

RWorksheet_Cahutay#4b

Mark Anton Cahutay

2024-10-31

1. 5 x 5 Zero Matrix

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

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

print(my_matrix)
```

```
##      [,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
```

2. Print string "*" using for loop.

```
for (i in 1:5){
  for (j in 1:i){
    cat("* ")
  }
  cat("\n")
}
```

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

3. Print a Fibonacci sequence from the first input until the value reaches 500.

```

printFibonacci <- function(start){
  first <- 0
  second <- 1
  next_num <- 0

  if (start == 1){
    cat(first, "", second, "", second, " ")
  }

  for (i in 0:start){
    next_num <- first + second
    first <- second
    second <- next_num
  }

  repeat{
    if (next_num > 500) break
    cat(next_num, " ")
    next_num <- first + second
    first <- second
    second <- next_num
  }
}

#start <- readline(prompt = "Enter starting term: ")
start <- 1
printFibonacci(start)

## 0 1 1 2 3 5 8 13 21 34 55 89 144 233 377

```

4. Import shoe size dataset

```

#A. Imported the dataset and displayed the first 6 rows
shoe_data <- read.csv("shoesize_data.csv")
shoe_data[(1:6), ]

```

```

##   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

```

```

#B. Subset for gender
male <- subset(shoe_data, Gender == "M")
male

```

```

##   Shoe_Size Height Gender
## 5     10.5   70.0      M
## 9     13.0   72.0      M
## 11     10.5   74.5      M

```

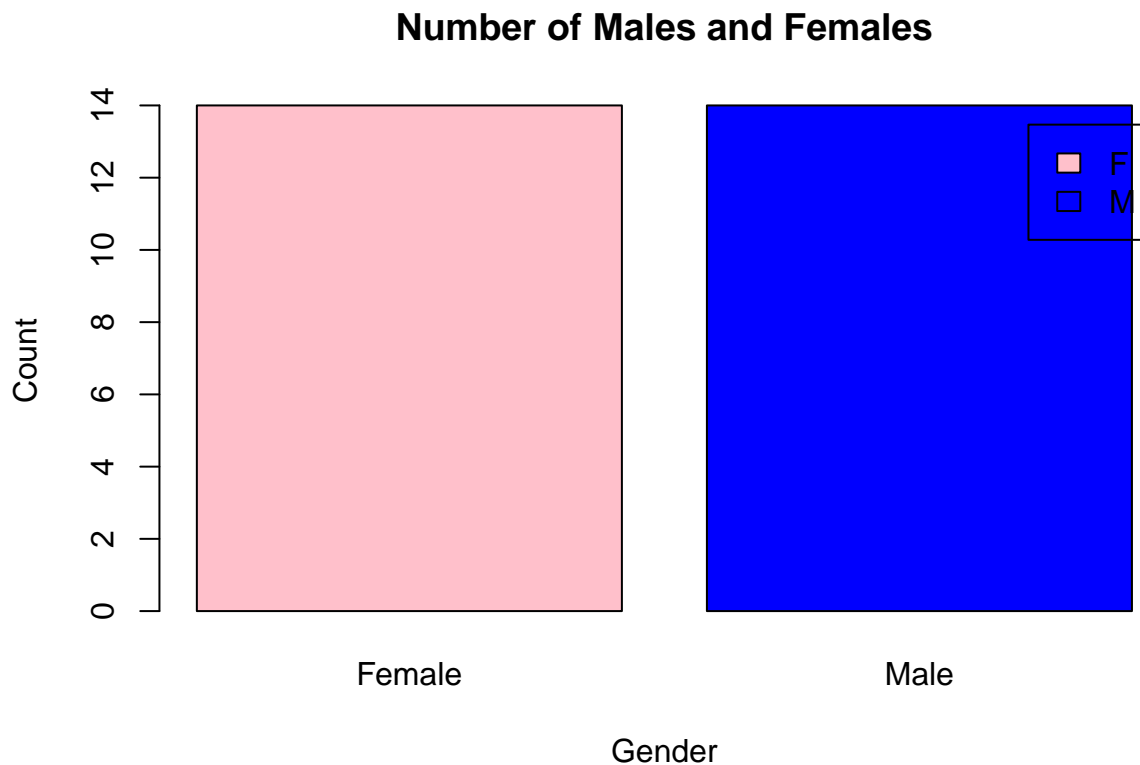
```
## 13      12.0   71.0     M
## 14      10.5   71.0     M
## 15      13.0   77.0     M
## 16      11.5   72.0     M
## 19      10.0   72.0     M
## 22       8.5   67.0     M
## 23      10.5   73.0     M
## 25      10.5   72.0     M
## 26      11.0   70.0     M
## 27       9.0   69.0     M
## 28      13.0   70.0     M
```

```
female <- subset(shoe_data, Gender == "F")
female
```

```
##      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
## 6         7.0   64.0      F
## 7         9.5   70.0      F
## 8         9.0   71.0      F
## 10        7.5   64.0      F
## 12        8.5   67.0      F
## 17        8.5   59.0      F
## 18         5.0   62.0      F
## 20        6.5   66.0      F
## 21        7.5   64.0      F
## 24        8.5   69.0      F
```

```
#C. Barplot for genders
num_gender <- table(shoe_data$Gender)

barplot(num_gender,
        main = "Number of Males and Females",
        xlab = "Gender",
        ylab = "Count",
        col = c("Pink", "Blue"),
        names.arg = c("Female", "Male"),
        legend = rownames(num_gender))
```



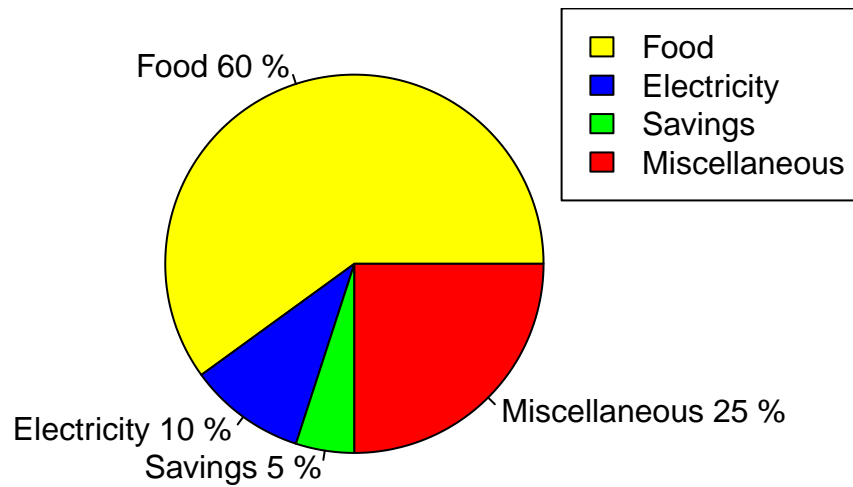
5. Monthly income pie chart of Dela Cruz Family.

```
category <- c("Food", "Electricity", "Savings", "Miscellaneous")
value <- c(60, 10, 5, 25)
color = c("Yellow", "Blue", "Green", "Red")
percentage <- round(value / sum(value) * 100)
percent_label <- paste(category, percentage, "%")

pie(
  value,
  col = color,
  main = "Dela Cruz Expenses",
  label = percent_label
)

legend("topright", category, fill = color)
```

Dela Cruz Expenses



6. Iris Dataset

#A. Check structure of iris dataset

```
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 ...
```

#Output displays a data frame that contains the length and width of Sepal and Petal

#B. Object to store the mean of sepal length, sepal width, petal length, and petal width

```
data_means <- c(
```

```
  Sepal.Length = mean(iris$Sepal.Length),
  Sepal.Width  = mean(iris$Sepal.Width),
  Petal.Length  = mean(iris$Petal.Length),
  Petal.Width   = mean(iris$Petal.Width)
)
```

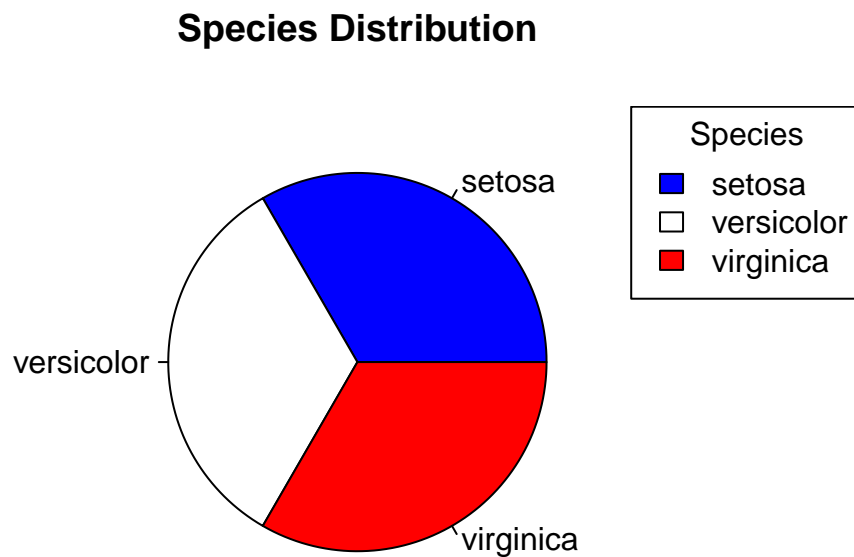
```
data_means
```

```
## Sepal.Length Sepal.Width Petal.Length Petal.Width
##      5.843333      3.057333      3.758000      1.199333
```

```

#C. Pie chart for Species distribution
iris_species <- table(iris$Species)
species_color <- c("Blue", "White", "Red")
pie(
  iris_species,
  main = "Species Distribution",
  col = species_color
)
legend("topright", names(iris_species), fill = species_color, title = "Species")

```



```

#D. Subset of the species setosa, versicolor, and virginica.
setosa <- subset(iris, Species == "setosa")
versicolor <- subset(iris, Species == "versicolor")
virginica <- subset(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
```

```
#E. Scatterplot of the sepal.length and sepal.width
data(iris)
```

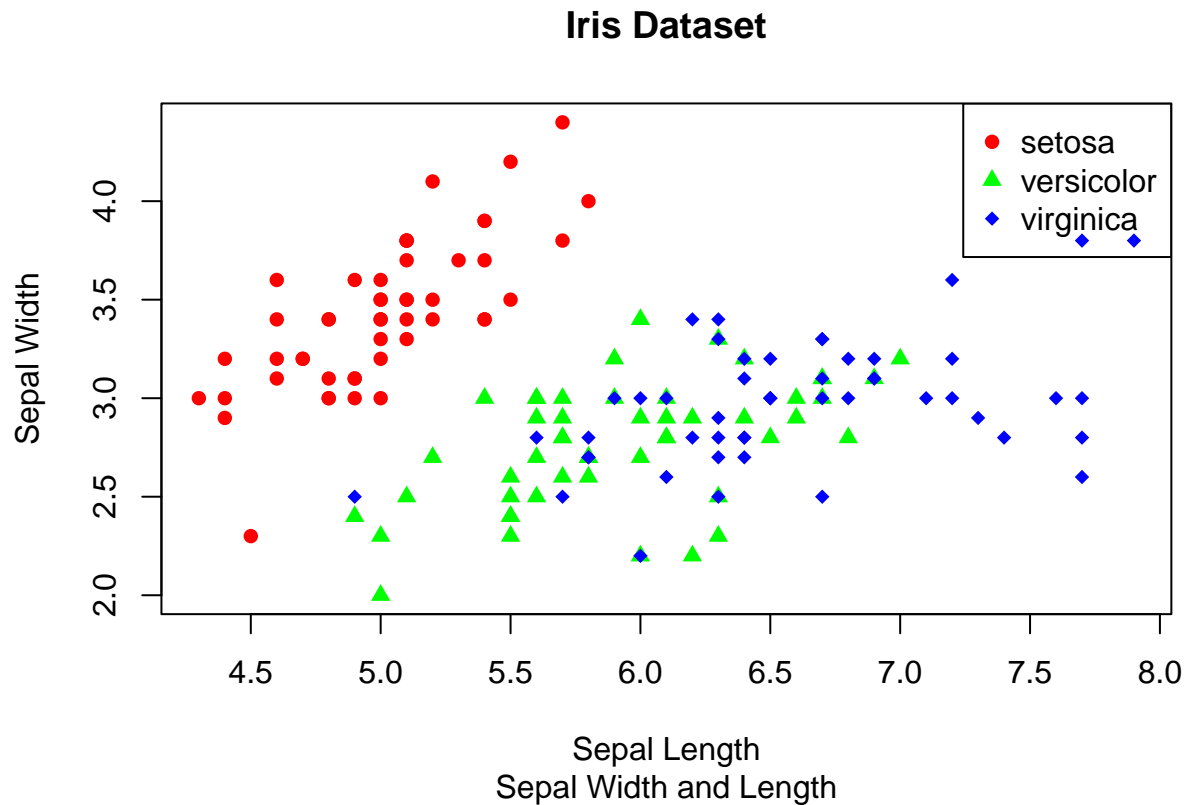
```
iris$Species <- as.factor(iris$Species)
```

```
colors <- c("red", "green", "blue")
```

```
pch_symbols <- c(16, 17, 18)
```

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

```
legend("topright", legend = levels(iris$Species),
     col = colors, pch = pch_symbols)
```



F.

- The scatterplot shows the relationship between Sepal.Length and Sepal.Width across three species in the iris dataset: setosa, versicolor, and virginica.
- Setosa (red circles) is distinctly clustered with smaller sepal lengths, making it easily distinguishable from the other species.
- Versicolor (green triangles) and Virginica (blue diamonds) show overlapping ranges in both dimensions, with virginica generally having the longest sepals.

7. Basic Cleaning and Transformation of Objects

```
#Imported alexafile
library(readxl)
alexa_file <- read_xlsx("alexa_file.xlsx")
alexa_file
```

```
## # 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
```

#A. Rename the white and black variants using gsub() function.

```
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$variation <- gsub("White Spot", "WhiteSpot", alexa_file$variation)
alexa_file$variation <- gsub("White Show", "WhiteShow", alexa_file$variation)
alexa_file$variation <- gsub("White Plus", "WhitePlus", alexa_file$variation)
alexa_file$variation <- gsub("White Dot", "WhiteDot", alexa_file$variation)

alexa_file$variation[1050:2000]
```

```
## [1] "Heather Gray Fabric" "BlackSpot"      "WhiteSpot"
## [4] "BlackSpot"          "BlackSpot"      "BlackSpot"
## [7] "BlackSpot"          "WhiteSpot"      "BlackSpot"
## [10] "BlackSpot"          "BlackSpot"      "BlackSpot"
## [13] "BlackSpot"          "WhiteSpot"      "WhiteSpot"
## [16] "BlackSpot"          "WhiteSpot"      "WhiteSpot"
## [19] "WhiteSpot"          "WhiteSpot"      "BlackSpot"
## [22] "BlackSpot"          "WhiteSpot"      "BlackSpot"
## [25] "BlackSpot"          "BlackSpot"      "WhiteSpot"
## [28] "BlackSpot"          "BlackSpot"      "WhiteSpot"
## [31] "BlackSpot"          "BlackSpot"      "BlackSpot"
## [34] "BlackSpot"          "WhiteSpot"      "BlackSpot"
## [37] "WhiteSpot"          "BlackSpot"      "BlackSpot"
## [40] "WhiteSpot"          "WhiteSpot"      "BlackSpot"
## [43] "BlackSpot"          "BlackSpot"      "BlackSpot"
## [46] "WhiteSpot"          "WhiteSpot"      "BlackSpot"
## [49] "BlackSpot"          "BlackSpot"      "WhiteSpot"
## [52] "BlackSpot"          "BlackSpot"      "BlackSpot"
## [55] "BlackSpot"          "BlackSpot"      "WhiteSpot"
## [58] "BlackSpot"          "WhiteSpot"      "BlackSpot"
## [61] "WhiteSpot"          "BlackSpot"      "BlackSpot"
## [64] "WhiteSpot"          "WhiteSpot"      "WhiteSpot"
## [67] "BlackSpot"          "BlackSpot"      "BlackSpot"
## [70] "WhiteSpot"          "WhiteSpot"      "BlackSpot"
## [73] "BlackSpot"          "BlackSpot"      "WhiteSpot"
## [76] "BlackSpot"          "BlackSpot"      "BlackSpot"
## [79] "BlackSpot"          "BlackSpot"      "BlackSpot"
## [82] "BlackSpot"          "BlackSpot"      "BlackSpot"
## [85] "BlackSpot"          "BlackSpot"      "BlackSpot"
## [88] "WhiteSpot"          "WhiteSpot"      "WhiteSpot"
## [91] "BlackSpot"          "BlackSpot"      "WhiteSpot"
## [94] "BlackSpot"          "BlackSpot"      "BlackSpot"
## [97] "BlackSpot"          "WhiteSpot"      "BlackSpot"
## [100] "BlackSpot"          "BlackSpot"      "BlackSpot"
## [103] "WhiteSpot"          "BlackSpot"      "BlackSpot"
```

## [106]	"WhiteSpot"	"BlackSpot"	"WhiteSpot"
## [109]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [112]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [115]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [118]	"WhiteSpot"	"BlackSpot"	"BlackSpot"
## [121]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [124]	"WhiteSpot"	"BlackSpot"	"WhiteSpot"
## [127]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [130]	"BlackSpot"	"BlackSpot"	"WhiteSpot"
## [133]	"WhiteSpot"	"BlackSpot"	"WhiteSpot"
## [136]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [139]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [142]	"WhiteSpot"	"BlackSpot"	"BlackSpot"
## [145]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [148]	"BlackSpot"	"BlackSpot"	"WhiteSpot"
## [151]	"WhiteSpot"	"BlackSpot"	"BlackSpot"
## [154]	"BlackSpot"	"WhiteSpot"	"WhiteSpot"
## [157]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [160]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [163]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [166]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [169]	"BlackSpot"	"BlackSpot"	"WhiteSpot"
## [172]	"WhiteSpot"	"BlackSpot"	"WhiteSpot"
## [175]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [178]	"BlackSpot"	"BlackSpot"	"WhiteSpot"
## [181]	"BlackSpot"	"BlackSpot"	"WhiteSpot"
## [184]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [187]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [190]	"BlackSpot"	"WhiteSpot"	"WhiteSpot"
## [193]	"BlackSpot"	"WhiteSpot"	"WhiteSpot"
## [196]	"WhiteSpot"	"BlackSpot"	"BlackSpot"
## [199]	"BlackSpot"	"BlackSpot"	"WhiteSpot"
## [202]	"BlackSpot"	"WhiteSpot"	"WhiteSpot"
## [205]	"WhiteSpot"	"BlackSpot"	"BlackSpot"
## [208]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [211]	"BlackSpot"	"BlackSpot"	"WhiteSpot"
## [214]	"WhiteSpot"	"BlackSpot"	"WhiteSpot"
## [217]	"WhiteSpot"	"WhiteSpot"	"BlackSpot"
## [220]	"BlackSpot"	"BlackSpot"	"WhiteSpot"
## [223]	"WhiteSpot"	"BlackSpot"	"WhiteSpot"
## [226]	"WhiteSpot"	"WhiteSpot"	"WhiteSpot"
## [229]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [232]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [235]	"WhiteSpot"	"WhiteSpot"	"WhiteSpot"
## [238]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [241]	"WhiteSpot"	"WhiteSpot"	"BlackSpot"
## [244]	"WhiteSpot"	"BlackSpot"	"BlackSpot"
## [247]	"WhiteSpot"	"BlackSpot"	"WhiteSpot"
## [250]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [253]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [256]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [259]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [262]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [265]	"BlackSpot"	"BlackSpot"	"BlackSpot"

## [268]	"WhiteSpot"	"BlackSpot"	"BlackSpot"
## [271]	"WhiteSpot"	"BlackSpot"	"BlackSpot"
## [274]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [277]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [280]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [283]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [286]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [289]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [292]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [295]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [298]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [301]	"BlackSpot"	"BlackSpot"	"WhiteSpot"
## [304]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [307]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [310]	"WhiteSpot"	"WhiteSpot"	"BlackSpot"
## [313]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [316]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [319]	"WhiteSpot"	"BlackSpot"	"BlackSpot"
## [322]	"WhiteSpot"	"WhiteSpot"	"BlackSpot"
## [325]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [328]	"WhiteSpot"	"BlackSpot"	"BlackSpot"
## [331]	"BlackSpot"	"WhiteSpot"	"WhiteSpot"
## [334]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [337]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [340]	"BlackSpot"	"BlackSpot"	"BlackSpot"
## [343]	"WhiteSpot"	"BlackSpot"	"BlackSpot"
## [346]	"BlackSpot"	"WhiteSpot"	"BlackSpot"
## [349]	"WhiteSpot"	"BlackSpot"	"BlackSpot"
## [352]	"BlackShow"	"BlackShow"	"BlackShow"
## [355]	"BlackShow"	"WhiteShow"	"WhiteShow"
## [358]	"BlackShow"	"WhiteShow"	"BlackShow"
## [361]	"BlackShow"	"BlackShow"	"BlackShow"
## [364]	"BlackShow"	"WhiteShow"	"BlackShow"
## [367]	"BlackShow"	"BlackShow"	"BlackShow"
## [370]	"BlackShow"	"BlackShow"	"WhiteShow"
## [373]	"BlackShow"	"BlackShow"	"BlackShow"
## [376]	"BlackShow"	"WhiteShow"	"BlackShow"
## [379]	"BlackShow"	"BlackShow"	"BlackShow"
## [382]	"WhiteShow"	"BlackShow"	"BlackShow"
## [385]	"BlackShow"	"BlackShow"	"BlackShow"
## [388]	"BlackShow"	"BlackShow"	"BlackShow"
## [391]	"BlackShow"	"WhiteShow"	"WhiteShow"
## [394]	"BlackShow"	"WhiteShow"	"WhiteShow"
## [397]	"BlackShow"	"BlackShow"	"WhiteShow"
## [400]	"WhiteShow"	"BlackShow"	"BlackShow"
## [403]	"BlackShow"	"BlackShow"	"BlackShow"
## [406]	"WhiteShow"	"BlackShow"	"BlackShow"
## [409]	"BlackShow"	"BlackShow"	"BlackShow"
## [412]	"BlackShow"	"BlackShow"	"WhiteShow"
## [415]	"WhiteShow"	"BlackShow"	"BlackShow"
## [418]	"BlackShow"	"BlackShow"	"BlackShow"
## [421]	"BlackShow"	"BlackShow"	"BlackShow"
## [424]	"BlackShow"	"WhiteShow"	"WhiteShow"
## [427]	"BlackShow"	"BlackShow"	"WhiteShow"

## [430]	"BlackShow"	"BlackShow"	"BlackShow"
## [433]	"BlackShow"	"BlackShow"	"BlackShow"
## [436]	"BlackShow"	"WhiteShow"	"BlackShow"
## [439]	"WhiteShow"	"BlackShow"	"BlackShow"
## [442]	"BlackShow"	"BlackShow"	"BlackShow"
## [445]	"BlackShow"	"BlackShow"	"BlackShow"
## [448]	"BlackShow"	"WhiteShow"	"BlackShow"
## [451]	"BlackShow"	"WhiteShow"	"BlackShow"
## [454]	"WhiteShow"	"WhiteShow"	"WhiteShow"
## [457]	"WhiteShow"	"BlackShow"	"WhiteShow"
## [460]	"BlackShow"	"WhiteShow"	"BlackShow"
## [463]	"WhiteShow"	"BlackShow"	"BlackShow"
## [466]	"WhiteShow"	"BlackShow"	"BlackShow"
## [469]	"BlackShow"	"WhiteShow"	"BlackShow"
## [472]	"BlackShow"	"WhiteShow"	"WhiteShow"
## [475]	"BlackShow"	"BlackShow"	"BlackShow"
## [478]	"BlackShow"	"BlackShow"	"BlackShow"
## [481]	"BlackShow"	"WhiteShow"	"BlackShow"
## [484]	"BlackShow"	"BlackShow"	"WhiteShow"
## [487]	"BlackShow"	"BlackShow"	"BlackShow"
## [490]	"WhiteShow"	"BlackShow"	"BlackShow"
## [493]	"BlackShow"	"BlackShow"	"BlackShow"
## [496]	"BlackShow"	"BlackShow"	"WhiteShow"
## [499]	"BlackShow"	"BlackShow"	"BlackShow"
## [502]	"WhiteShow"	"BlackShow"	"BlackShow"
## [505]	"WhiteShow"	"BlackShow"	"BlackShow"
## [508]	"BlackShow"	"WhiteShow"	"BlackShow"
## [511]	"WhiteShow"	"BlackShow"	"BlackShow"
## [514]	"BlackShow"	"BlackShow"	"WhiteShow"
## [517]	"WhiteShow"	"BlackShow"	"BlackShow"
## [520]	"BlackShow"	"BlackShow"	"BlackShow"
## [523]	"BlackShow"	"WhiteShow"	"BlackShow"
## [526]	"BlackShow"	"BlackShow"	"BlackShow"
## [529]	"WhiteShow"	"WhiteShow"	"BlackShow"
## [532]	"BlackShow"	"BlackShow"	"BlackShow"
## [535]	"BlackShow"	"BlackShow"	"WhiteShow"
## [538]	"WhiteShow"	"WhiteShow"	"BlackShow"
## [541]	"BlackShow"	"BlackShow"	"BlackShow"
## [544]	"BlackShow"	"BlackShow"	"BlackShow"
## [547]	"BlackShow"	"WhiteShow"	"BlackShow"
## [550]	"BlackShow"	"BlackShow"	"BlackShow"
## [553]	"BlackShow"	"BlackShow"	"BlackShow"
## [556]	"BlackShow"	"BlackShow"	"WhiteShow"
## [559]	"BlackShow"	"WhiteShow"	"BlackShow"
## [562]	"BlackShow"	"WhiteShow"	"BlackShow"
## [565]	"BlackShow"	"BlackShow"	"WhiteShow"
## [568]	"BlackShow"	"BlackShow"	"BlackShow"
## [571]	"BlackShow"	"BlackShow"	"BlackShow"
## [574]	"WhiteShow"	"BlackShow"	"BlackShow"
## [577]	"WhiteShow"	"BlackShow"	"BlackShow"
## [580]	"WhiteShow"	"BlackShow"	"BlackShow"
## [583]	"BlackShow"	"WhiteShow"	"BlackShow"
## [586]	"BlackShow"	"WhiteShow"	"BlackShow"
## [589]	"WhiteShow"	"WhiteShow"	"BlackShow"

## [592]	"BlackShow"	"BlackShow"	"BlackShow"
## [595]	"BlackShow"	"BlackShow"	"WhiteShow"
## [598]	"BlackShow"	"BlackShow"	"BlackShow"
## [601]	"BlackShow"	"BlackShow"	"BlackShow"
## [604]	"BlackShow"	"BlackShow"	"BlackShow"
## [607]	"WhiteShow"	"BlackShow"	"BlackShow"
## [610]	"BlackShow"	"BlackShow"	"BlackShow"
## [613]	"WhiteShow"	"WhiteShow"	"BlackShow"
## [616]	"BlackShow"	"BlackShow"	"BlackShow"
## [619]	"BlackShow"	"WhiteShow"	"BlackShow"
## [622]	"WhiteShow"	"BlackShow"	"BlackShow"
## [625]	"BlackShow"	"BlackShow"	"BlackShow"
## [628]	"WhiteShow"	"BlackShow"	"WhiteShow"
## [631]	"BlackShow"	"BlackShow"	"BlackShow"
## [634]	"WhiteShow"	"BlackShow"	"BlackShow"
## [637]	"BlackShow"	"BlackShow"	"BlackShow"
## [640]	"BlackShow"	"WhiteShow"	"BlackShow"
## [643]	"BlackShow"	"BlackShow"	"BlackShow"
## [646]	"WhiteShow"	"BlackShow"	"BlackShow"
## [649]	"BlackShow"	"BlackShow"	"BlackShow"
## [652]	"BlackShow"	"BlackShow"	"WhiteShow"
## [655]	"BlackShow"	"WhiteShow"	"BlackShow"
## [658]	"BlackShow"	"BlackShow"	"BlackShow"
## [661]	"BlackShow"	"BlackShow"	"WhiteShow"
## [664]	"BlackShow"	"BlackShow"	"WhiteShow"
## [667]	"BlackShow"	"BlackShow"	"BlackShow"
## [670]	"BlackShow"	"BlackShow"	"BlackShow"
## [673]	"WhiteShow"	"BlackShow"	"BlackShow"
## [676]	"WhiteShow"	"WhiteShow"	"BlackShow"
## [679]	"WhiteShow"	"BlackShow"	"WhiteShow"
## [682]	"BlackShow"	"BlackShow"	"BlackShow"
## [685]	"BlackShow"	"BlackShow"	"BlackShow"
## [688]	"WhiteShow"	"BlackShow"	"BlackShow"
## [691]	"BlackShow"	"WhiteShow"	"WhiteShow"
## [694]	"BlackShow"	"BlackShow"	"BlackShow"
## [697]	"BlackShow"	"BlackShow"	"BlackShow"
## [700]	"BlackShow"	"BlackShow"	"BlackPlus"
## [703]	"BlackPlus"	"WhitePlus"	"BlackPlus"
## [706]	"BlackPlus"	"WhitePlus"	"WhitePlus"
## [709]	"BlackPlus"	"BlackPlus"	"WhitePlus"
## [712]	"WhitePlus"	"BlackPlus"	"BlackPlus"
## [715]	"BlackPlus"	"BlackPlus"	"WhitePlus"
## [718]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [721]	"BlackPlus"	"BlackPlus"	"WhitePlus"
## [724]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [727]	"WhitePlus"	"BlackPlus"	"BlackPlus"
## [730]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [733]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [736]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [739]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [742]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [745]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [748]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [751]	"BlackPlus"	"BlackPlus"	"WhitePlus"

## [754]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [757]	"WhitePlus"	"BlackPlus"	"BlackPlus"
## [760]	"WhitePlus"	"BlackPlus"	"WhitePlus"
## [763]	"WhitePlus"	"BlackPlus"	"BlackPlus"
## [766]	"BlackPlus"	"BlackPlus"	"WhitePlus"
## [769]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [772]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [775]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [778]	"WhitePlus"	"BlackPlus"	"BlackPlus"
## [781]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [784]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [787]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [790]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [793]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [796]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [799]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [802]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [805]	"WhitePlus"	"BlackPlus"	"BlackPlus"
## [808]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [811]	"BlackPlus"	"BlackPlus"	"WhitePlus"
## [814]	"BlackPlus"	"BlackPlus"	"WhitePlus"
## [817]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [820]	"BlackPlus"	"WhitePlus"	"BlackPlus"
## [823]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [826]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [829]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [832]	"BlackPlus"	"WhitePlus"	"BlackPlus"
## [835]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [838]	"BlackPlus"	"WhitePlus"	"BlackPlus"
## [841]	"BlackPlus"	"BlackPlus"	"WhitePlus"
## [844]	"BlackPlus"	"WhitePlus"	"BlackPlus"
## [847]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [850]	"BlackPlus"	"WhitePlus"	"BlackPlus"
## [853]	"BlackPlus"	"BlackPlus"	"WhitePlus"
## [856]	"BlackPlus"	"WhitePlus"	"WhitePlus"
## [859]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [862]	"BlackPlus"	"BlackPlus"	"WhitePlus"
## [865]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [868]	"WhitePlus"	"BlackPlus"	"BlackPlus"
## [871]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [874]	"WhitePlus"	"WhitePlus"	"BlackPlus"
## [877]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [880]	"BlackPlus"	"BlackPlus"	"WhitePlus"
## [883]	"WhitePlus"	"BlackPlus"	"BlackPlus"
## [886]	"BlackPlus"	"BlackPlus"	"WhitePlus"
## [889]	"WhitePlus"	"WhitePlus"	"BlackPlus"
## [892]	"WhitePlus"	"WhitePlus"	"BlackPlus"
## [895]	"BlackPlus"	"WhitePlus"	"BlackPlus"
## [898]	"WhitePlus"	"BlackPlus"	"WhitePlus"
## [901]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [904]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [907]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [910]	"BlackPlus"	"BlackPlus"	"BlackPlus"
## [913]	"BlackPlus"	"BlackPlus"	"BlackPlus"

```
## [916] "BlackPlus"      "BlackPlus"      "BlackPlus"
## [919] "WhitePlus"      "WhitePlus"      "BlackPlus"
## [922] "BlackPlus"      "WhitePlus"      "WhitePlus"
## [925] "BlackPlus"      "BlackPlus"      "BlackPlus"
## [928] "BlackPlus"      "WhitePlus"      "BlackPlus"
## [931] "BlackPlus"      "BlackPlus"      "BlackPlus"
## [934] "WhitePlus"      "BlackPlus"      "BlackPlus"
## [937] "BlackPlus"      "BlackPlus"      "BlackPlus"
## [940] "BlackPlus"      "WhitePlus"      "WhitePlus"
## [943] "BlackPlus"      "BlackPlus"      "WhitePlus"
## [946] "BlackPlus"      "WhitePlus"      "BlackPlus"
## [949] "BlackPlus"      "BlackPlus"      "BlackPlus"
```

#B. Get the total number of variation

```
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
```

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

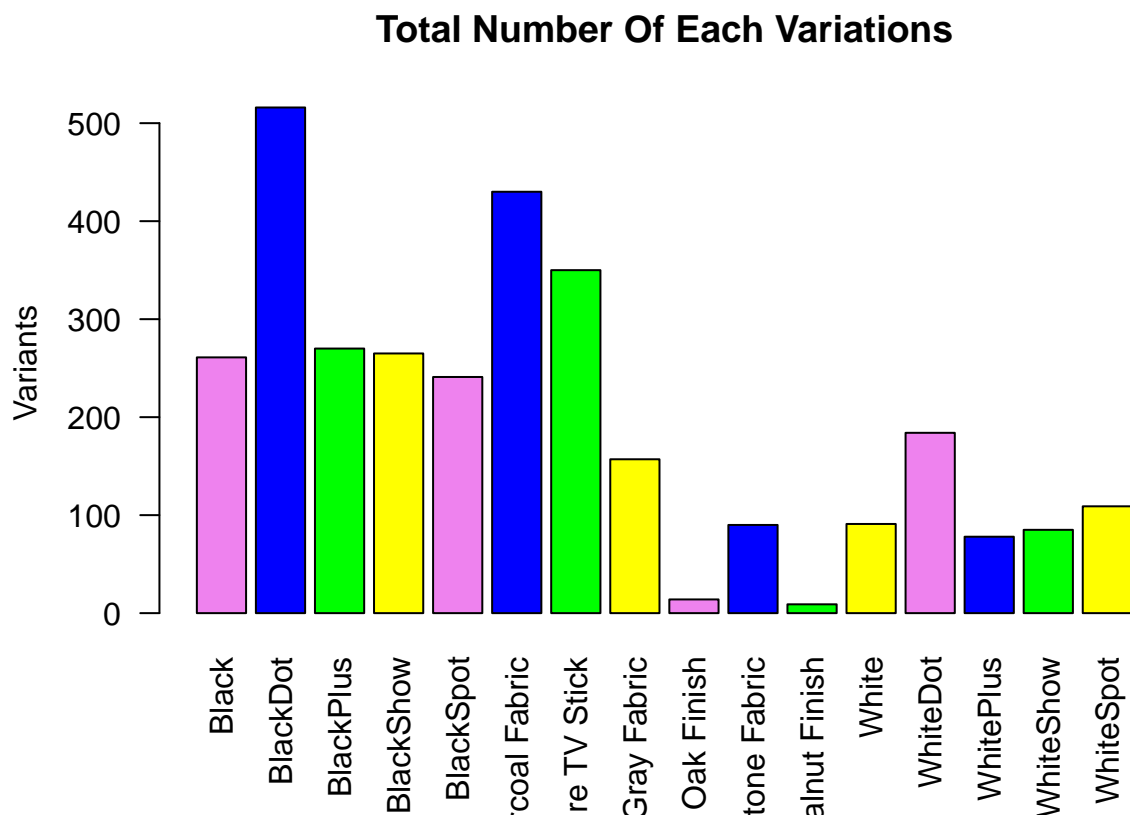
```
## # A tibble: 16 x 2
##   'alexa_file$variation'      n
##   <chr>                    <int>
## 1 Black                    261
## 2 BlackDot                 516
## 3 BlackPlus                270
## 4 BlackShow                265
## 5 BlackSpot                241
## 6 Charcoal Fabric          430
## 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(alexa_var, file = "variations.RData")
```

```
#C. Create a barplot from variations.RData
```

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

```
barplot(
  alexa_var$n,
  col = c("violet", "blue", "green", "yellow"),
  main = "Total Number Of Each Variations",
  ylab = "Variants",
  names.arg = alexa_var$`alexa_file$variation`,
  las = 2
)
```



```
#D. Create a barplot of black and white variations
```

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

```
par(mfrow = c(1, 2))
```

```
black_var <- alexa_var %>%
```

```
  filter(`alexa_file$variation` %in% c("Black", "BlackDot", "BlackPlus", "BlackShow", "BlackSpot"))
```

```
barplot(
  height = black_var$n,
  names.arg = black_var$`alexa_file$variation`,

```



```

col = c("purple", "red", "orange", "yellow", "lightgreen"),
main = "Black Variants",
xlab = "Total Numbers",
ylab = "Variations",
las = 2
)

white_var <- alexa_var %>%
  filter(`alexa_file$variation` %in% c("White", "WhiteDot", "WhitePlus", "WhiteShow", "WhiteSpot"))

barplot(
  height = white_var$n,
  names.arg = white_var$alexa_file$variation`,
  col = c("purple", "red", "orange", "yellow", "lightgreen"),
  main = "White Variants",
  xlab = "Total Numbers",
  ylab = "Variations",
  las = 2
)

```

