RWork-sheet_Talon#4b

Cedric Mikhail Talon

2023-11-08

#1. Using the for loop, create an R script that will display a 5x5 matrix

```
vector <- c(1,2,3,4,5)
matrix <- matrix(0,nrow =5, ncol =5)

for (i in 1:5)
  for (j in 1:5)
{
  matrix[i,j] <- abs (vector[i] - vector[j])
}
  matrix
```

```
##      [,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 Print the string "*" using for() function.

```
for(i in 1:5)
  cat(paste0("\"",rep("*",i), "\""), "\n")
```

```
## "*"
## "*" "*"
## "*" "*" "*"
## "*" "*" "*" "*"
## "*" "*" "*" "*" "*"
```

#3

```
start <- as.numeric(readline("enter the fist number in fibo seq: "))
```

```
## enter the fist number in fibo seq:
```

```
start <- 4
a <- start
b <- 0

cat("Fib from start",start,":\n")
```

```
## Fib from start 4 :
```

```
cat(start,"")
```

```
## 4
```

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

```
## 4  4  8  12  20  32  52  84  136  220  356
```

#4 Create a graph for the number of males and females for Household Data.

```
Newdata <- read.csv("sapatos.csv")
head(Newdata)
```

```
##   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
```

```
shoes <- read.csv("sapatos.csv",header = TRUE)

shoes
```

```
##     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
## 7   7       9.5   70.0      F
## 8   8       9.0   71.0      F
## 9   9      13.0   72.0      M
## 10 10       7.5   64.0      F
## 11 11      10.5   74.5      M
## 12 12       8.5   67.0      F
## 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
## 17 17       8.5   59.0      F
## 18 18       5.0   62.0      F
## 19 19      10.0   72.0      M
## 20 20       6.5   66.0      F
## 21 21       7.5   64.0      F
## 22 22       8.5   67.0      M
## 23 23      10.5   73.0      M
## 24 24       8.5   69.0      F
## 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
```

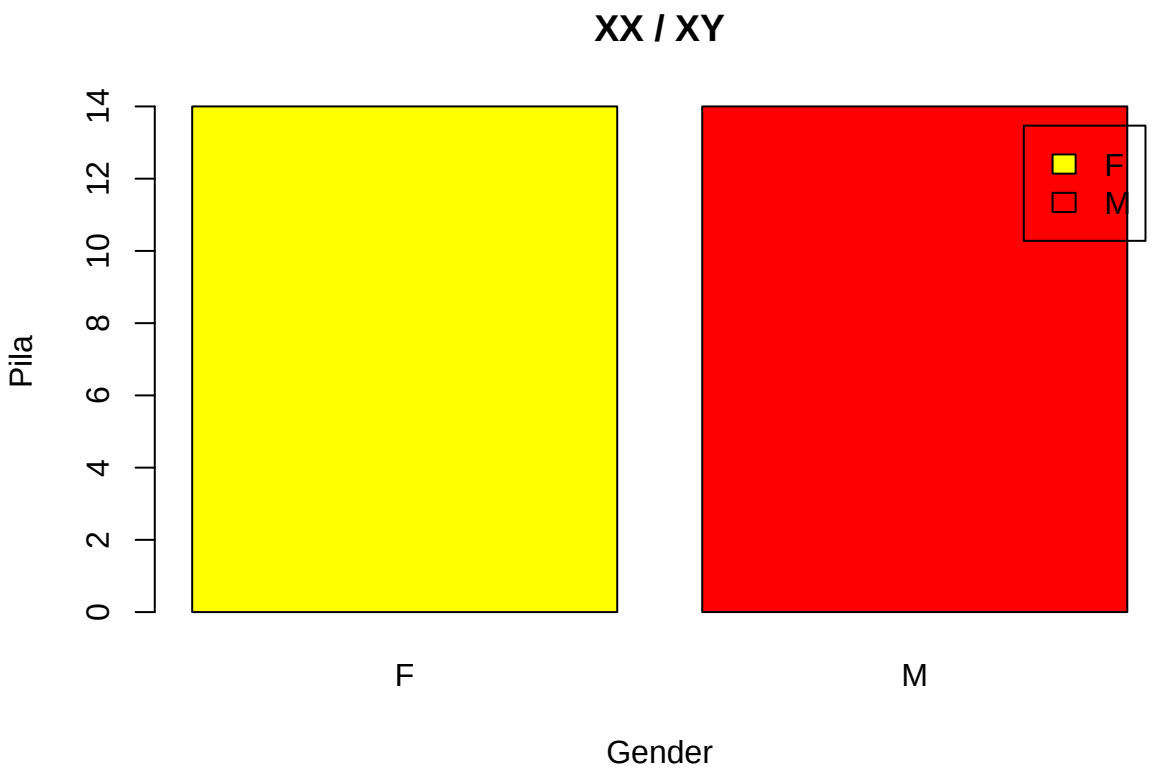
```
maleSub <- subset(shoes, Gender == "M")
maleSub
```

```
##     X Shoe_Size 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
```

```
femaleSub <- subset(shoes, Gender == "F")
femaleSub
```

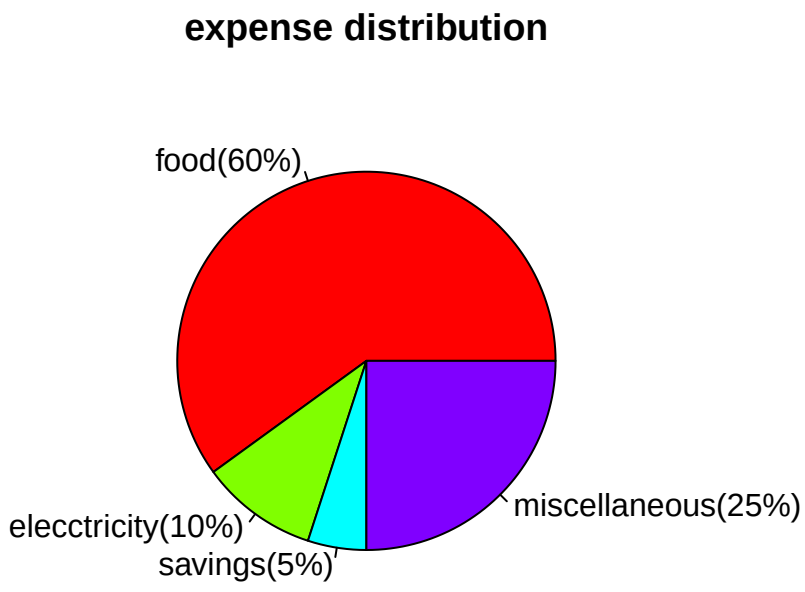
```
##     X Shoe_Size Height Gender
## 1   1       6.5   66.0      F
## 2   2       9.0   68.0      F
## 3   3       8.5   64.5      F
## 4   4       8.5   65.0      F
## 6   6       7.0   64.0      F
## 7   7       9.5   70.0      F
## 8   8       9.0   71.0      F
## 10 10       7.5   64.0      F
## 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
```

```
  ratio <- table(Newdata$Gender)
barplot(ratio,
        main = "XX / XY",
        xlab = "Gender",
        ylab = "Pila",
        col = c("yellow", "red"),
        legend.text = rownames(ratio),
        beside = TRUE)
```



#5 the following income of Dela Cruz family was spent on the follwing

```
data <- c(food = 60,elecctricity = 10,savings = 5,miscellaneous = 25)

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


pie(data, labels = paste(names(data),"(",percent,")",sep=""),col = rainbow(length(data)),main = "expens
```



#6 Use the iris dataset

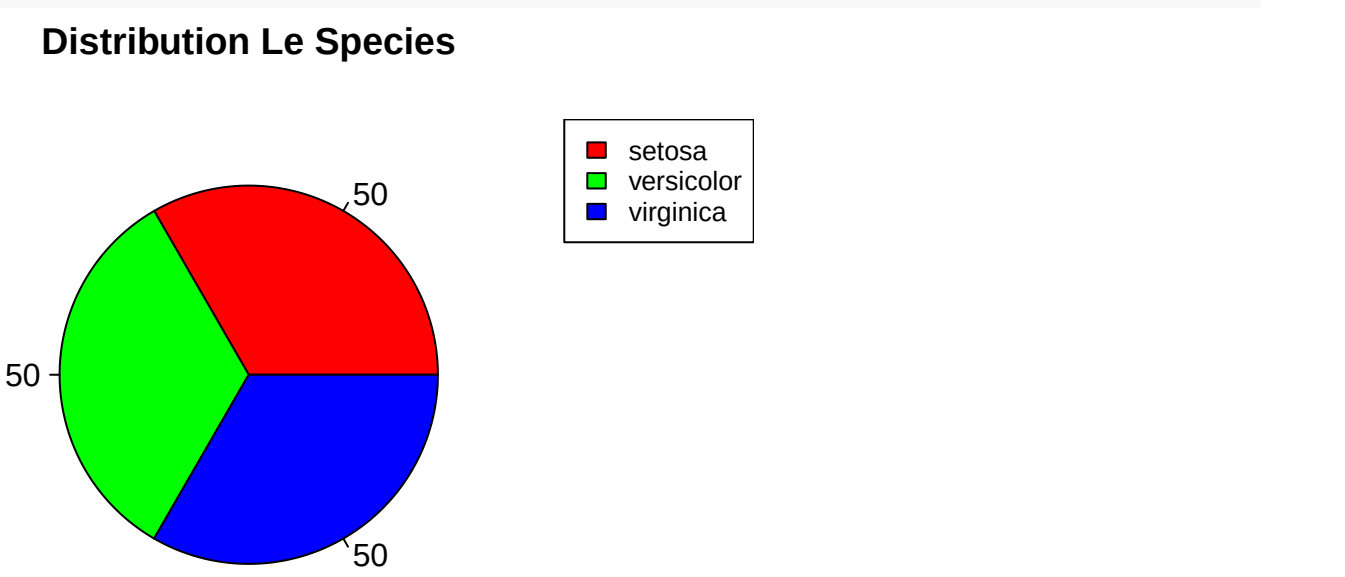
```r
data(iris)


#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 ...
```

```r
#b

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

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

```r
#c
species <- table(iris$Species)
pie(species, labels = species, col = rainbow(length(species)), main = "Distribution Le Species")
legend("topright", names(species), cex = 0.8, fill = rainbow(length(species)))
```




```r
#d
setosa_sub <- subset(iris, Species == "Setosa")
versicolor_sub <- subset(iris, Species == "Versicolor")
virginica_sub <- subset(iris, Species == "Virginica")



tail(setosa_sub, 6)
```

```
## [1] Sepal.Length Sepal.Width  Petal.Length Petal.Width  Species
## <0 rows> (or 0-length row.names)
```

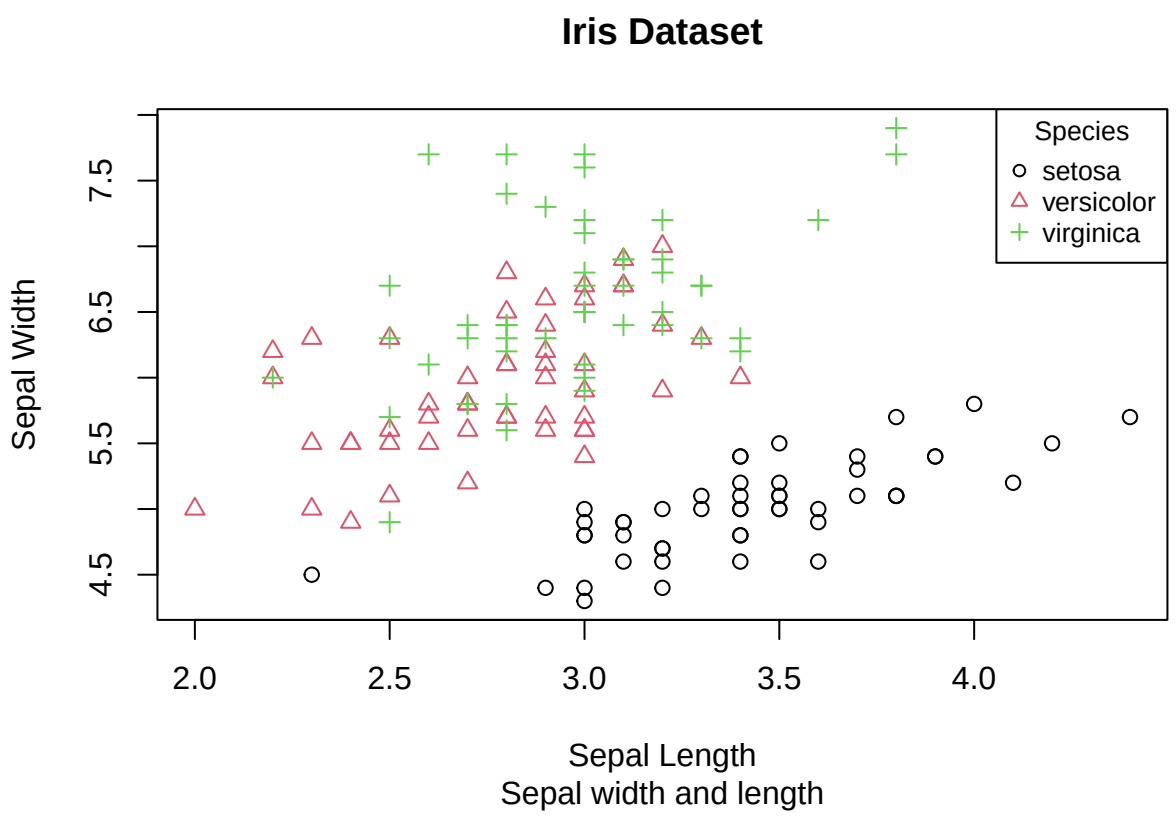
```r
tail(versicolor_sub, 6)
```

```
## [1] Sepal.Length Sepal.Width  Petal.Length Petal.Width  Species
## <0 rows> (or 0-length row.names)
```

```r
tail(virginica_sub, 6)
```

```
## [1] Sepal.Length Sepal.Width  Petal.Length Petal.Width  Species
## <0 rows> (or 0-length row.names)
```

```r
#e
iris$Species <- as.factor(iris$Species)

plot(
  Sepal.Length ~ Sepal.Width,
  data = iris,
   pch = as.integer(iris$Species),
   col = as.integer(iris$Species),

  xlab = "Sepal Length",
  ylab = "Sepal Width",
  main = "Iris Dataset",
  sub = "Sepal width and length")

   legend("topright", legend = levels(iris$Species), col = 1:3, pch = 1:3, cex = 0.8, title = "Species
```




```r
 #f
#the dataset has variables, columns and rows in a dataframe format.
#The four numerical variables are Petal.Length, Petal.Width, Sepal.Length, and Sepal. Width
```

#7.Import the alexa-file.xlsx. Check on the variations.

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

```
## # 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
```

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

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

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

alexaFile
```

```
## # 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
```

#b Get the total number of each variations and save it into another object.

```
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
```

```
totalVar <- alexaFile %>%
  count(alexaFile$variation)

totalVar
```

```
## # A tibble: 16 x 2
##    `alexaFile$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(totalVar , file = "variations.RData")
```

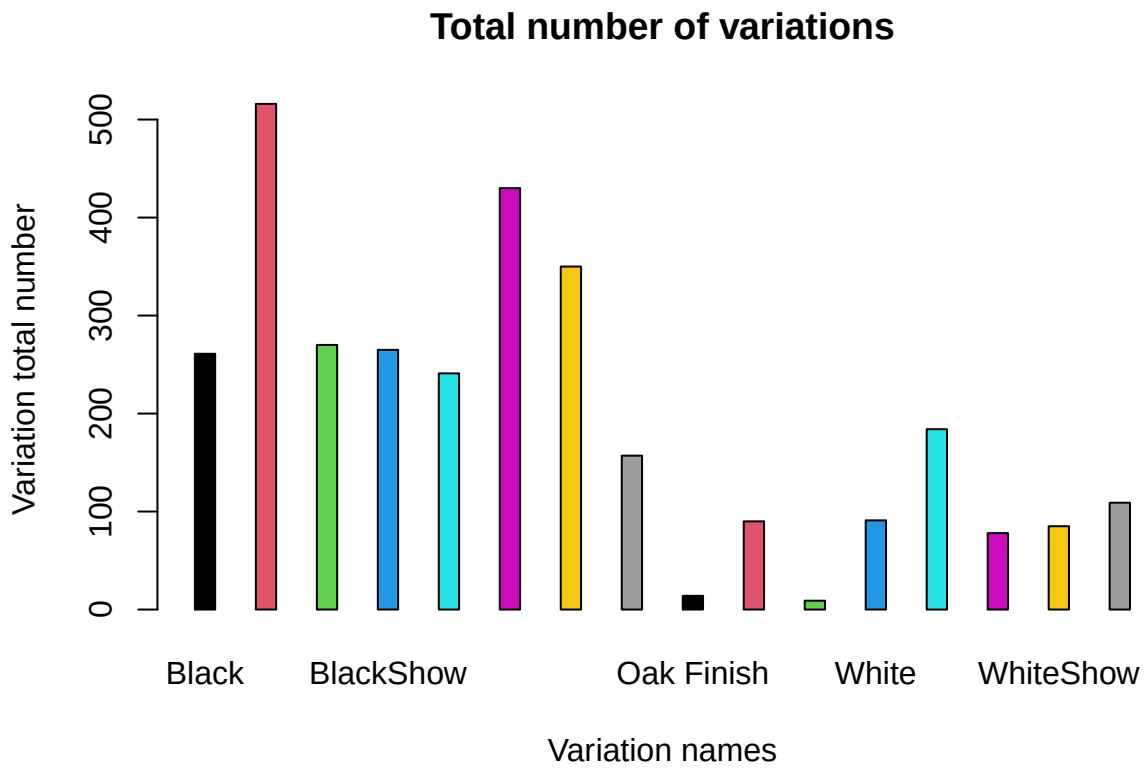
#c From the variations.RData, create a barplot().

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

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

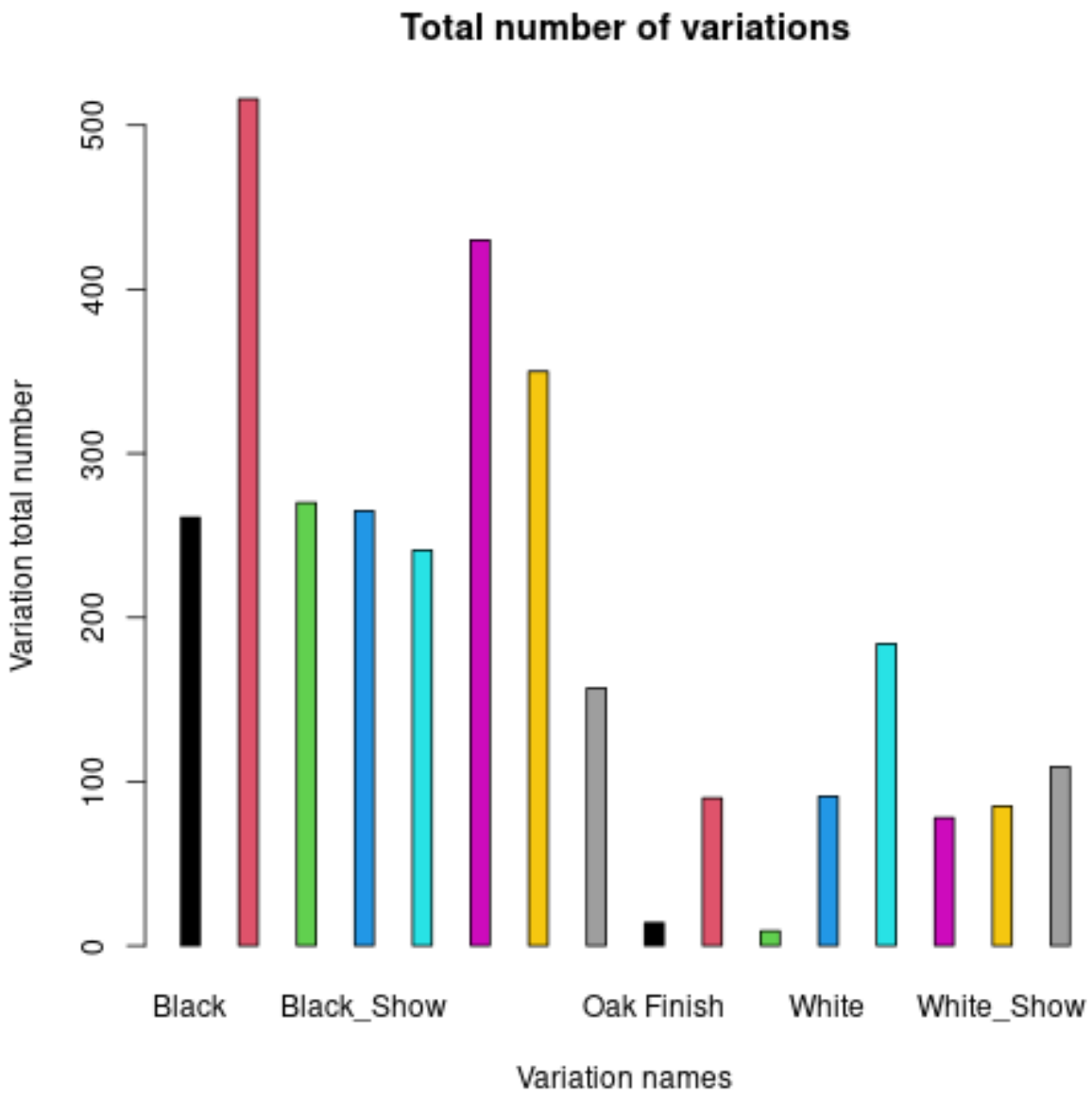
```
varNames <- totalVar$`alexaFile$variation`

totallenPlotten <- barplot(totalVar$n,
        names.arg = varNames,
        main = "Total number of variations",
        xlab = "Variation names",
        ylab = "Variation total number",
        col = 1:16,
          space = 2)
```




```
png("totallenPlotten.png")
dev.off
```

```
## function (which = dev.cur())
## {
##     if (which == 1)
##         stop("cannot shut down device 1 (the null device)")
##     .External(C_devoff, as.integer(which))
##     dev.cur()
## }
## <bytecode: 0x55b96f6e9ee8>
## <environment: namespace:grDevices>
```

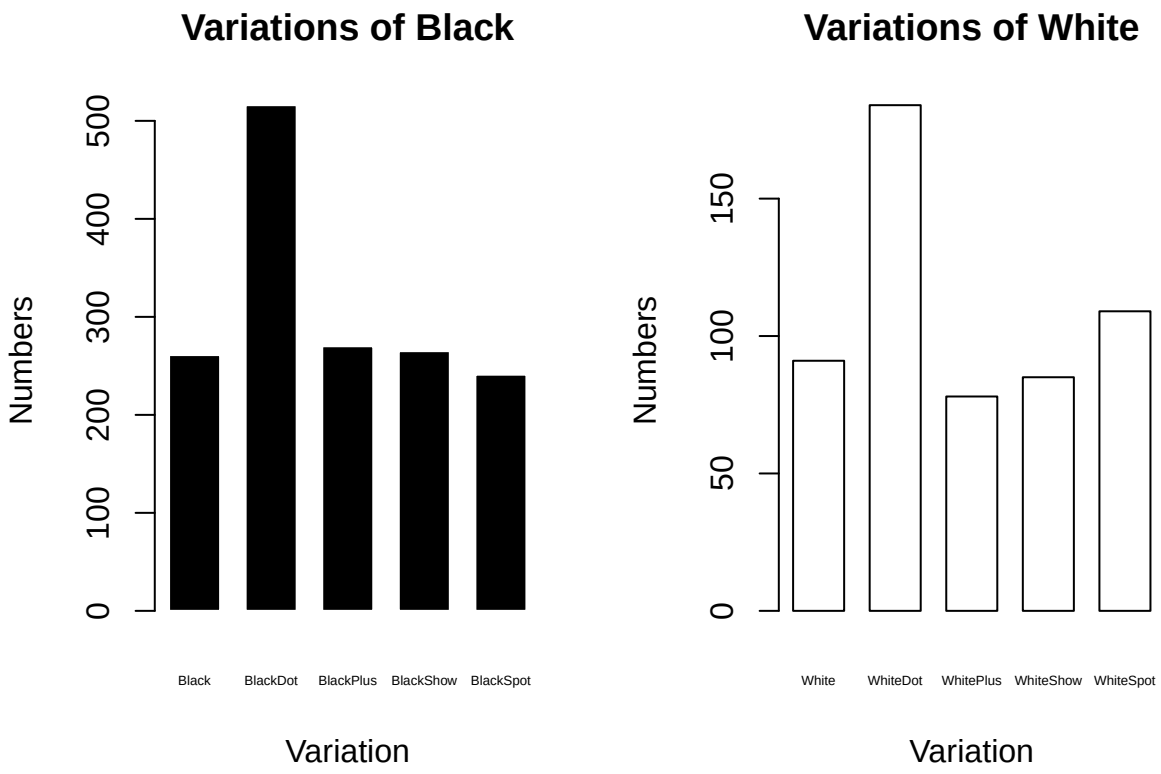
```
 knitr::include_graphics("/cloud/project/RWorkSheet#4/4B/totallenPlotten.png")
```



#d Create a barplot() for the black and white variations.

```
black_Var <- totalVar[totalVar$`alexaFile$variation` %in% c("Black", "BlackDot" , "BlackSpot" ,"BlackSh

white_Var <- totalVar[totalVar$`alexaFile$variation` %in% c("White", "WhiteDot", "WhiteShow", "WhitePlu

    par(mfrow = c(1,2))


  darkmode <-  barplot(height = black_Var$n,
        names.arg = black_Var$`alexaFile$variation`,
        col = c("black"),
        main = "Variations of Black",
        xlab = "Variation",
```

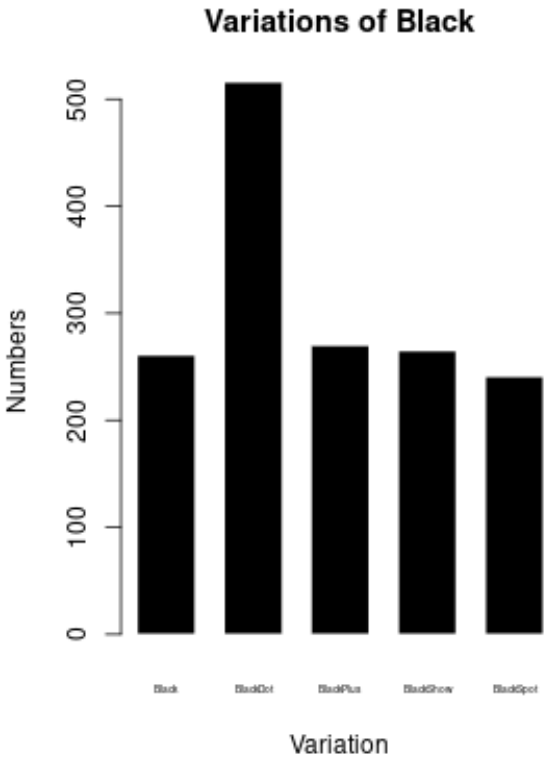
```
        ylab = "Numbers",
        border = "white",
        space = 0.5,
        cex.names = 0.4)

  lightmode <-  barplot(height = white_Var$n,
        names.arg = white_Var$`alexaFile$variation`,
        col = c("white"),
        main = "Variations of White",
        xlab = "Variation",
        ylab = "Numbers",
        border = "black",
        space = 0.5,
        cex.names = 0.4)
```

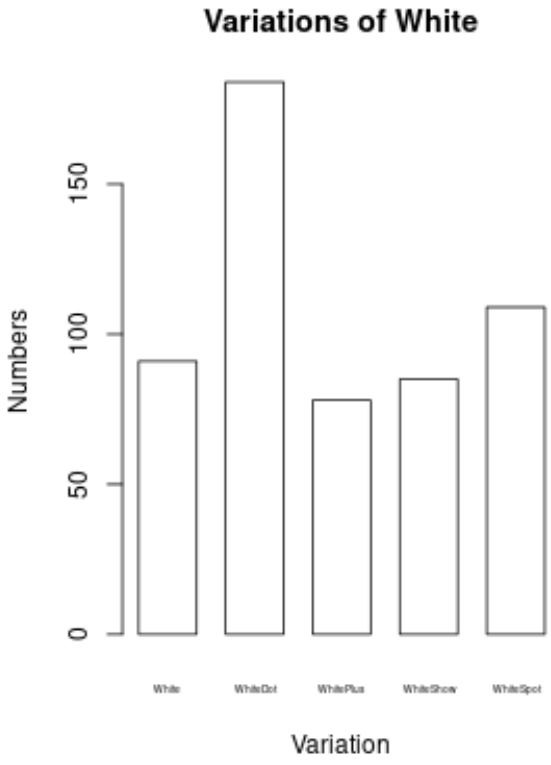



```
  png("BWgraph.png")

  dev.off()
```

```
## pdf
##   2
```

```
  knitr::include_graphics("/cloud/project/RWorkSheet#4/4B/BWgraph.png")
```


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


Variations of White
Numbers
0
50
100
150
White
WhiteDot
WhitePlus
WhiteShow
WhiteSpot
Variation