RWorksheet_Marquez#4b

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#1.

```r
vectorA <- c(1, 2, 3, 4, 5)

for (i in vectorA) {
  print(vectorA)
}
```

```
## [1] 1 2 3 4 5
## [1] 1 2 3 4 5
## [1] 1 2 3 4 5
## [1] 1 2 3 4 5
## [1] 1 2 3 4 5
```

```r
abs(vectorA)
```

```
## [1] 1 2 3 4 5
```

#2.

```r
rows <- 5

for (i in 1:rows) {
  print(strrep("*", i))
}
```

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

#3.

```r
fibonacci_sequence <- function(start){
x <- 0
y <- 1

repeat {
  fib <- x+y
  x <- y
  y <- fib
  if (fib >= 500) {
      break
    }
  if (fib >= start) {
```

```r
      print(fib)
    }
  }
}
sequencing <- as.numeric(readline(prompt="Enter a Number:"))
```

```
## Enter a Number:
```

```r
if (!is.na(sequencing)<1) {
  print("Please enter a higher number")
} else {
  cat("Fibonacci sequence starting from", sequencing, "up to 500:\n")
  fibonacci_sequence(sequencing)
}
```

```
## [1] "Please enter a higher number"
```

#4a.

```r
data <- read.csv("/cloud/project/RWorkSheet_Marquez#4a/shoe_size_data.csv")
head(data)
```

```
##   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
```

#4b.

```r
female_data <- subset(data, Gender == "F")
male_data <- subset(data, Gender == "M")


num_females <- nrow(female_data)
num_males <- nrow(male_data)

cat("Number of Females:", num_females, "\n")
```

```
## Number of Females: 13
```

```r
cat("Number of Males:", num_males, "\n")
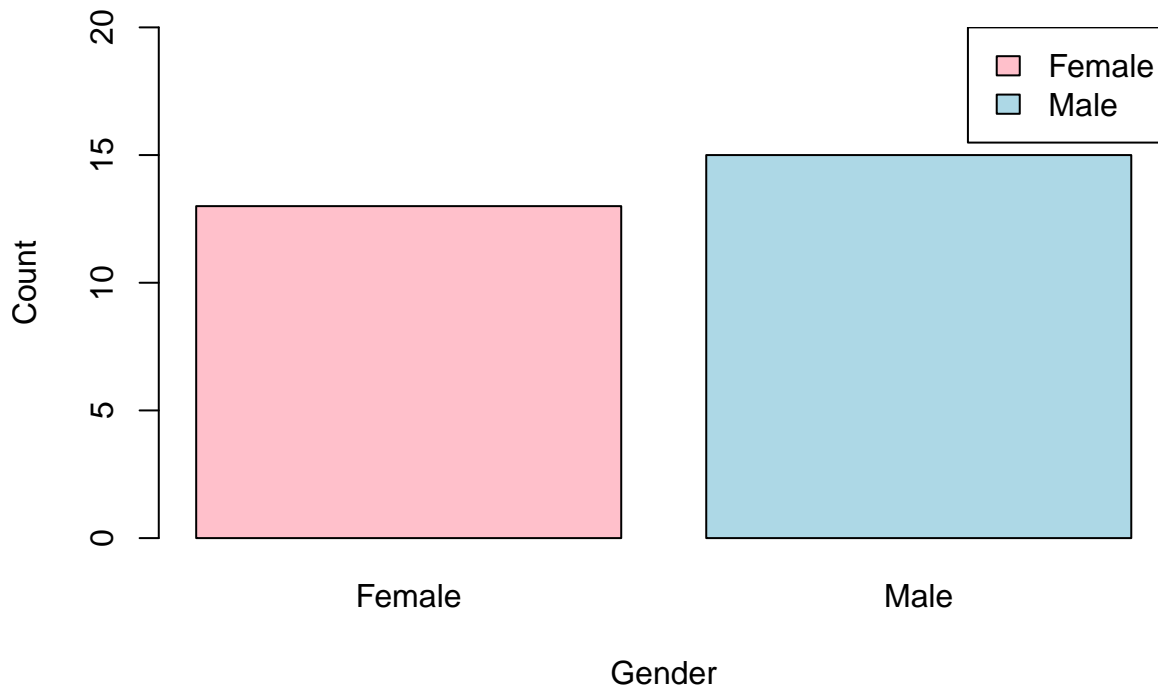```

```
## Number of Males: 15
```

#4c.

```r
counts <- c(num_females, num_males)
names(counts) <- c("Female", "Male")

barplot(counts,
        main = "Number of Males and Females",
        col = c("pink", "lightblue"),
        ylim = c(0, max(counts) + 5),  # Adjust y-axis limit
        ylab = "Count",
        xlab = "Gender")
```

```r
legend("topright", legend = names(counts), fill = c("pink", "lightblue"))
```
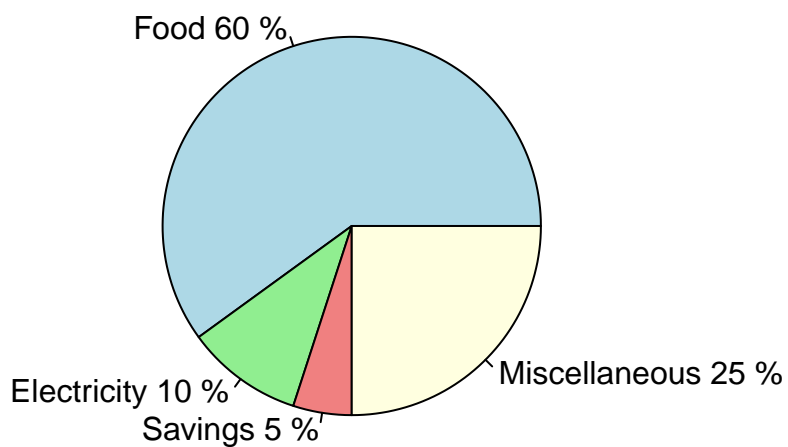
Number of Males and Females

#5a.

```r
expenses <- c(Food = 60, Electricity = 10, Savings = 5, Miscellaneous = 25)
percentages <- round(expenses / sum(expenses) * 100, 1)
labels <- paste(names(expenses), percentages, "%", sep = " ")
colors <- c("lightblue", "lightgreen", "lightcoral", "lightyellow")

pie(expenses, labels = labels, col = colors, main = "Dela Cruz Family Monthly Expenses")
```

Dela Cruz Family Monthly 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 ...
```
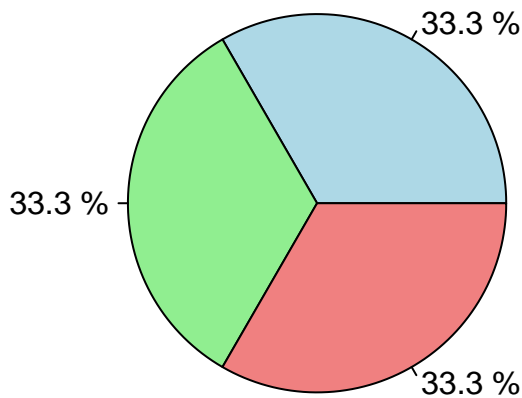
#6b.

```r
mean_values <- c(mean(iris$Sepal.Length), mean(iris$Sepal.Width),
                 mean(iris$Petal.Length), mean(iris$Petal.Width))
mean_values
```

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

#6c.

```r
pie(table(iris$Species),
    main="Distribution of Species in Iris Dataset",
    col=c("lightblue", "lightgreen", "lightcoral"),
    labels=paste(round(table(iris$Species)/nrow(iris)*100, 1), "%"))
```

Distribution of Species in Iris Dataset

#6d.

```r
setosa <- iris[iris$Species == "setosa",]
versicolor <- iris[iris$Species == "versicolor",]
virginica <- iris[iris$Species == "virginica",]

tail(setosa, 6)
```

```
##    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, 6)
```

```
##    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, 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.

```r
plot(iris$Sepal.Length, iris$Sepal.Width,
     main="Iris Dataset",
     sub="Sepal Width and Length",
     xlab="Sepal Length (cm)",
     ylab="Sepal Width (cm)",
     pch=as.numeric(iris$Species),
     col=as.numeric(iris$Species))
legend("topright", legend=levels(iris$Species),
       col=1:3, pch=1:3)
```
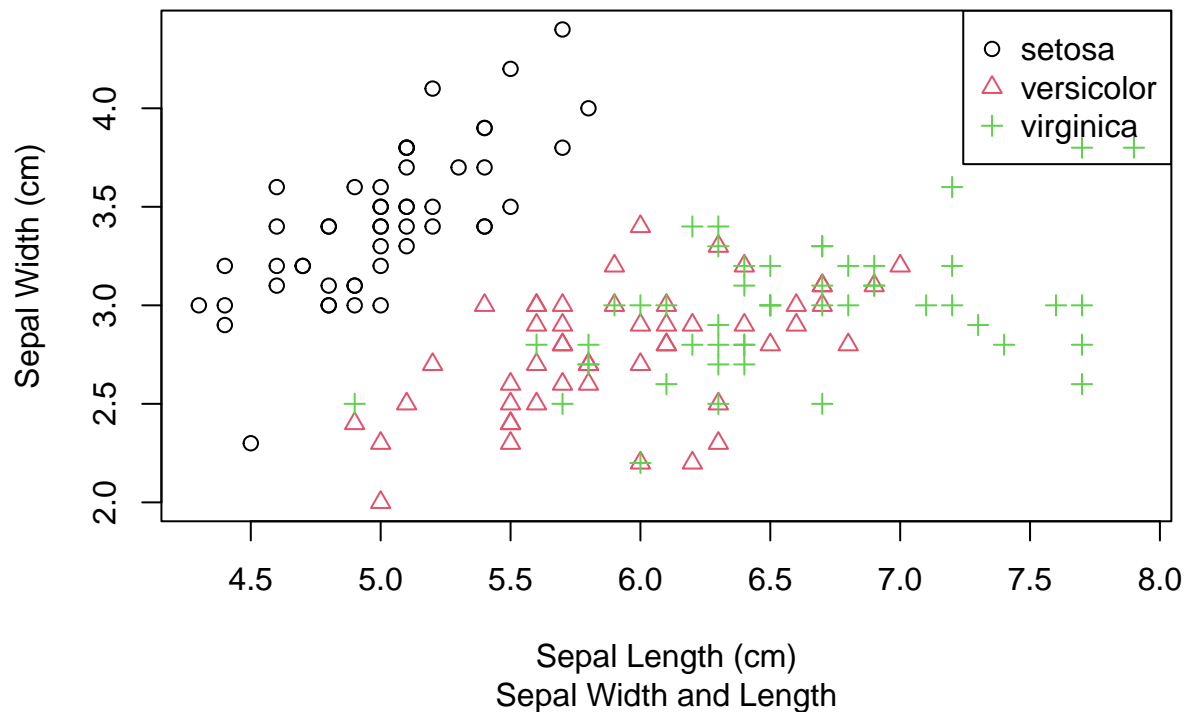

#6f.

#The scatter plot visually represents the relationship between sepal length and sepal width for the thr

#7a.

```
alexa <- readxl::read_xlsx("/cloud/project/RWorkSheet_Marquez#4a/alexa_file.xlsx", sheet = 1)
alexa
```

```
## # 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
```

```
unique(alexa$variation)
```

```
##  [1] "Charcoal Fabric"          "Walnut Finish"
##  [3] "Heather Gray Fabric"      "Sandstone Fabric"
##  [5] "Oak Finish"               "Black"
##  [7] "White"                    "Black  Spot"
##  [9] "White  Spot"              "Black  Show"
## [11] "White  Show"              "Black  Plus"
## [13] "White  Plus"              "Configuration: Fire TV Stick"
## [15] "Black  Dot"               "White  Dot"
```

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

alexa$variation <- gsub("White  Dot", "White Dot", alexa$variation)
alexa$variation <- gsub("White  Plus", "White Plus", alexa$variation)
alexa$variation <- gsub("White  Show", "White Show", alexa$variation)
alexa$variation <- gsub("White  Spot", "White Spot", alexa$variation)
unique(alexa$variation)
```

```
##  [1] "Charcoal Fabric"          "Walnut Finish"
##  [3] "Heather Gray Fabric"      "Sandstone Fabric"
##  [5] "Oak Finish"               "Black"
##  [7] "White"                    "Black Spot"
##  [9] "White Spot"               "Black Show"
## [11] "White Show"               "Black Plus"
## [13] "White Plus"               "Configuration: Fire TV Stick"
## [15] "Black Dot"                "White Dot"
```

```
head(alexa)
```

```
## # A tibble: 6 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 playi~        1
## 4        5 2018-07-31 00:00:00 Charcoal Fabric     I have had a lot of f~        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 a~        1
```

#7b.

```r
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
```

```r
variation_counts <- alexa %>%
  count(variation)

print(variation_counts)
```

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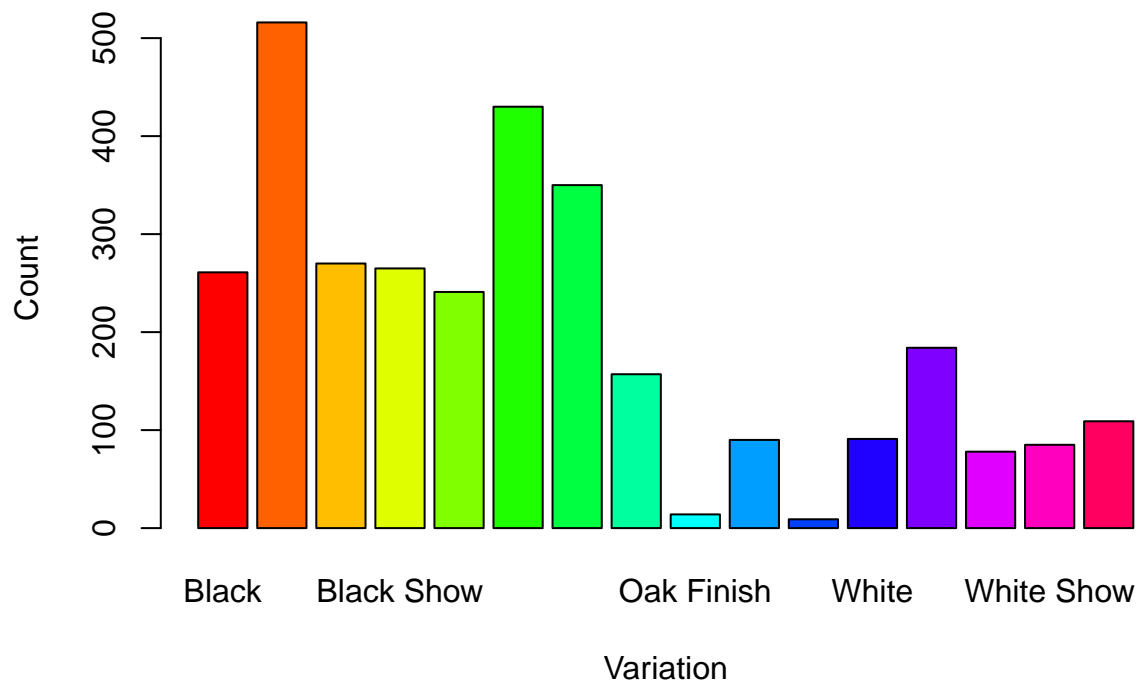
```r
save(variation_counts, file = "variations.RData")
```

#7c.

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

barplot(variation_counts$n,
        names.arg = variation_counts$variation,
        main = "Alexa Variations",
        xlab = "Variation",
        ylab = "Count",
        col = rainbow(nrow(variation_counts)))
```

Alexa Variations

```r
black_variants <- variation_counts[grepl("Black", variation_counts$variation), ]
white_variants <- variation_counts[grepl("White", variation_counts$variation), ]

par(mfrow = c(1, 2))

barplot(black_variants$n,
        names.arg = black_variants$variation,
        main = "Black Variants",
        xlab = "Variation",
        ylab = "Count",
        col = rainbow(nrow(black_variants))
)

barplot(white_variants$n,
        names.arg = white_variants$variation,
        main = "White Variants",
        xlab = "Variation",
        ylab = "Count",
        col = rainbow(nrow(white_variants))
)
```

Black Variants

White Variants