Untitled

2023-11-07

```r
#1.
matrixA <- matrix(0, nrow = 5, ncol = 5)


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

print(matrixA)
```

```
##      [,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
```

```r
#2.
number <- 5
for (i in 1:number) {
  for (j in 1:i) {
    cat('"*"')
  }
  cat("\n")
}
```

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

```r
#3.
##start_number <- as.numeric(readline(prompt = "Input starting number:  "))
start_number <- 1

a <- 0
b <- 1

repeat {
  if (a >= start_number) {
    cat(a, " ")
  }
  c <- a + b
  a <- b
```

```
  b <- c
  if (a > 500) {
    break
  }
}
```

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

```
#Number 4a.
df <- read.csv(file = "/cloud/project/worksheet#4/Shoe Size.csv", header = TRUE)
head(df)
```

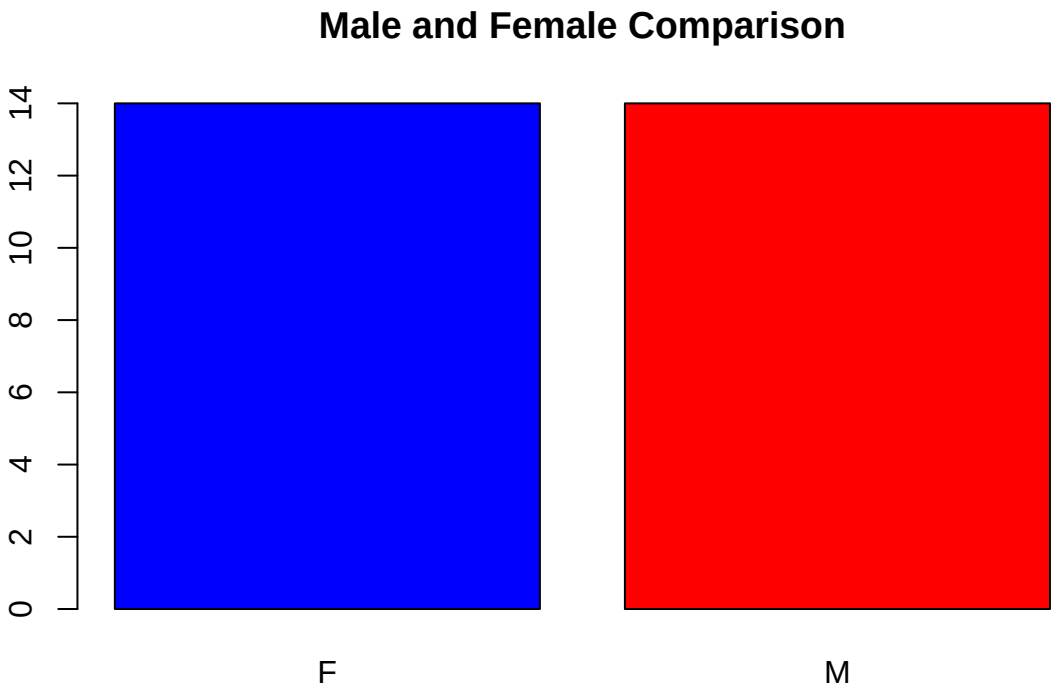
```
##   X Shoe.Size Height Gender
## 1 1       6.5   66.0      F
## 2 2       9.0   68.0      F
## 3 3       8.5   64.5      F
## 4 4       8.5   65.0      F
## 5 5      10.5   70.0      M
## 6 6       7.0   64.0      F
```

```
#Number 4b.
countGender <- table(df$Gender)
countGender
```

```
##
##  F  M
## 14 14
```

```
#There are 14 males and 14 females.
```

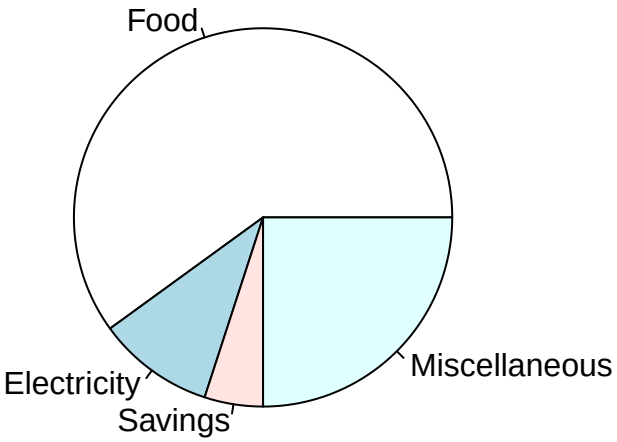
```
#Number 4c.
barplot(countGender, main = "Male and Female Comparison", col = c("blue", "red"))
```




```
#5a.
Food <- 60
```

```
Electricity <- 10
Savings <- 5
Miscellaneous <- 25
df2 <- data.frame(Food, Electricity, Savings, Miscellaneous)

expenses <- unlist(df2)
pie(expenses)
```




```
#Number 6.
data(iris)
```

```
#Number 6a.
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 ...
```

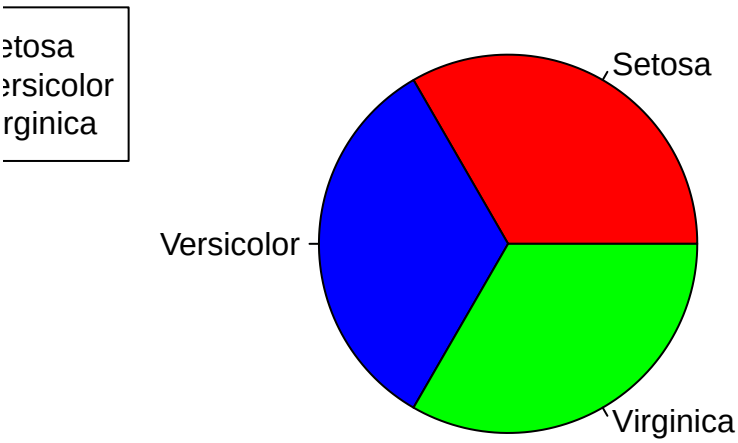
```
#Number 6b.
irisResults <- c(mean(iris$Sepal.Length),mean(iris$Sepal.Width), mean(iris$Petal.Length),mean(iris$Peta
irisResults
```

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

```
#Number 6c.
countSpecies <- table(iris$Species)
countSpecies
```

```
##
##     setosa versicolor  virginica
##         50         50         50
```

```
pie(countSpecies, c("Setosa", "Versicolor", "Virginica", edges =200), main = "Species Pie Chart",col = 
legend(x = -2.5,y = 1, legend = c("Setosa", "Versicolor", "Virginica"), col = c("red","blue","green"),p
```




```
#Number 6d.
setosa <- iris[iris$Species == "setosa", ]
versicolor <- iris[iris$Species == "versicolor", ]
virginica <- iris[iris$Species == "virginica", ]
tail(setosa)
```

```
##    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(versicolor)
```

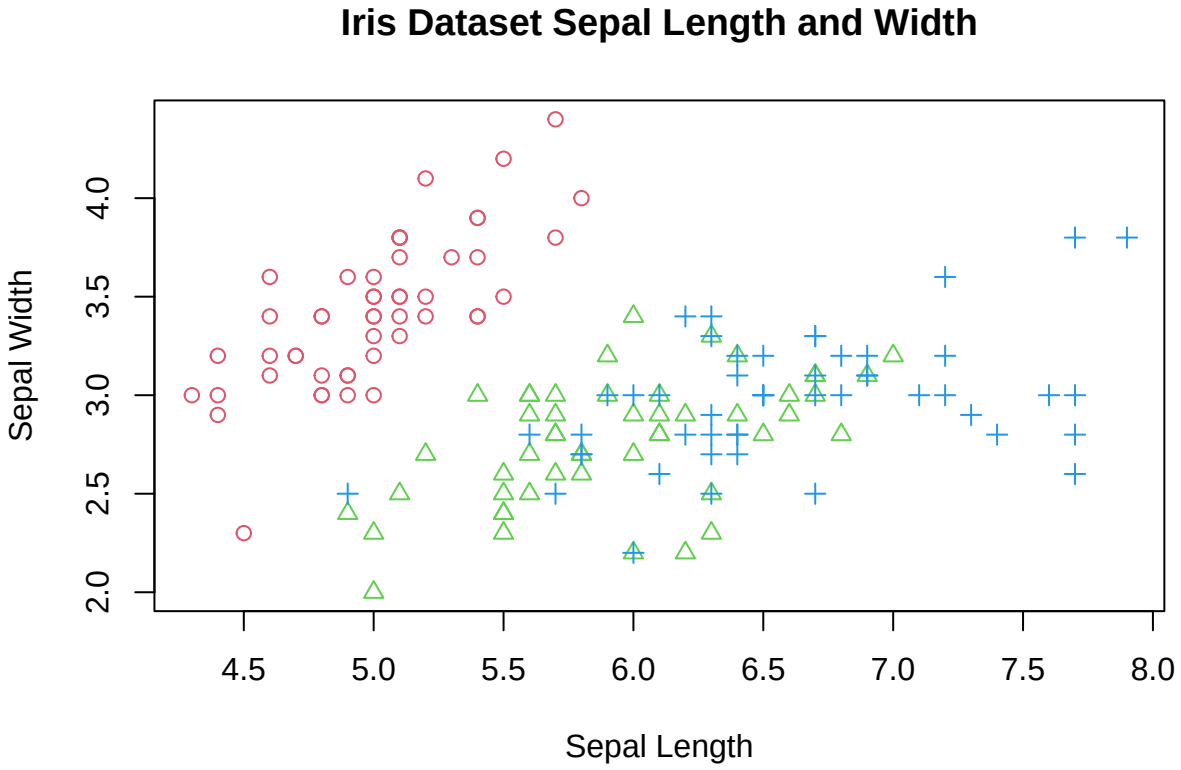
```
##     Sepal.Length Sepal.Width Petal.Length Petal.Width    Species
## 95           5.6         2.7          4.2         1.3 versicolor
## 96           5.7         3.0          4.2         1.2 versicolor
## 97           5.7         2.9          4.2         1.3 versicolor
## 98           6.2     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

```
##     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
```

```
#Number 6e.

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




```
#Number 6f.
#The setosa species has the longest width of the 3 of the species and has the shortest length, the vers
```

```
library(readxl)
alexaFile <- read_excel("/cloud/project/worksheet#4/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
```

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

alexaFile$variation <- gsub("White  Dot", "White Dot", gsub("White  Plus", "White Plus", gsub("White  Sh
table(alexaFile$variation)
```

```
##
##                          Black                      Black Dot
##                            261                            516
##                     Black Plus                     Black Show
##                            270                            265
##                     Black Spot                 Charcoal Fabric
##                            241                            430
## Configuration: Fire TV Stick           Heather Gray Fabric
##                            350                            157
##                     Oak Finish              Sandstone Fabric
##                             14                             90
##                  Walnut Finish                          White
##                              9                             91
##                      White Dot                     White Plus
##                            184                             78
##                     White Show                     White Spot
##                             85                            109
```

```
knitr::include_graphics("/cloud/project/worksheet#4/snippet.png")
```

RWorksheet_Tubat#4b.Rmd | table

Filter

	Var1	Freq
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

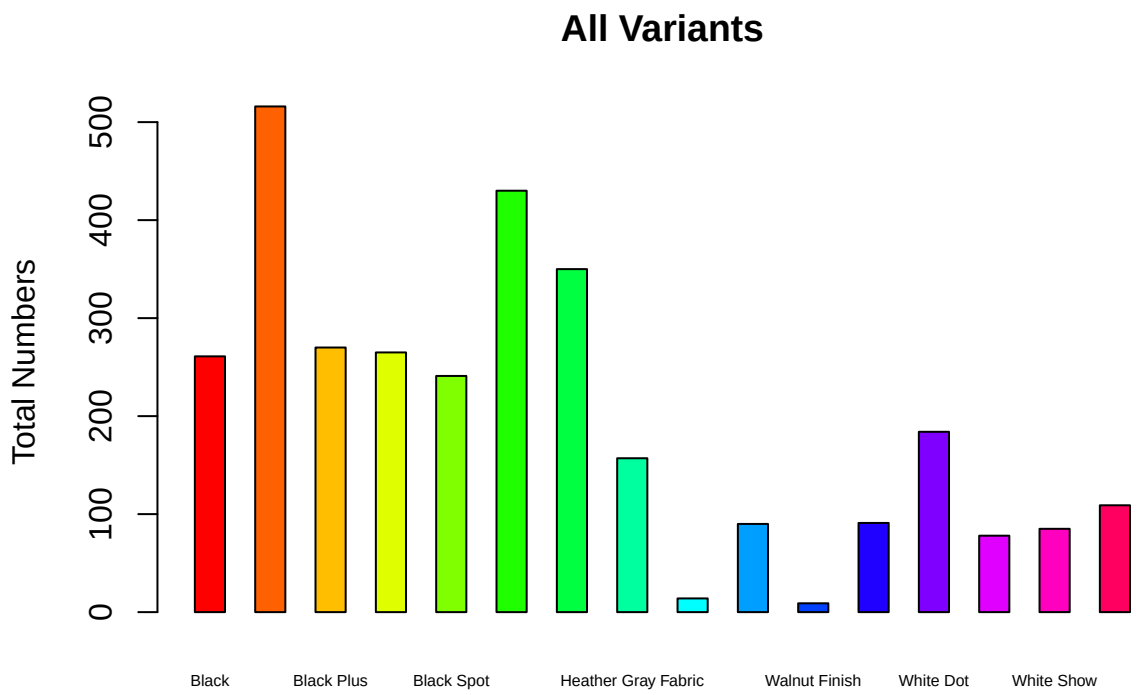
RWorksheet_Tubat#4b.Rmd | table

Filter

	Var1	Freq
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

```
#Number 7b.
alexaVarTable <- table(alexaFile$variation)
saveRDS(alexaVarTable, file = "variations.RData")
```

```
barplot(alexaVarTable, main = "All Variants", col = rainbow(16), cex.names = 0.5, space = 1, xlab = "Va
```



Variants

```
blackVariants <- alexaVarTable[1:5]
blackVariants
```

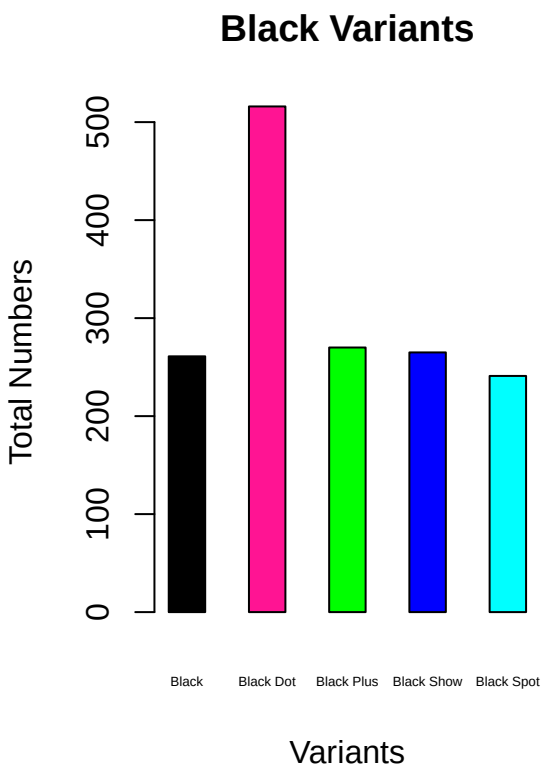
```
##
##      Black  Black Dot Black Plus Black Show Black Spot
##        261        516        270        265        241
```

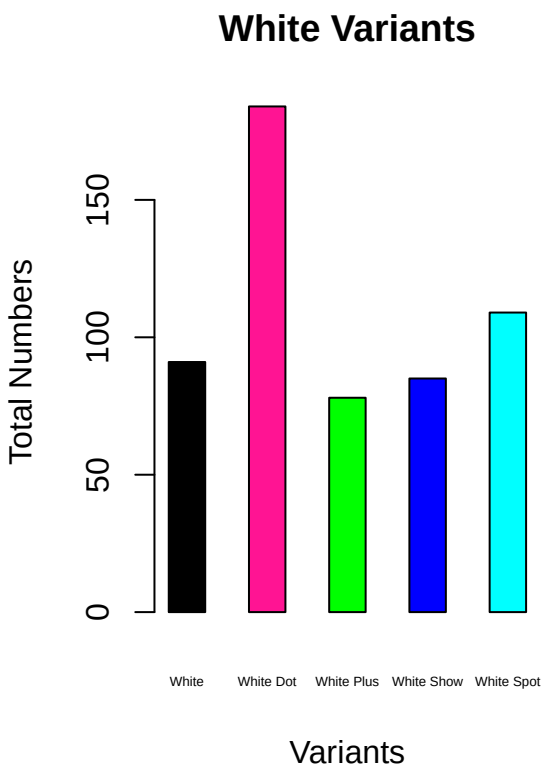
```
whiteVariants <- alexaVarTable[12:16]
whiteVariants
```

```
##
##      White  White Dot White Plus White Show White Spot
##         91        184         78         85        109
```

```
par(mfrow = c(1,2))
barplot(blackVariants, main = "Black Variants", col = c("black", "deeppink", "green", "blue", "cyan"), y

barplot(whiteVariants, main = "White Variants", col = c("black", "deeppink", "green", "blue", "cyan"), y
```


Black Variants
Total Numbers
0
100
200
300
400
500
Black
Black Dot
Black Plus
Black Show
Black Spot
Variants


White Variants
Total Numbers
0
50
100
150
White
White Dot
White Plus
White Show
White Spot
Variants