RWORSHEET 4B

2023-11-07

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


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

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
```

```
for (i in 1:5){
    cat(rep("*",i), collapse = "\n")
    }
```

```
## *
## * *
## * * *
## * * * *
## * * * * *
```

```
#fib1 <- as.numeric(readline(prompt = "Enter a number to start the Fibonacci sequence: "))
#This code above should be the correct code but I am gonna use a value so that I am able to knit
fib1 <- 1
num1 <- fib1
num2 <- fib1

print(num1)
```

```
## [1] 1
```

```
repeat {
  next_num <- num1 + num2
  if (!is.na(next_num) && next_num > 500) {
```

```
    break
  }
  print(next_num)
  num1 <- num2
  num2 <- next_num
}
```

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

```
ShoeSizeDF <- data.frame(
  Shoe_size = c(6.5,9.0,8.5,8.5,10.5,7.0,9.5,9.0,13.0,
                7.5,10.5,8.5,12.0,10.5,13.0,11.5,8.5,5.0,
                10.0,6.5,7.5,8.5,10.5,8.5,10.5,11.0,9.0,
                13.0),

  Height = c(66.0,68.0,64.5,65.0,70.0,64.0,70.0,71.0,
             72.0,64.0,74.5,67.0,71.0,71.0,77.0,72.0,
             59.0,62.0,72.0,66.0,64.0,67.0,73.0,69.0,
             72.0,70.0,69.0,70.0),
  Gender = c("F","F","F","F","M","F","F","F","M","F","M","F",
             "M","M","M","M","F","F","M","F","F","M","M","F",
             "M","M","M","M")

)
write.csv(ShoeSizeDF, file = "shoesize.csv", row.names = FALSE)
```

```
shoeSizeCSV <- read.csv("shoesize.csv")
shoeSizeCSV
```

```
##    Shoe_size 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
```

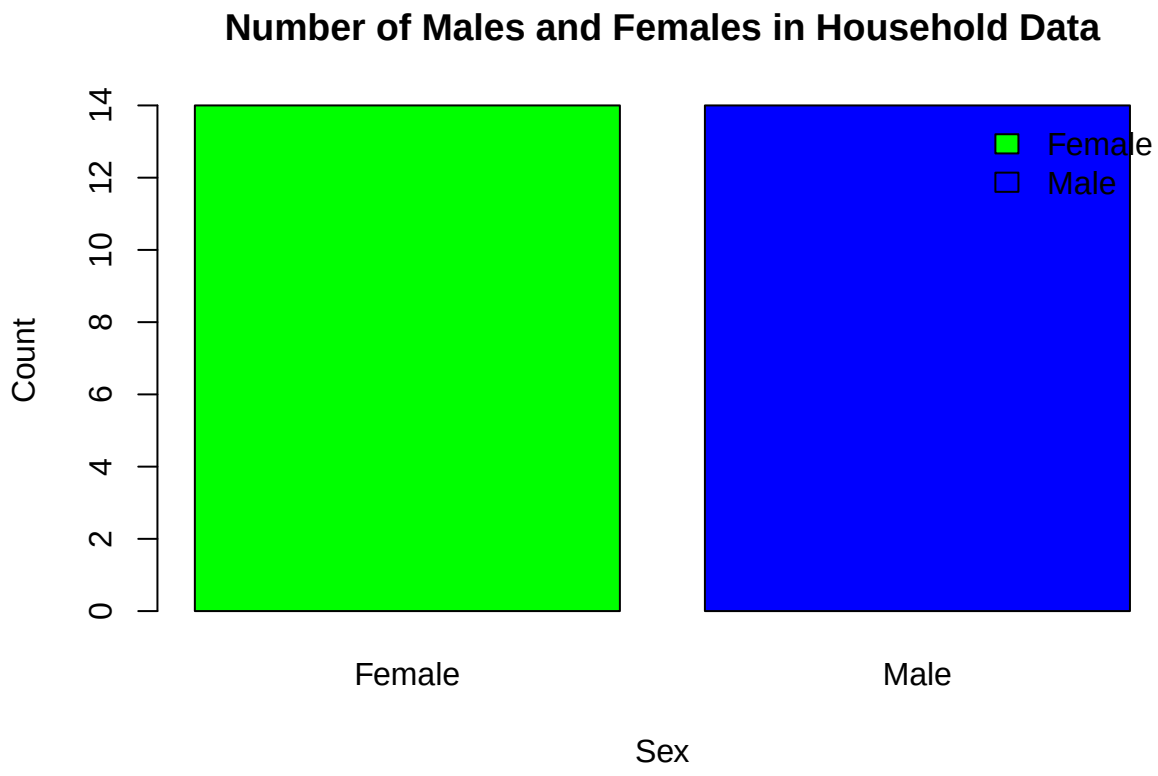
```r
 Fsubset <- subset(shoeSizeCSV, Gender == "F")
 Msubset <- subset(shoeSizeCSV, Gender == "M")

FRowNum <- nrow(Fsubset)
MRowNum <- nrow(Msubset)


cat("Number of observations for Female:", FRowNum,"\n")
```

```
## Number of observations for Female: 14
```

```r
cat("Number of observations for Male:", MRowNum, "\n")
```

```
## Number of observations for Male: 14
```

```r
sexCounts  <- c(FRowNum, MRowNum)
sexLabels <- c("Female", "Male")
plot1 <- barplot(sexCounts, names.arg = sexLabels,
                 main = "Number of Males and Females in Household Data",
                 xlab = "Sex", ylab = "Count",
                 col = c("green", "blue"),
                 legend.text = sexLabels,
                 args.legend = list(x = "topright", bty = "n")
)
```



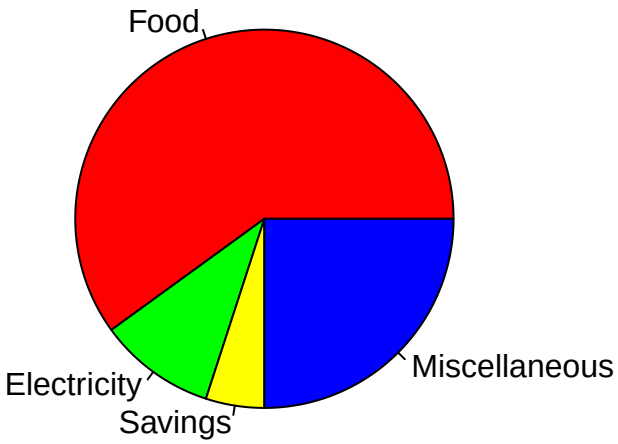

```
plot1
```

```
##      [,1]
## [1,]  0.7
## [2,]  1.9
```

```
incomeDF <- data.frame(
  Expenses = c("Food", "Electricity", "Savings", "Miscellaneous"),
  Amount = c(60, 10, 5, 25)
)
incomeDF
```

```
##        Expenses Amount
## 1          Food     60
## 2   Electricity     10
## 3       Savings      5
## 4 Miscellaneous     25
```

```
pie(incomeDF$Amount, labels = incomeDF$Expenses, col = c("red", "green", "yellow", "blue"),
    main = "Distribution of Income")
```




```r
str("iris")
```

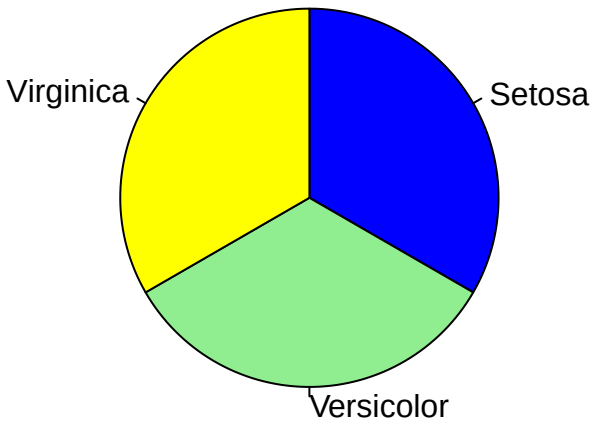
```
##  chr "iris"
```

```r
cat("data set iris is in character structure")
```

```
## data set iris is in character structure
```

```r
mean_sepal_length <- mean(iris$Sepal.Length)
mean_sepal_width <- mean(iris$Sepal.Width)
mean_petal_length <- mean(iris$Petal.Length)
mean_petal_width <- mean(iris$Petal.Width)
```

```r
species <- table(iris$Species)
pie(species, main = "Species Distribution in Iris Dataset",
    labels = c("Setosa", "Versicolor", "Virginica"),
    col = c("blue", "lightgreen", "yellow"),
    clockwise = TRUE)
```

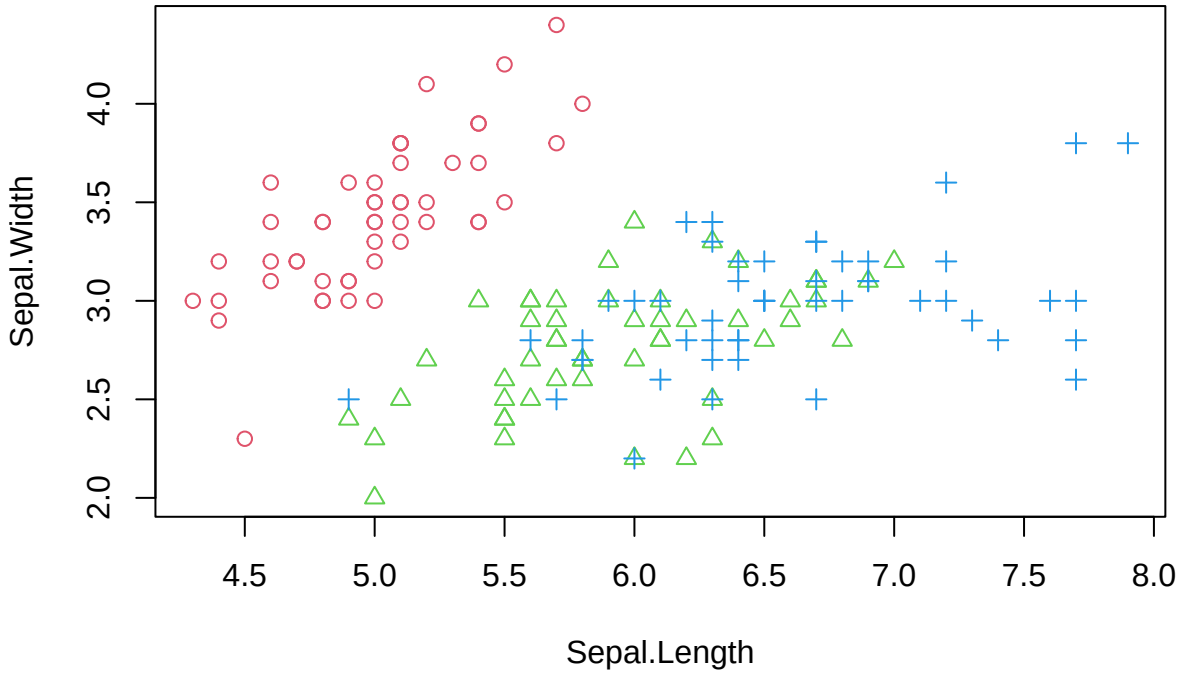



```
subset_Setosa <- subset(iris, Species == "setosa")
subset_Versicolor<- subset(iris, Species == "versicolor")
subset_virginica <- subset(iris, Species == "virginica")

last_6_setosa <-tail(subset(iris, Species == "setosa"))
last_6_Versicolor <- tail(subset(iris, Species == "versicolor"))
last_6_virginica <- tail(subset(iris, Species == "virginica"))

last6subsetSpeciesDF <- rbind(last_6_setosa, last_6_Versicolor, last_6_virginica)
last6subsetSpeciesDF
```

```
##     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
## 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
## 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
```

```r
data(iris)
subiris <- iris[,1:2]

plot(subiris,
     pch = as.integer(iris$Species),
     col = as.integer(iris$Species)+9)
```




```r
IrisFactor <- factor(iris$Species)
IrisFactor
```

```
##   [1] setosa     setosa     setosa     setosa     setosa     setosa
##   [7] setosa     setosa     setosa     setosa     setosa     setosa
##  [13] setosa     setosa     setosa     setosa     setosa     setosa
##  [19] setosa     setosa     setosa     setosa     setosa     setosa
##  [25] setosa     setosa     setosa     setosa     setosa     setosa
##  [31] setosa     setosa     setosa     setosa     setosa     setosa
##  [37] setosa     setosa     setosa     setosa     setosa     setosa
##  [43] setosa     setosa     setosa     setosa     setosa     setosa
##  [49] setosa     setosa     versicolor versicolor versicolor versicolor
```

```
##  [55] versicolor versicolor versicolor versicolor versicolor versicolor
##  [61] versicolor versicolor versicolor versicolor versicolor versicolor
##  [67] versicolor versicolor versicolor versicolor versicolor versicolor
##  [73] versicolor versicolor versicolor versicolor versicolor versicolor
##  [79] versicolor versicolor versicolor versicolor versicolor versicolor
##  [85] versicolor versicolor versicolor versicolor versicolor versicolor
##  [91] versicolor versicolor versicolor versicolor versicolor versicolor
##  [97] versicolor versicolor versicolor versicolor virginica  virginica
## [103] virginica  virginica  virginica  virginica  virginica  virginica
## [109] virginica  virginica  virginica  virginica  virginica  virginica
## [115] virginica  virginica  virginica  virginica  virginica  virginica
## [121] virginica  virginica  virginica  virginica  virginica  virginica
## [127] virginica  virginica  virginica  virginica  virginica  virginica
## [133] virginica  virginica  virginica  virginica  virginica  virginica
## [139] virginica  virginica  virginica  virginica  virginica  virginica
## [145] virginica  virginica  virginica  virginica  virginica  virginica
## Levels: setosa versicolor virginica
```

```
cat("This will display the character values of the species column and the levels")
```

```
## This will display the character values of the species column and the levels
```

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

oldName = c("Black  Dot","Black  Plus","Black  Show","Black  Spot","White  Dot", "White  Plus", "White
newName = c("Black Dot","Black Plus","Black Show","Black Spot","White Dot", "White Plus", "White Show",
alexaDF$variation <- gsub("Black  Dot","Black Dot",alexaDF$variation)
alexaDF$variation <- gsub("Black  Plus","Black Plus",alexaDF$variation)
alexaDF$variation <- gsub("Black  Show","Black Show",alexaDF$variation)
alexaDF$variation <- gsub("Black  Spot","Black Spot",alexaDF$variation)
alexaDF$variation <- gsub("White  Dot","White Dot",alexaDF$variation)
alexaDF$variation <- gsub("White  Plus","White Plus",alexaDF$variation)
alexaDF$variation <- gsub("White  Show","White Show",alexaDF$variation)
alexaDF$variation <- gsub("White  Spot","White Spot",alexaDF$variation)

alexaDF
```

```
## # 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
```

```
knitr::include_graphics("screenshot2.png")
```

A tibble: 16 × 2

variation <chr>	n <int>
Black	261
Black Dot	516
Black Plus	270
Black Show	265
Black Spot	241
Charcoal Fabric	430
Configuration: Fire TV Stick	350
Heather Gray Fabric	157
Oak Finish	14
Sandstone Fabric	90

1-10 of 16 rows

```
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
```

```
variationCount <- alexaDF %>%
  count(variation)
variationCount
```

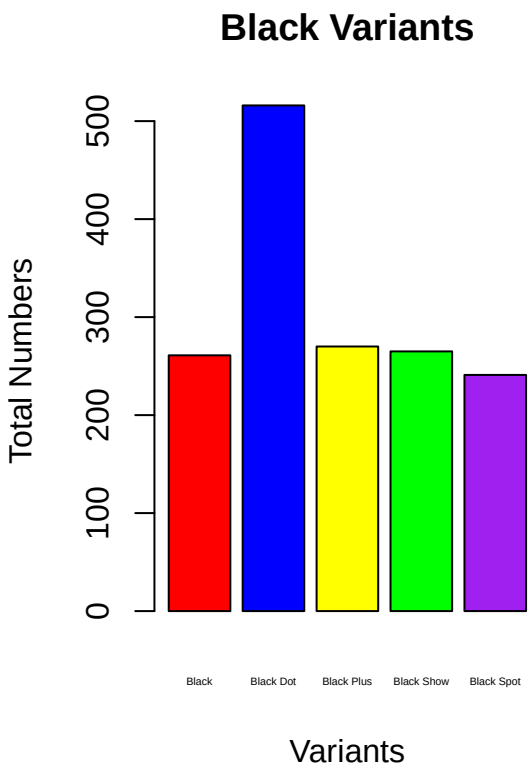
```
## # A tibble: 16 x 2
##    variation                        n
##    <chr>                        <int>
##  1 Black                          261
##  2 Black Dot                      516
##  3 Black Plus                     270
##  4 Black Show                     265
##  5 Black Spot                     241
##  6 Charcoal Fabric                430
##  7 Configuration: Fire TV Stick   350
```

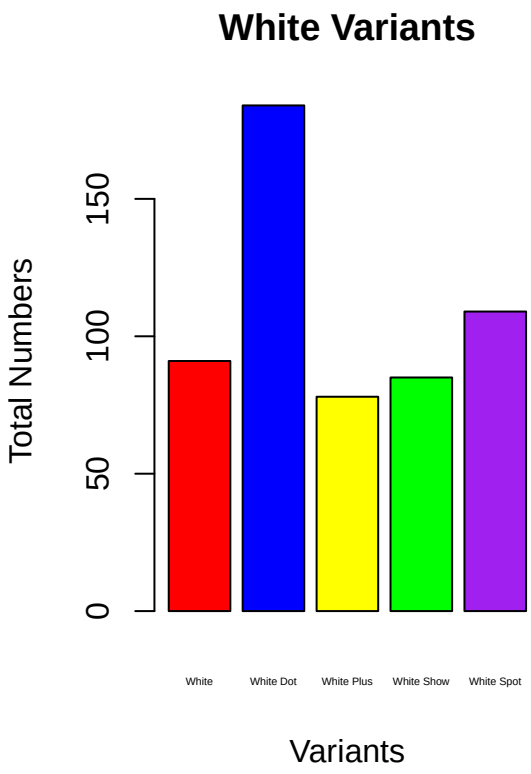
```
##  8 Heather Gray Fabric            157
##  9 Oak Finish                      14
## 10 Sandstone Fabric                90
## 11 Walnut Finish                    9
## 12 White                           91
## 13 White Dot                      184
## 14 White Plus                      78
## 15 White Show                      85
## 16 White Spot                     109
```

```
save(variationCount, file = "Variations.RData")
```

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

```
BlackVar <- variationCount[1:5,]
WhiteVar <- variationCount[12:16,]

par(mfrow = c(1, 2))



barplot(BlackVar$n, main = "Black Variants",
        xlab = "Variants",
        ylab = "Total Numbers",
        col = c("red", "blue", "yellow", "green", "purple"),
        names.arg = BlackVar$variation,
        cex.names = 0.35)



barplot(WhiteVar$n, main = "White Variants",
        xlab = "Variants",
        ylab = "Total Numbers",
        col = c("red", "blue", "yellow", "green", "purple"),
        names.arg = WhiteVar$variation,
        cex.names = 0.35)
```


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