

# 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")
```

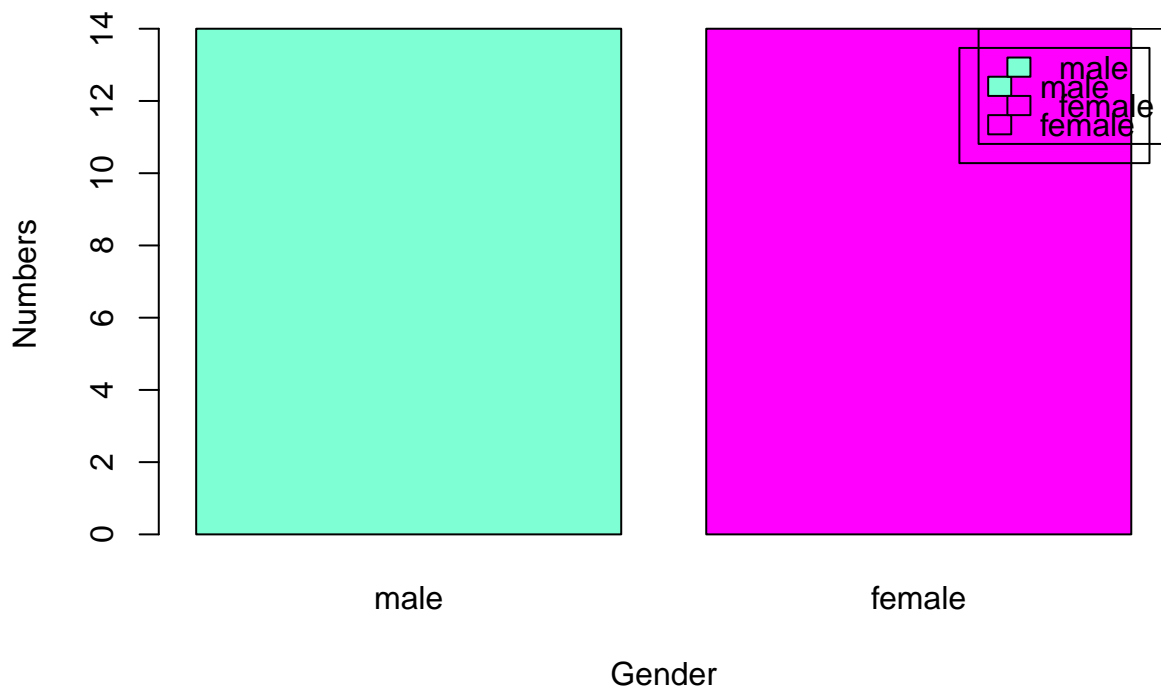
```
## Numbers of female: 14
```

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"))
```

## Numbers of Male and Female



5.

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

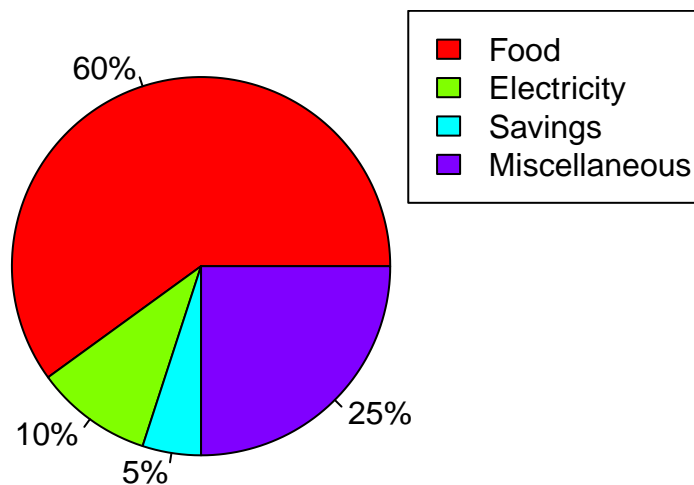
# Create the pie chart
pie(mypie,
```

```

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

```

## Monthly Income of Dela Cruz family



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
```

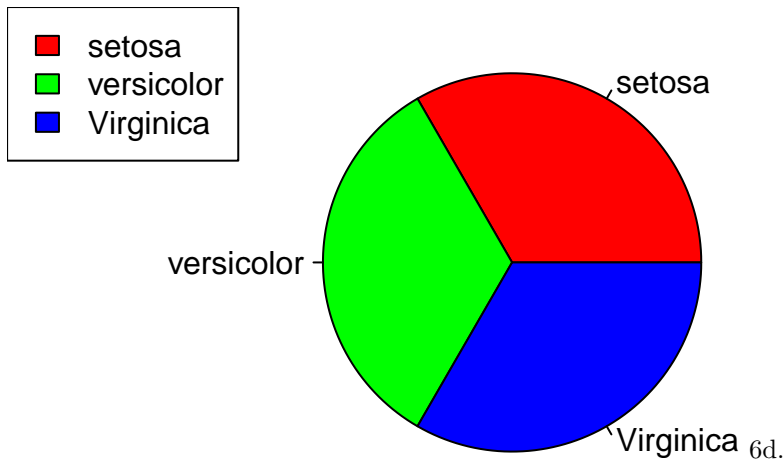
6c.

```
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))
```

## Species



6d.

```
setsub <- iris[iris$Species == "setosa" | iris$Species == "Versicolor" | iris$Species == "virginica",]  
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)
```

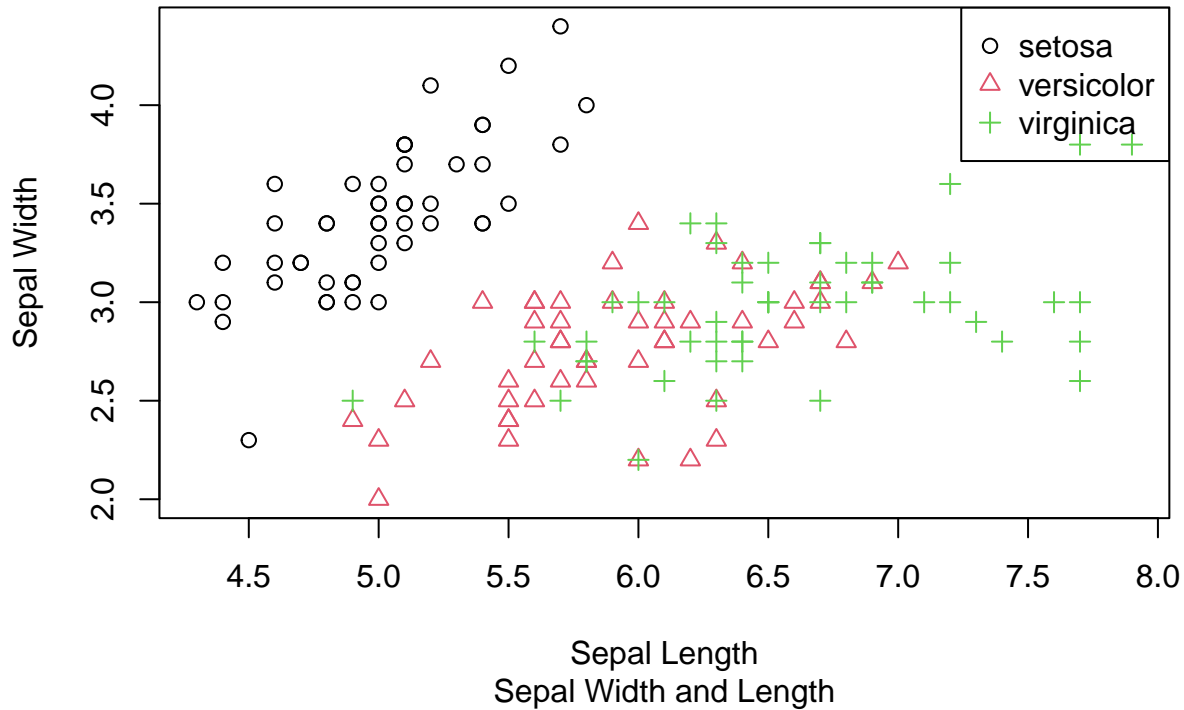
```
##      Sepal.Length Sepal.Width Petal.Length Petal.Width  Species
## 145      6.7      3.3      5.7      2.5 virginica
## 146      6.7      3.0      5.2      2.3 virginica
## 147      6.3      2.5      5.0      1.9 virginica
## 148      6.5      3.0      5.2      2.0 virginica
## 149      6.2      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(
```

## Iris Dataset



#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> <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.

```
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> <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.

```
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.

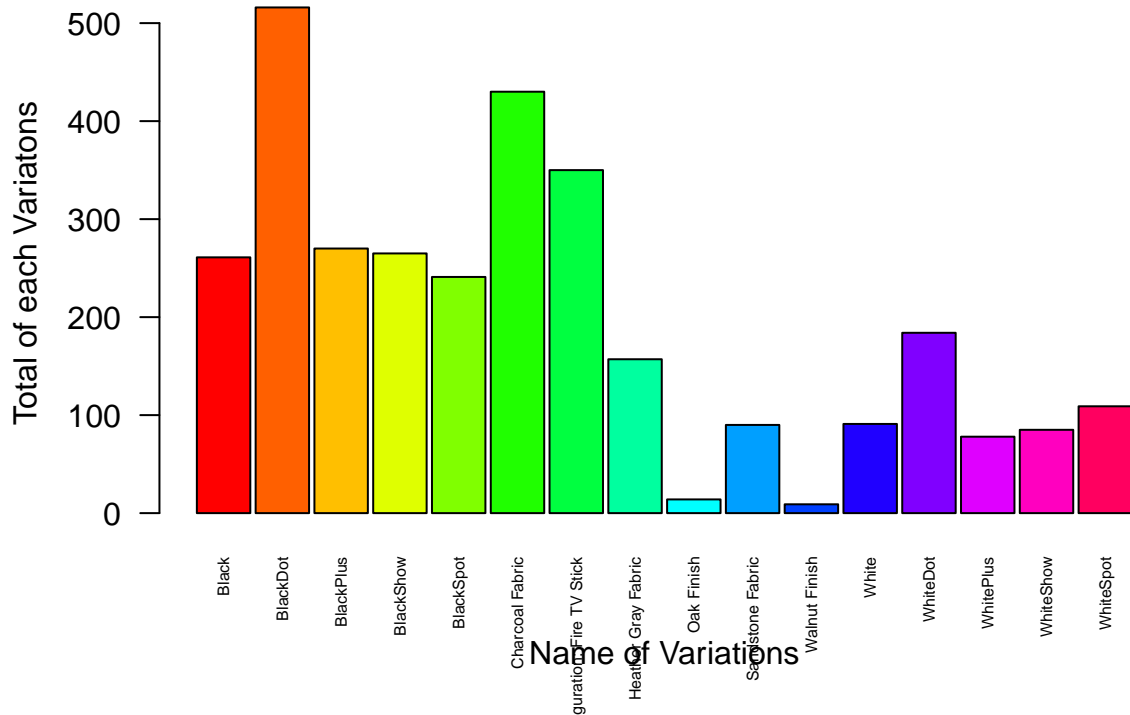
```
load("variations.RData")
varitot
```

```
## # 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`
```

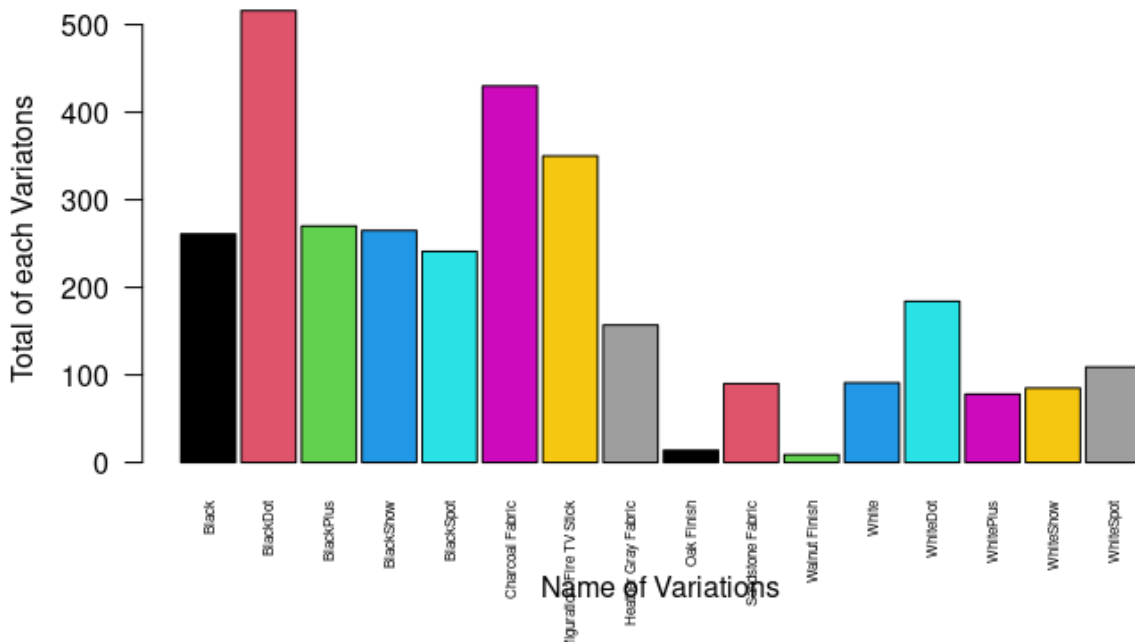
```
plotot <- barplot(varitot$n,
                  names.arg = namevari,
                  main = "Total number of each variations",
                  xlab = "Name of Variations",
                  ylab = "Total of each Variatons",
                  col = rainbow(length(namevari)),
                 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

**Total number of each variations**



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

**Total number of each variations**



7d.

```

variblk <- varitot[varitot$`excimp$variation` %in% c("Black", "BlackPlus" , "BlackShow" ,"BlackSpot" ,
variwht <- varitot[varitot$`excimp$variation` %in% c("White", "WhiteDot", "WhitePlus", "WhiteShow", "Wh

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

```

```

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)

```

