Rworksheet_Juntanilla#4b.Rmd

2023-11-08

1.

```r
Vec_a <- c(1,2,3,4,5)
mat_a <- matrix(Vec_a, nrow=5, ncol=5)

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

for(i in length(Vec_a)){
  mat_b[i,] <- abs(Vec_a-Vec_b[i])
  mat_b[is.na(mat_b)] <- 0
}
print(mat_b)
```

```
##      [,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
```

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

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

print(matrixA)
```

```
##      [,1] [,2] [,3] [,4] [,5]
## [1,]    1    3    5    7    9
## [2,]    2    2    4    6    8
## [3,]    3    3    3    5    7
## [4,]    4    4    4    4    6
## [5,]    5    5    5    5    5
```

2.

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

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

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

3.

```r
ran_num <- as.numeric(readline("Enter the starting number for fibonacci sequence: "))
```

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

```r
if(is.na(ran_num || ran_num < 0)){
  cat("Please enter something")
  }else{
    n <- ran_num
    r <- 1
  }
```

```
## Please enter something
```

```r
cat("Fibonacci sequence starting from",ran_num,"up to 500\n")
```

```
## Fibonacci sequence starting from NA up to 500
```

```r
repeat{

  num = n + r
  if (num > 500){
    break
  }
  cat(num, " ")
  n <- r
  r <- num

}
```

```
## Error in eval(expr, envir, enclos): object 'n' not found
```

4a.

```r
data_shoes <- read.csv("Shoesdata.csv")

data_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   74.2      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
```

4b.

```
genmale <- subset(data_shoes, Gender == 'M')

genfemale <- subset(data_shoes, Gender == 'F')

cat("Number of obsevation in male:",nrow(genmale),"\n")
```

```
## Number of obsevation in male: 14
```

```
cat("Number of observation in female",nrow(genfemale),"\n")
```
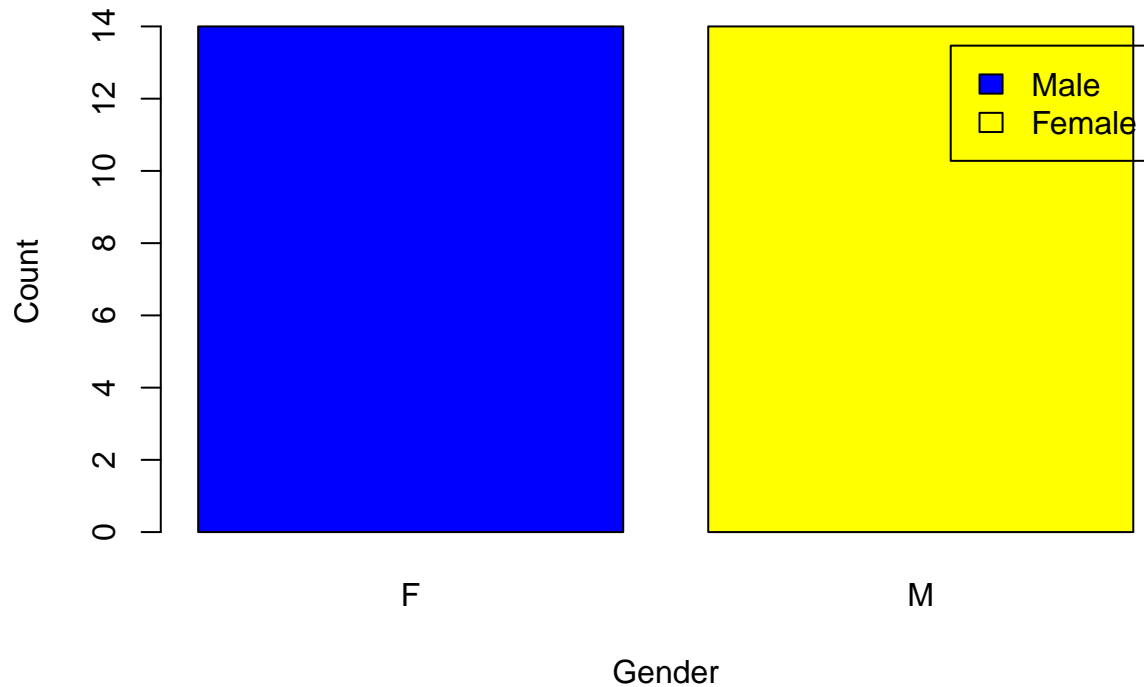
```
## Number of observation in female 14
```

4c.

```
gen_male_and_fem <- table(data_shoes$Gender)

barplot(gen_male_and_fem,
        main = "The Number of Female and Male",
        xlab = "Gender",
        ylab = "Count",
        col = c("blue","yellow"),
        legend.text =c("Male", "Female"))
```
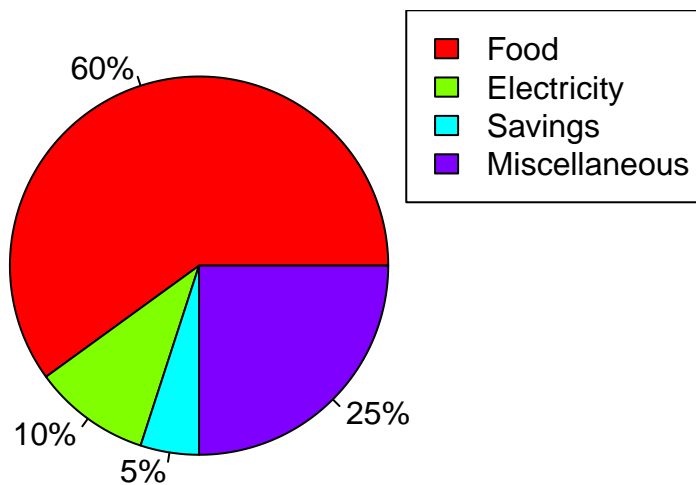
The Number of Female and Male

5a.

```r
fam_income <- c(60,10,5,25)

pie(fam_income,labels = paste0(fam_income,"%"),
    main = "Dela Cruz Family Expenses", col = rainbow(length(fam_income)))

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

Dela Cruz Family Expenses

6a.

```r
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 ...
```
```r
#The data iris have 150 observation and 5 variables  and it composes sepal.length,sepal.width,petal.len
```

6b.
```r
data(iris)

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

irismeans
```

```
## Sepal.Length  Sepal.Width Petal.Length  Petal.Width
##     5.843333     3.057333     3.758000     1.199333
```
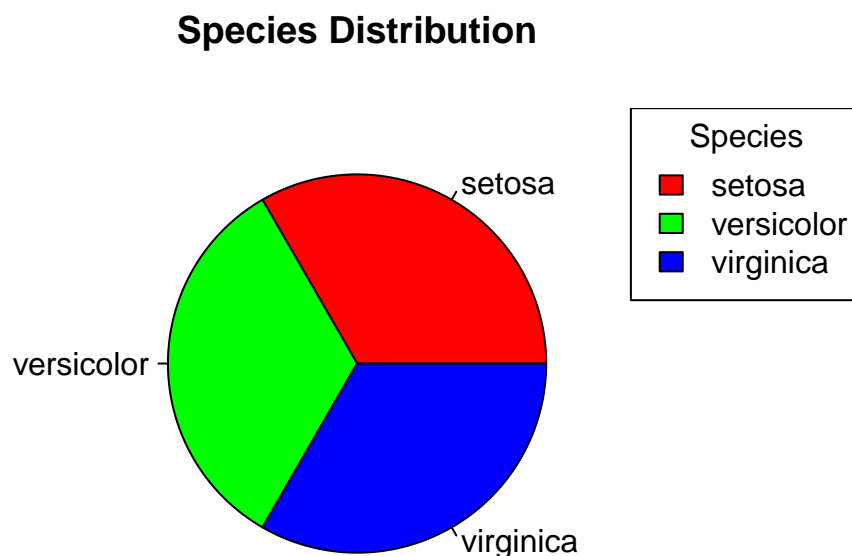
6c.
```r
data(iris)

irisspecies <- table(iris$Species)

pie(irisspecies, labels = names(irisspecies),
    col = rainbow(length(irisspecies)),
    main = "Species Distribution")

legend("topright", legend = names(irisspecies),
       fill = rainbow(length(irisspecies)), title = "Species")
```


Species Distribution

6d.

```r
data(iris)

setosa_col <- subset(iris, Species == "setosa")
versicolor_col <- subset(iris, Species == "versicolor")
virginica_col <- subset(iris, Species == "virginica")

tail(setosa_col)
```

```
##    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
```

```r
tail(versicolor_col)
```

```
##     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
```

```r
tail(virginica_col)
```

```
##     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.

```r
data(iris)

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

colors <- c("setosa" = "#96a240", "versicolor" = "#66a2a5", "virginica" = "#b239cc")
symbols <- c("setosa" = 4, "versicolor" = 9, "virginica" = 8)

plot(iris$Sepal.Length, iris$Sepal.Width,
     col = colors[iris$Species],
     pch = symbols[iris$Species],
     main = "Iris Dataset",
     sub = "Sepal Width and Length",
     xlab = "Sepal Length",
     ylab = "Sepal Width")

legend("bottomright",legend = levels(iris$Species),col= colors, pch = symbols, title = "Species")
```

Iris Dataset

Sepal Width and Length
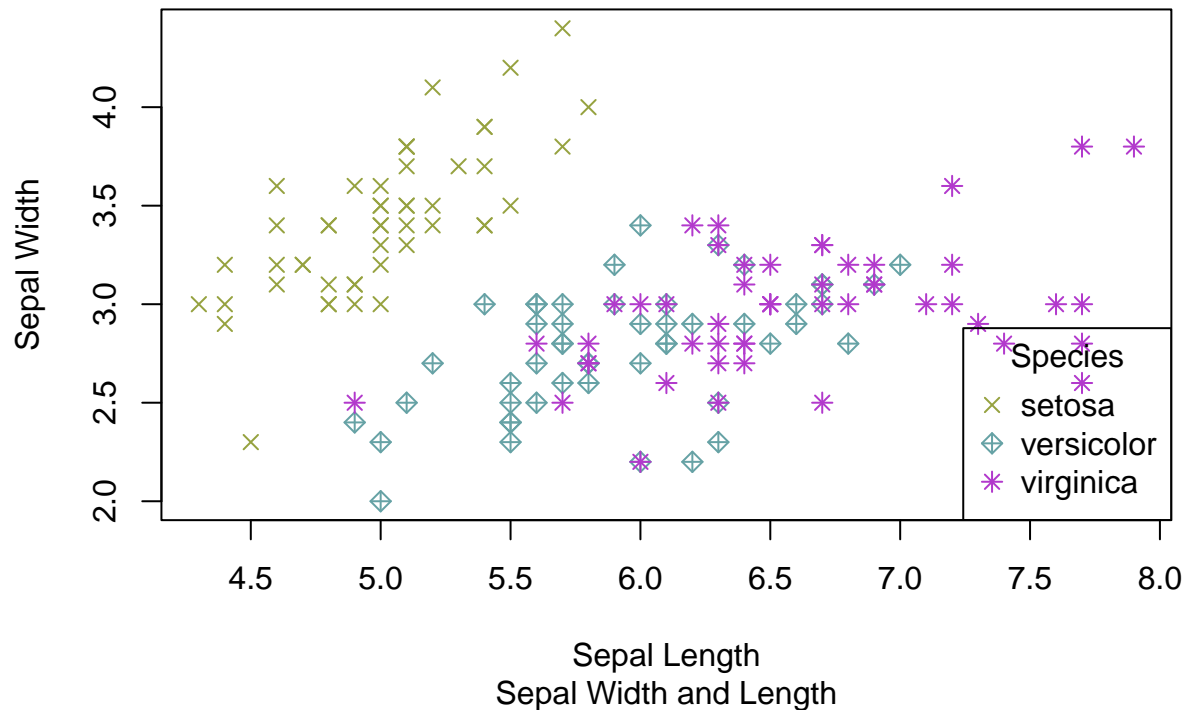
```
#6e
#by factoring the species, it will be represents as a categories in R.
```

7.

```r
library(readxl)

alexa_file <- read_excel("alexa_file.xlsx")

alexa_file
```

```
## # 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.

```
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> <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
```

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

total_var
```

```
## # 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
```

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

7c.

```r
load("variations.RData")
total_var
```

```
## # 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
```

```r
variable_alexa <- total_var$`alexa_file$variation`

lexplot <- barplot(total_var$n,
                   names.arg = variable_alexa,
                   main = "Total number of variations",
                   xlab = "Name of Variations",
                   ylab = "Total of each variations",
                   col = 1:12,
                   space = 0.2,
                   cex.names = 0.6,
                   las = 3)
```
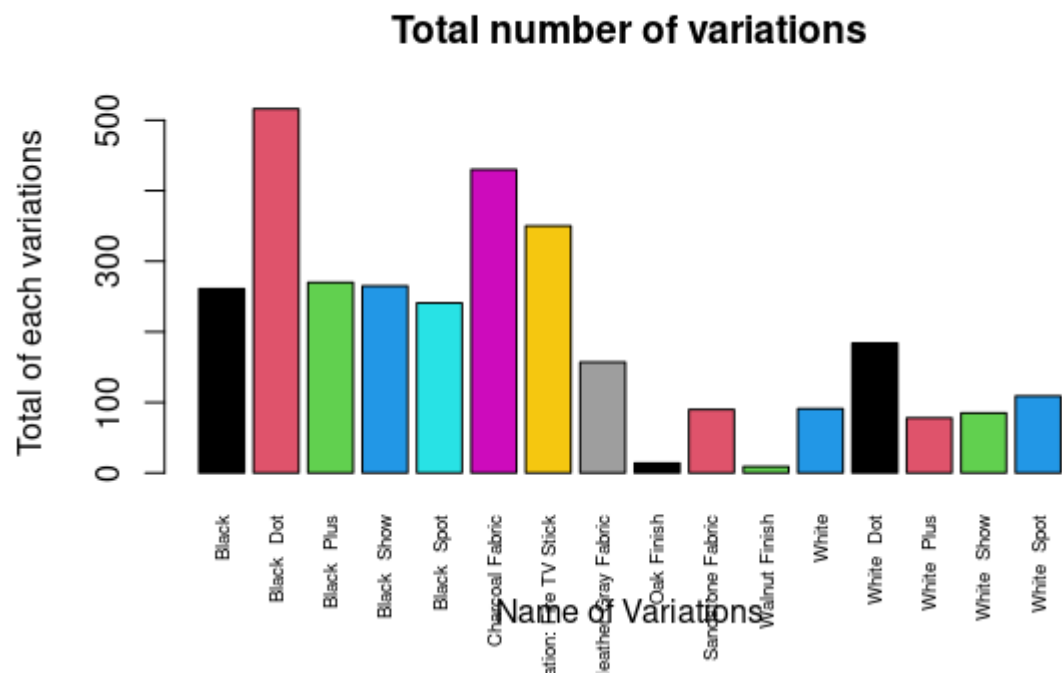
Total number of variations
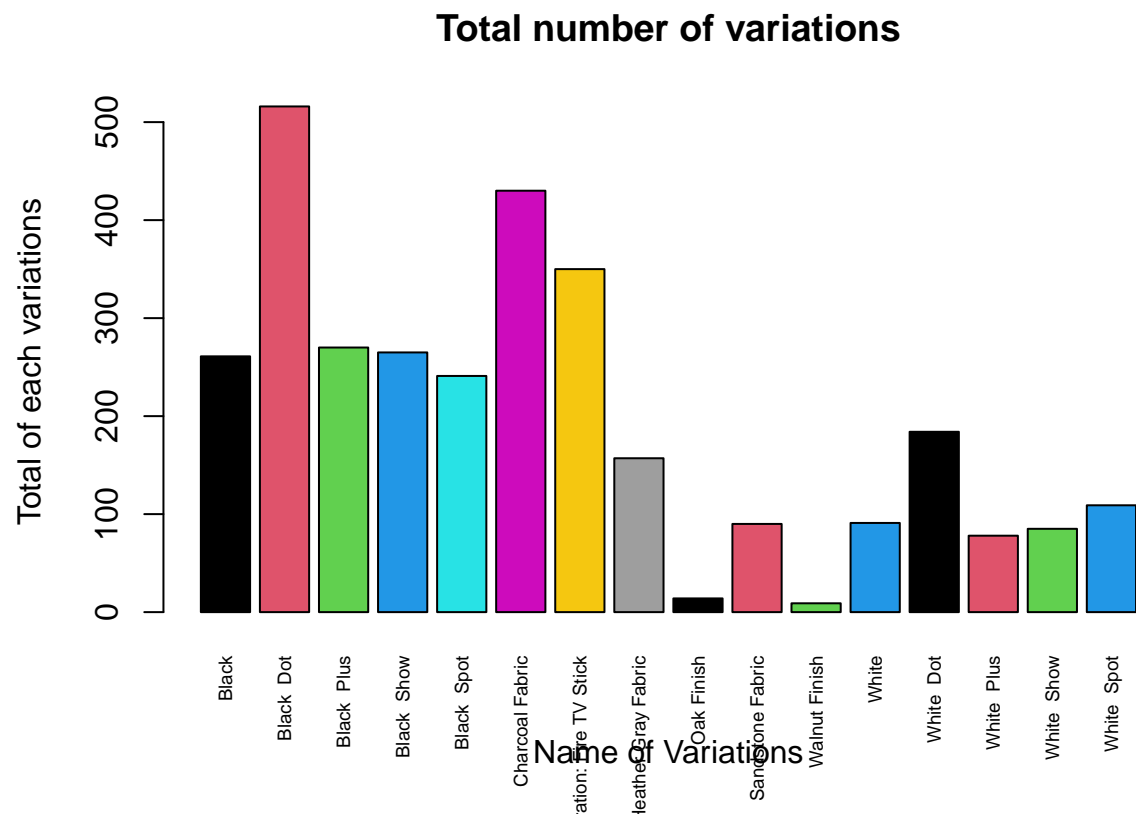

```r
png("lexplot.png")
dev.off()
```

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

```r
knitr::include_graphics("/cloud/project/Rworksheet_Juntanilla#4b.R/lexplot.png")
```

Total number of variations

7d.
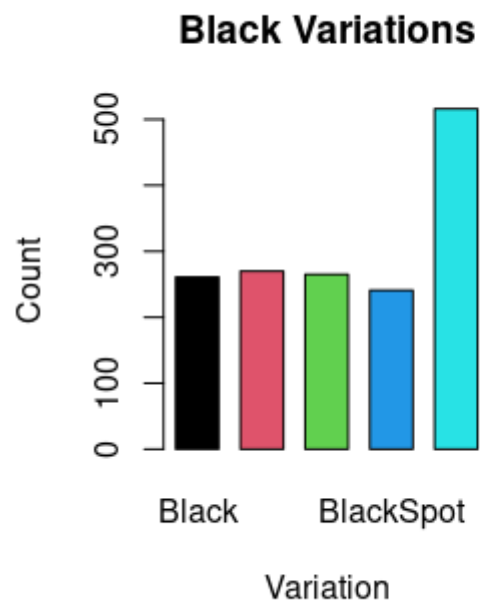
```
library(RColorBrewer)

par(mfrow = c(1,2))


varplotblack <- barplot(height = c(261,270,265,241,516),
                        names.arg = c("Black","BlackPlus","BlackShow","BlackSpot","BlackDot"), main = "
                        col = 1:5,
                        space = 0.5,
                        xlab = "Variation",
                        ylab = "Count")

png("varplotblack.png")
dev.off()

## pdf
##   2

knitr::include_graphics("/cloud/project/Rworksheet_Juntanilla#4b.R/varplotblack.png")
```
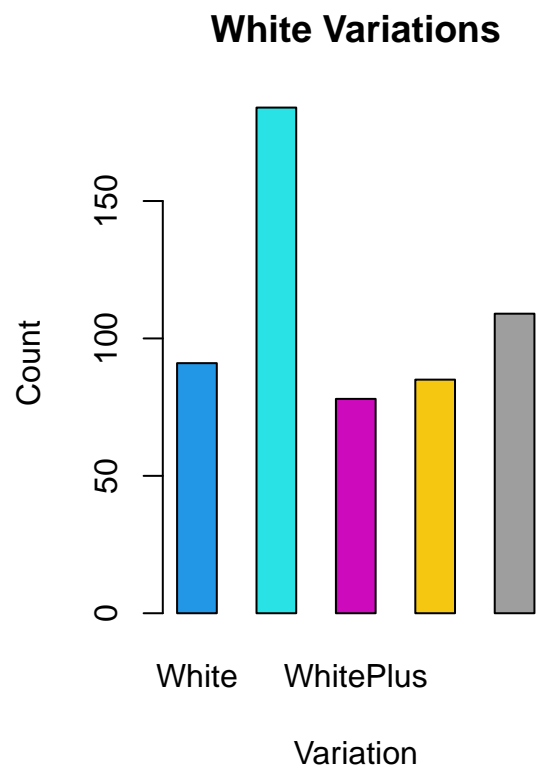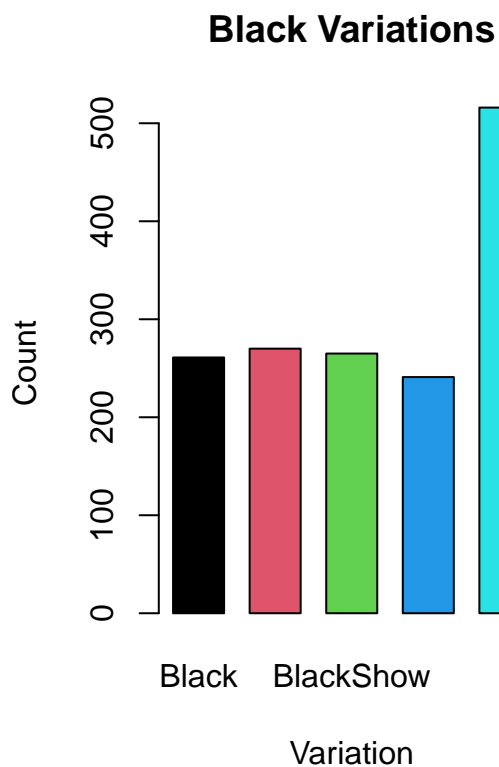
Black Variations

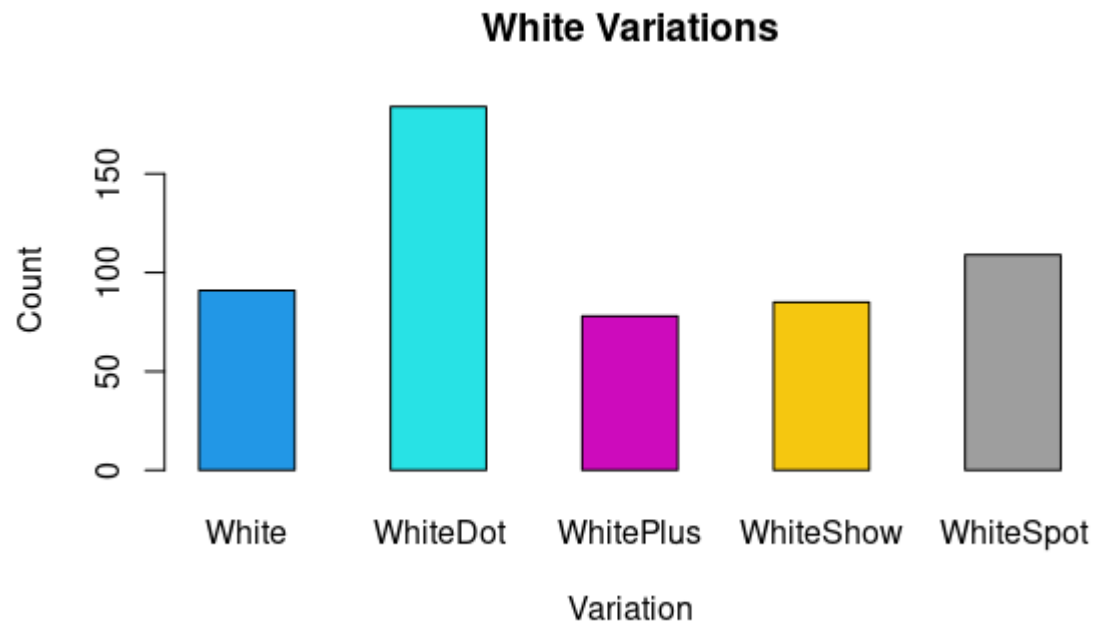

```
varplotwhite <- barplot(height = c(91,184,78,85,109),
                        names.arg = c("White", "WhiteDot", "WhitePlus", "WhiteShow", "WhiteSpot"),
                        main = "White Variations",
                        space = 1,
                        col = 4:10,
                        xlab = "Variation",
                        ylab = "Count",)
```

Black Variations

White Variations

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

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

```
knitr::include_graphics("/cloud/project/Rworksheet_Juntanilla#4b.R/varplotwhite.png")
```

White Variations


```
knitr::include_graphics("/cloud/project/Rworksheet_Juntanilla#4b.R/varplotblackandwhite.png")
```

Black Variations

White Variations