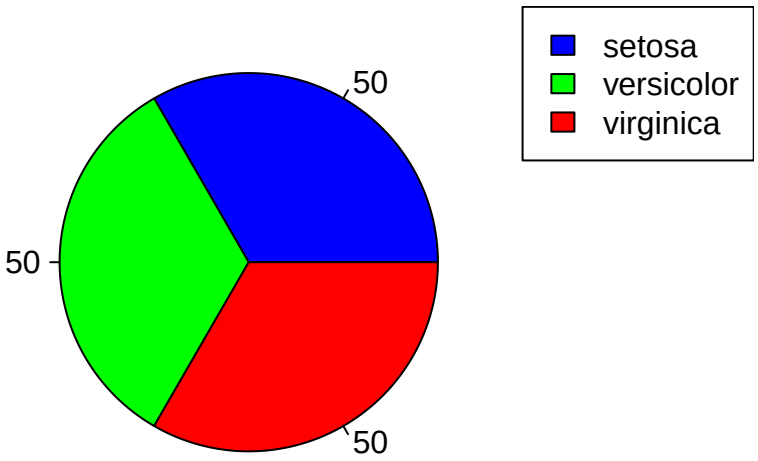
```
mean <- c(
  mean(iris$Sepal.Length),
  mean(iris$Sepal.Width) ,
  mean(iris$Petal.Length),
  mean(iris$Petal.Width)
)
mean
```

```
## [1] 5.843333 3.057333 3.758000 1.199333
```

#6 c.

```
species <- table(iris$Species)
colors <- c("blue", "green", "red")

pie(species, col = colors,
    labels = species )
    legend("topright",
     legend = levels(iris$Species),
```

```
    fill = colors)
     title("Species Distribution")
```




#6 d.

```
subset1 <- iris[iris$Species == "setosa" ,]
subset2 <- iris[iris$Species == "versicolor",]
subset3 <- iris[iris$Species == "virginica",]

tail(subset1, 6)
```

```
##    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(subset2, 6)
```

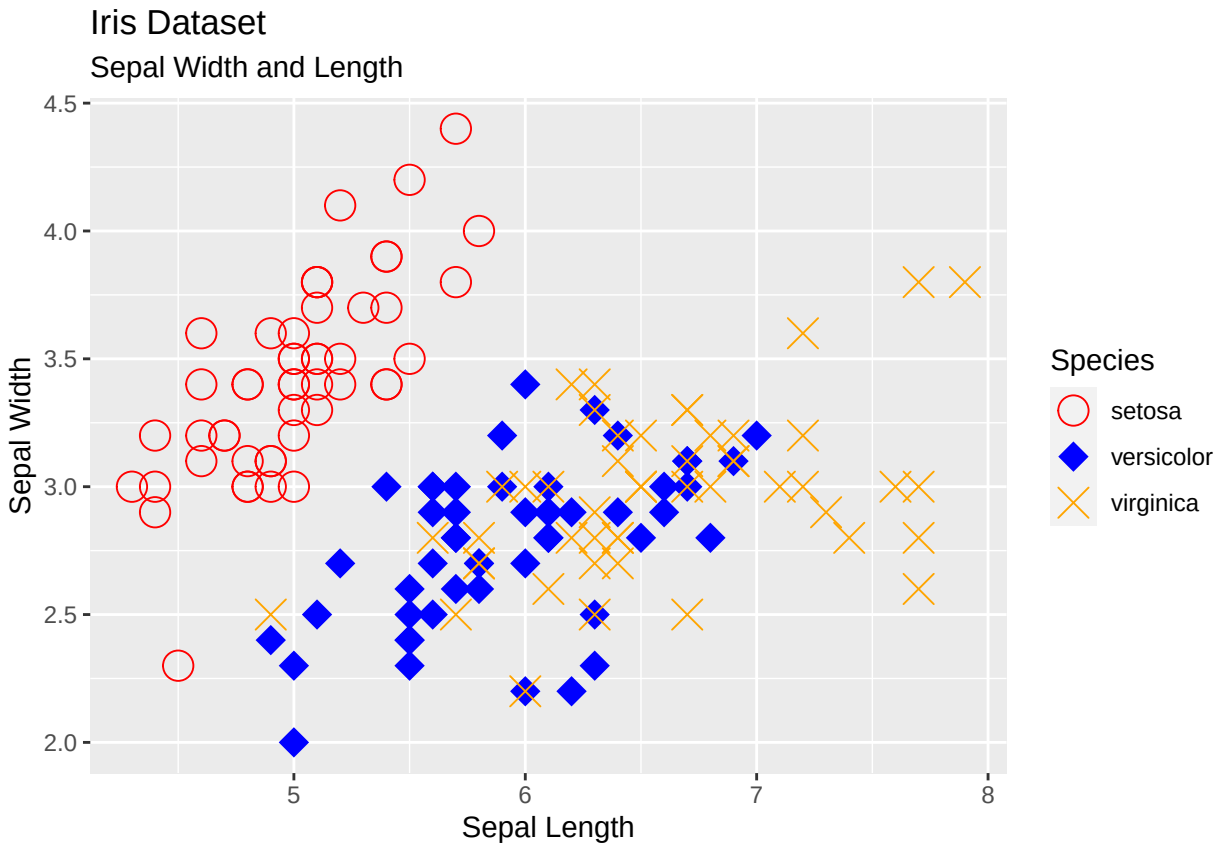
```
##     Sepal.Length Sepal.Width Petal.Length Petal.Width    Species
## 95           5.6         2.7          4.2         1.3 versicolor
## 96           5.7         3.0          4.2         1.2 versicolor
## 97           5.7         2.9          4.2         1.3 versicolor
## 98           6.2         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(subset3, 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
```

#6 e

```r
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" = "red", "versicolor" = "blue", "virginica" = "orange")) +
  scale_shape_manual(values = c("setosa" = 1, "versicolor" = 18, "virginica" = 4))

print(scatterplot)
```




#6 f. Interpret

```r
#The visualization depicts a graphical overview of the Sepal Length and Sepal Width for each Iris flowe

#1. Setosa flowers are indicated by a red color and a circle
#2. Versicolor flowers are represented in blue and displayed with a diamond shape.
#3. Virginica flowers are characterized by a yellow color and a x symbol.
```

#7

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

```
## # 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
```

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

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

alexa$variation <- gsub("Black Dot", "BlacDot", alexa$variation)
alexa$variation <- gsub("Black Show", "BlackShow", alexa$variation)
alexa$variation <- gsub("Black Plus", "BlackPlus", alexa$variation)
alexa$variation <- gsub("Black Spot", "BlackSpot", alexa$variation)

alexa
```

```
## # 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
```

#7 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
```

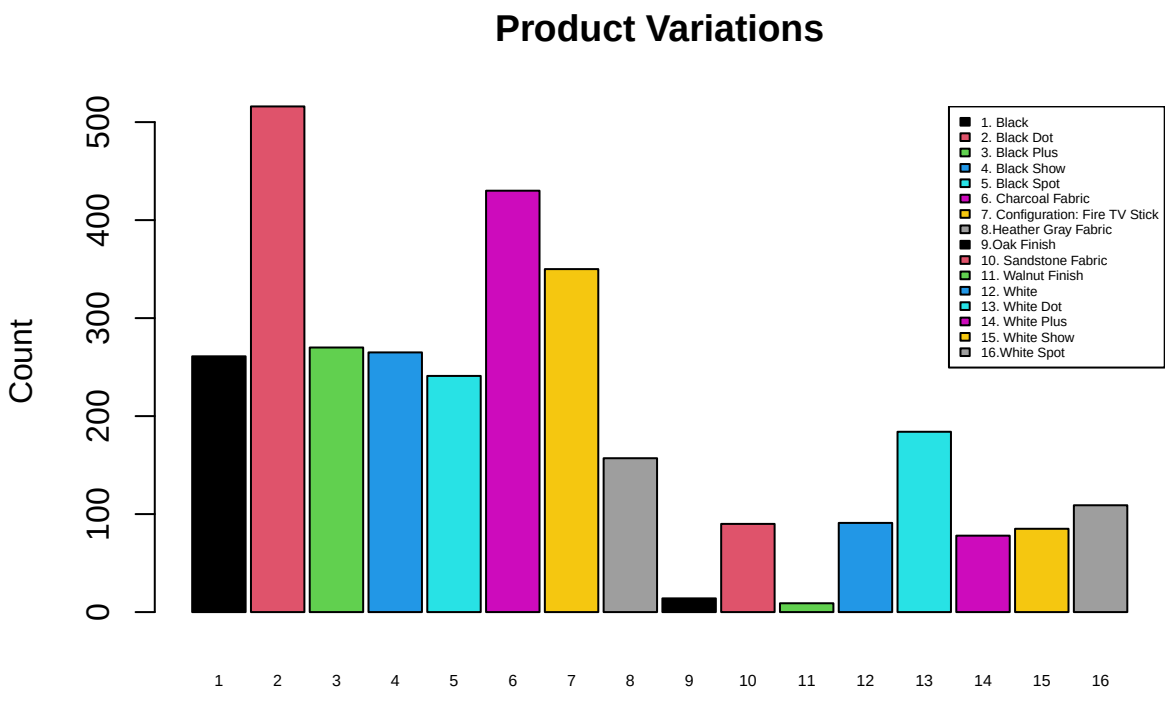
```
variations <- alexa %>%
  count(alexa$variation)

variations
```

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

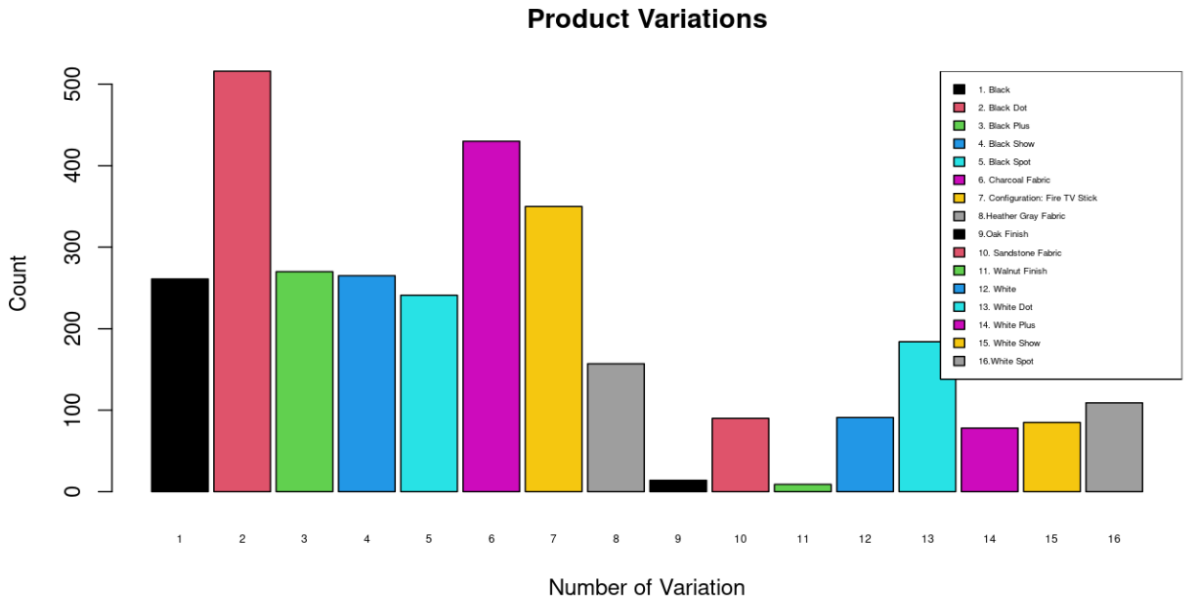
```
save(variations, file = "variations.RData")
```

#7 c.

```
load("variations.RData")
names <- c(
  "1. Black", "2. Black Dot", "3. Black Plus", "4. Black Show",
  "5. Black Spot", "6. Charcoal Fabric", "7. Configuration: Fire TV Stick",
  "8.Heather Gray Fabric", "9.Oak Finish", "10. Sandstone Fabric",
  "11. Walnut Finish", "12. White", "13. White Dot", "14. White Plus", "15. White Show", "16.White Spot
CompletePlot <- barplot(variations$n,
  names.arg = 1:16,
  col = 1:16,
  main = "Product Variations",
  xlab = "Number of Variation",
  ylab = "Count",
  las = 0.0,
  cex.names = 0.5,
  space = 0.1
)
legend("topright", legend = names, fill = 1:16, cex = 0.4)
```



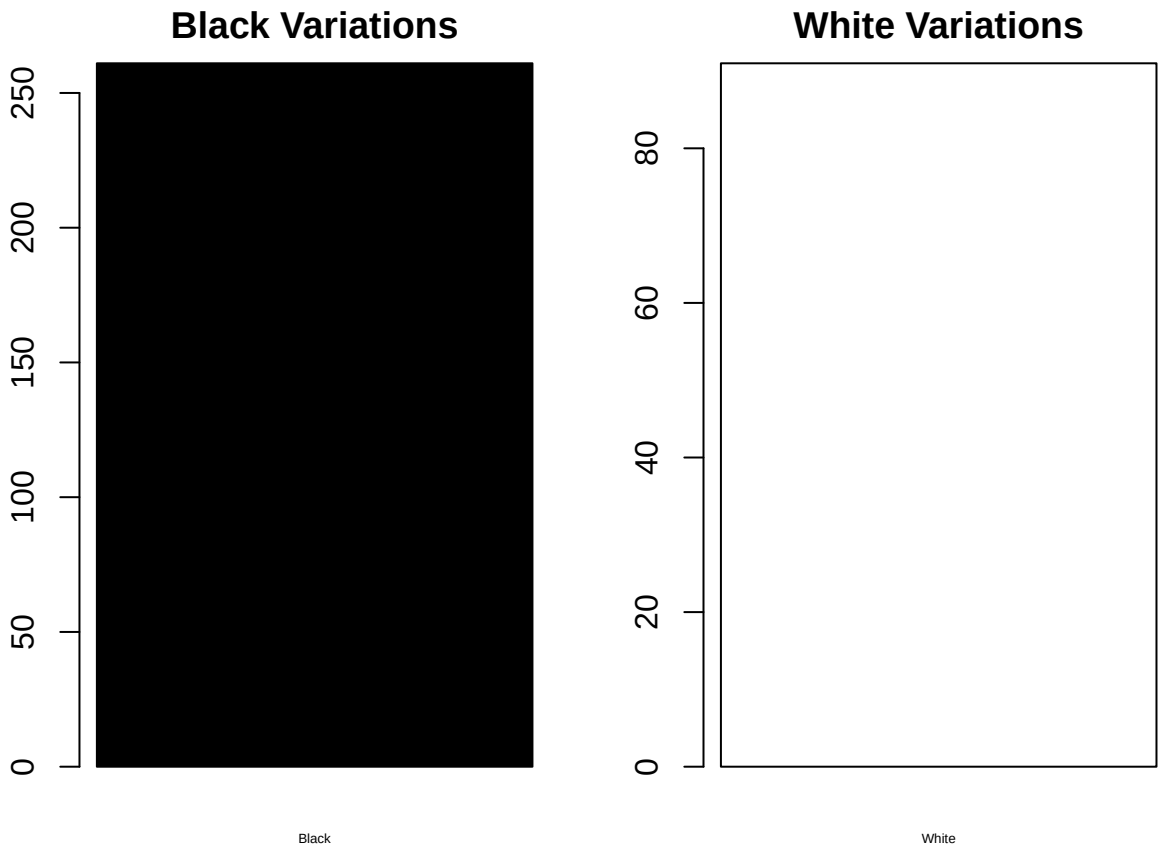

```
knitr::include_graphics("/cloud/project/RWorksheet_loredo#4b.Rmd/productvariations.png")
```




#7 d.

```
Blackplot <- variations[variations$`alexa$variation` %in% c("Black", "BlackDot", "BlackShow", "BlackPlus

Whiteplot <- variations[variations$`alexa$variation` %in% c("White", "WhiteDot", "WhiteShow", "WhitePlus
```

```r
par(mfrow = c(1, 2), mar = c(2, 2, 2, 2))

Black <- barplot(height = Blackplot$n,
                 names.arg = Blackplot$`alexa$variation`,
                 col = "Black",
                 main = "Black Variations",
                 xlab = "Number of Variation",
                 ylab = "Count",
                 las = 0.2,
                 cex.names = 0.4,
                 space = 0.2
)

# Barplot for White variations
White <- barplot(height = Whiteplot$n,
                 names.arg = Whiteplot$`alexa$variation`,
                 col = "White",
                 main = "White Variations",
                 xlab = "Number of Variation",
                 ylab = "Count",
                 las = 0.2,
                 cex.names = 0.4,
                 space = 0.2
)
```



```
knitr::include_graphics("/cloud/project/RWorksheet_loredo#4b.Rmd/bandwvariation.png")
```