

# RWorksheets\_Francisco#4b

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```
#1
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
```

```
abs(vectorA)
```

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

```
#2
vectorB <- c(1,2,3,4,5)

for (i in vectorB){
  cat(rep("*",i), "\n")
}
```

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

```
#3
fibonacci_sequence <- function(start){
  a <- 0
  b <- 1

  repeat {
    fib <- a+b
    a <- b
    b <- fib
    if (fib >= 500) {
      break
    }
    if (fib >= start) {
      print(fib)
    }
  }
}
```

```

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

## Enter a Number:
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
datas <- read.csv("/cloud/project/worksheet#4/Household Data.csv")

```

```

#4b
male <- subset(datas, 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(datas, 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

```

```

num_male <- nrow(male)
num_female <- nrow(female)
cat("Number of observations for Male:", num_male, "\n")

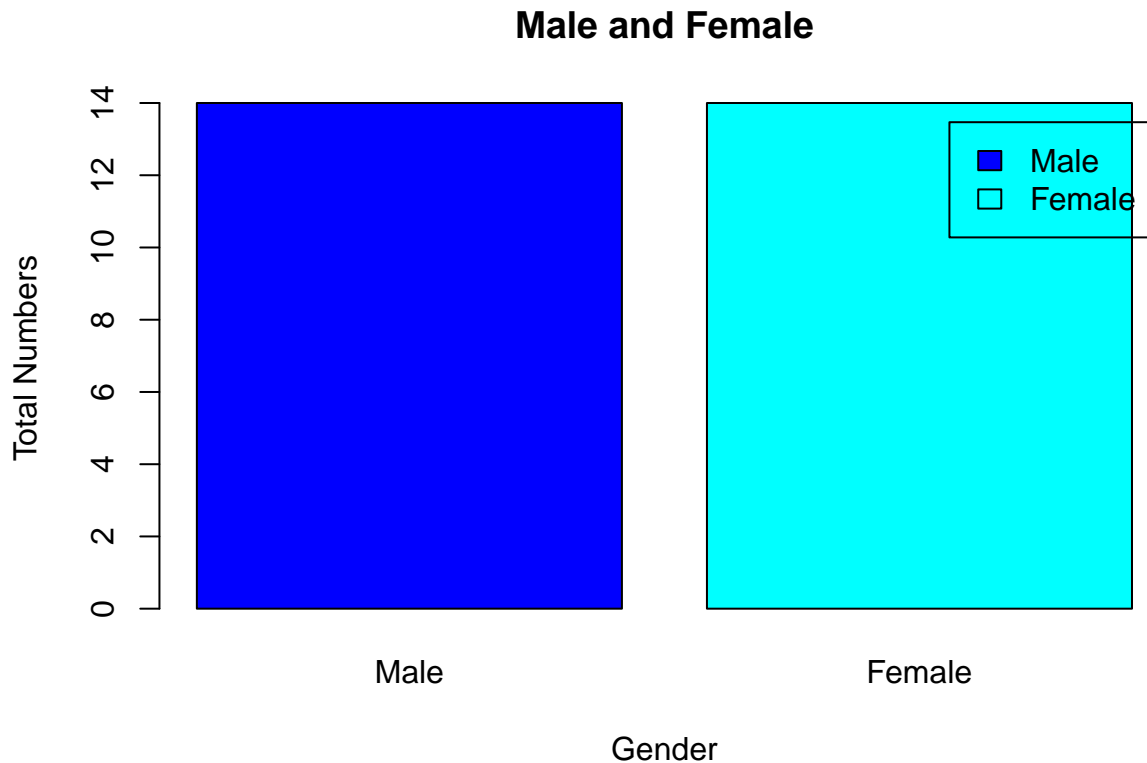
## Number of observations for Male: 14

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

## Number of observations for Female: 14

#4c
Plotting <- c(num_male,num_female)
names(Plotting) <- c("Male", "Female")
barplot(Plotting, main = "Male and Female", xlab = "Gender", ylab = "Total Numbers", col = c("blue", "cyan"))

```



```

#5
bills <- c("Food", "Electricity", "Savings", "Miscellaneous")
values <- c(60, 10, 5, 25)

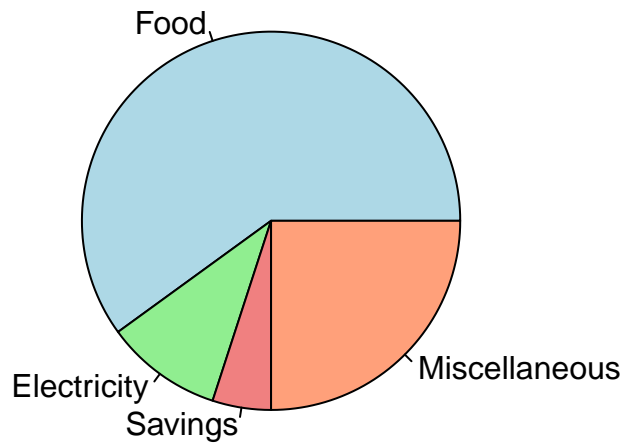
Bills <- matrix(values, nrow = 1, ncol = length(bills), dimnames = list(NULL, bills))
Bills

##      Food Electricity Savings Miscellaneous
## [1,]   60         10      5             25

Plotters <- pie(values, labels = c("Food", "Electricity", "Savings", "Miscellaneous"), col = c("lightblue", "lightgreen", "lightyellow", "lightpink"))

```

## Expenditures



```
#6
data(iris)
str(iris)

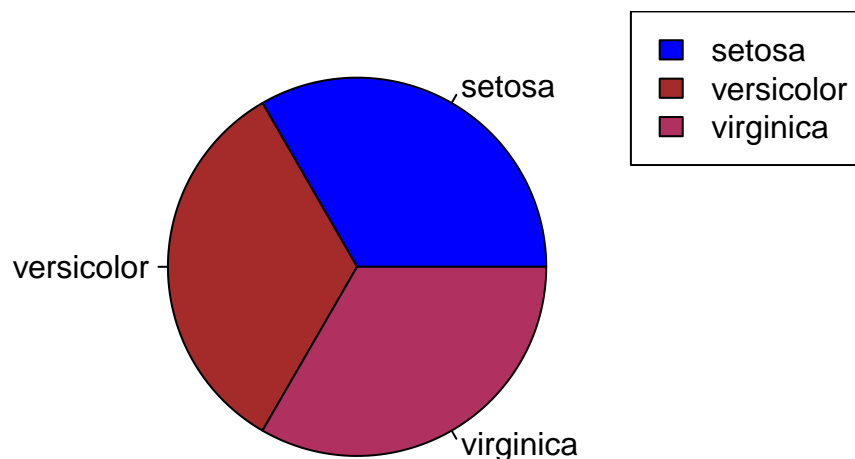
## 'data.frame':  150 obs. of  5 variables:
## $ Sepal.Length: num  5.1 4.9 4.7 4.6 5 5.4 4.6 5 4.4 4.9 ...
## $ Sepal.Width : num  3.5 3 3.2 3.1 3.6 3.9 3.4 3.4 2.9 3.1 ...
## $ Petal.Length: num  1.4 1.4 1.3 1.5 1.4 1.7 1.4 1.5 1.4 1.5 ...
## $ Petal.Width : num  0.2 0.2 0.2 0.2 0.2 0.4 0.3 0.2 0.2 0.1 ...
## $ Species      : Factor w/ 3 levels "setosa","versicolor",...: 1 1 1 1 1 1 1 1 1 1 ...

mean_values <- colMeans(iris[, 1:4])
mean_values

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

#6c
species <- table(iris$Species)
colors <- c("blue", "brown", "maroon")
Pie <- pie(species, main = "Species Distribution", col = colors, labels = names(species))
legend("topright", legend = names(species), fill = colors)
```

## Species Distribution



```
#6d
setosa <- subset(iris, Species == "setosa")
versicolor <- subset(iris, Species == "versicolor")
virginica <- subset(iris, Species == "virginica")
s<-tail(setosa)
v<- tail(versicolor)
v2<- tail(virginica)
s
```

##	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

v

##	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

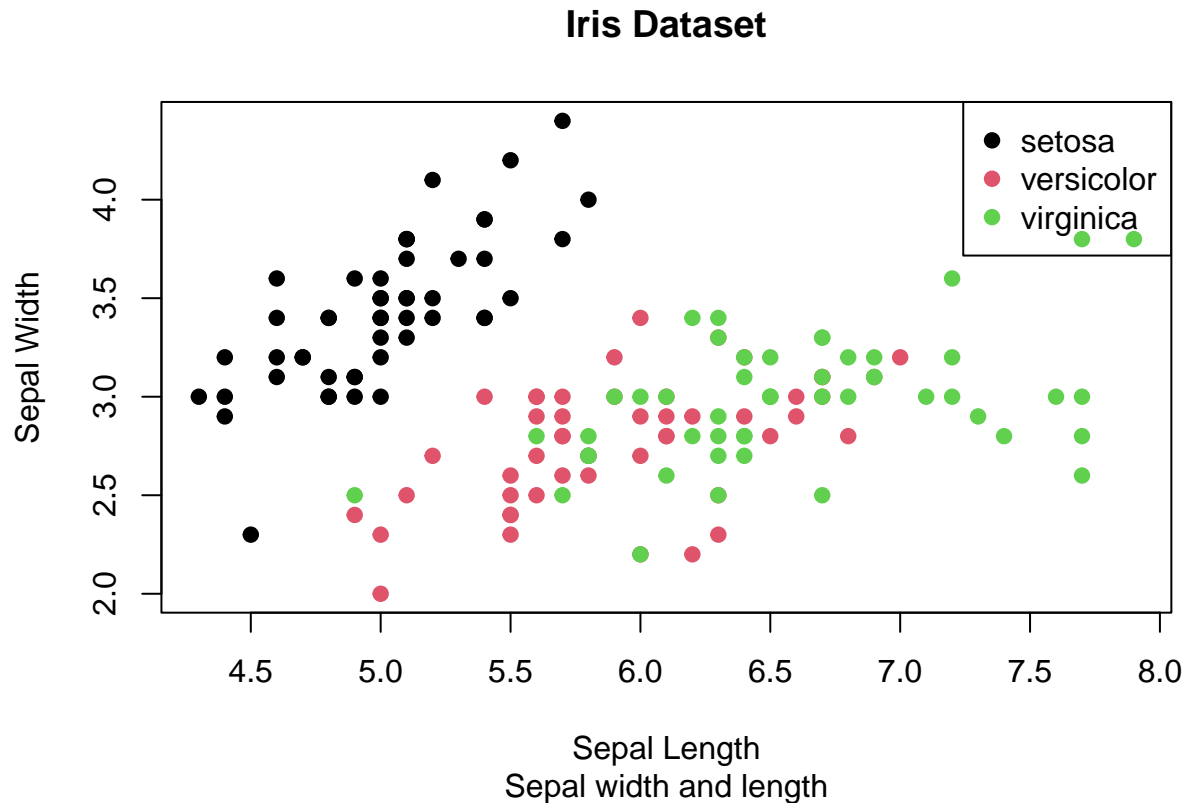
v2

##	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, main = "Iris Dataset", sub = "Sepal width and length", xlab =
```

```
legend("topright", legend = levels(iris$Species), pch = 19, col = 1:3)
```



#6f

#The scatterplot shows the relation of sepal width and length for various species of iris flowers. Vers

#7a.

```
library("openxlsx")
library("readxl")
A_File <- read_excel("/cloud/project/worksheet#4/alexa_file.xlsx")

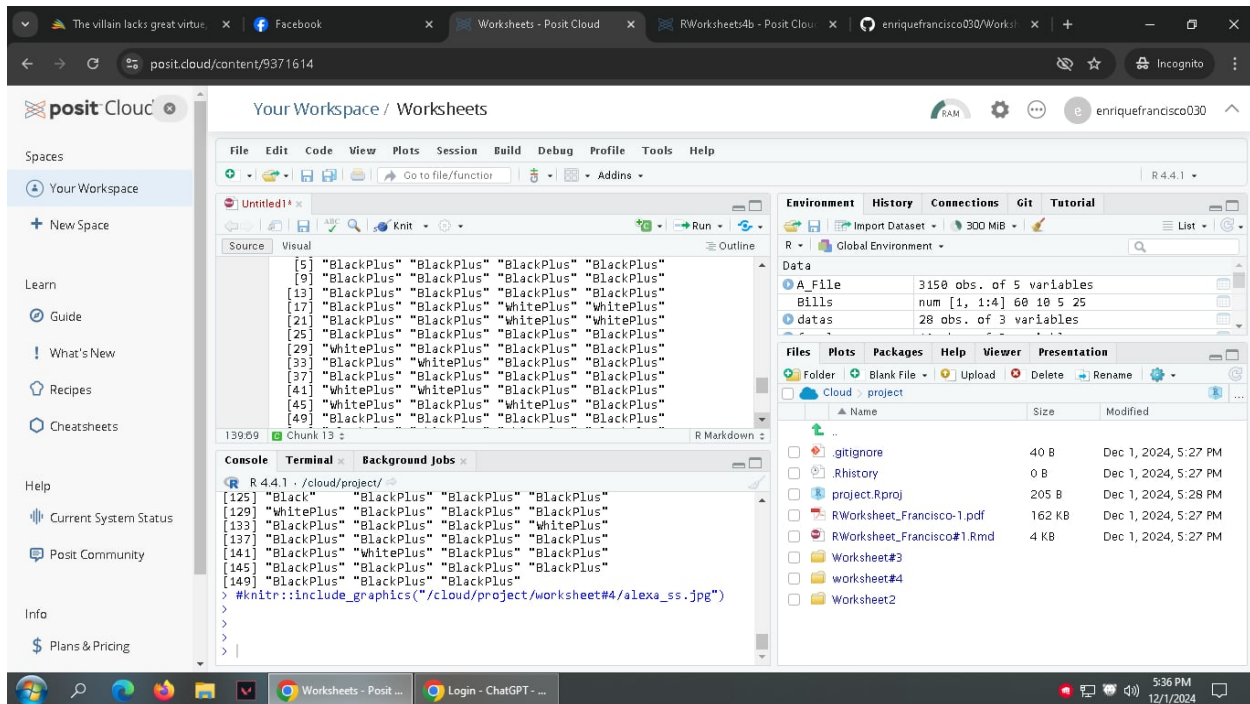
A_File$variation <- gsub("Black Dot", "BlackDot", A_File$variation)
A_File$variation <- gsub("Black Plus", "BlackPlus", A_File$variation)
A_File$variation <- gsub("Black Show", "BlackShow", A_File$variation)
A_File$variation <- gsub("Black Spot", "BlackSpot", A_File$variation)
A_File$variation <- gsub("White Dot", "WhiteDot", A_File$variation)
A_File$variation <- gsub("White Plus", "WhitePlus", A_File$variation)
A_File$variation <- gsub("White Show", "WhiteShow", A_File$variation)
A_File$variation <- gsub("White Spot", "WhiteSpot", A_File$variation)

print(A_File$variation[1950:2100])
```

```
## [1] "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus"
## [7] "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus"
## [13] "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus"
## [19] "WhitePlus" "WhitePlus" "BlackPlus" "BlackPlus" "WhitePlus" "WhitePlus"
## [25] "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "WhitePlus" "BlackPlus"
## [31] "BlackPlus" "BlackPlus" "BlackPlus" "WhitePlus" "BlackPlus" "BlackPlus"
## [37] "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "WhitePlus" "WhitePlus"
## [43] "BlackPlus" "BlackPlus" "WhitePlus" "BlackPlus" "WhitePlus" "BlackPlus"
```

```
## [49] "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "WhitePlus"
## [55] "WhitePlus" "BlackPlus" "WhitePlus" "WhitePlus" "BlackPlus" "BlackPlus"
## [61] "WhitePlus" "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "White"
## [67] "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "WhitePlus" "BlackPlus"
## [73] "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus"
## [79] "WhitePlus" "WhitePlus" "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus"
## [85] "BlackPlus" "WhitePlus" "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus"
## [91] "WhitePlus" "BlackPlus" "BlackPlus" "WhitePlus" "WhitePlus" "BlackPlus"
## [97] "WhitePlus" "BlackPlus" "WhitePlus" "BlackPlus" "BlackPlus" "WhitePlus"
## [103] "WhitePlus" "WhitePlus" "BlackPlus" "BlackPlus" "WhitePlus" "BlackPlus"
## [109] "BlackPlus" "BlackPlus" "WhitePlus" "WhitePlus" "BlackPlus" "WhitePlus"
## [115] "BlackPlus" "WhitePlus" "BlackPlus" "WhitePlus" "WhitePlus" "BlackPlus"
## [121] "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "Black" "BlackPlus"
## [127] "BlackPlus" "BlackPlus" "WhitePlus" "BlackPlus" "BlackPlus" "BlackPlus"
## [133] "BlackPlus" "BlackPlus" "BlackPlus" "WhitePlus" "BlackPlus" "BlackPlus"
## [139] "BlackPlus" "BlackPlus" "BlackPlus" "WhitePlus" "BlackPlus" "BlackPlus"
## [145] "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus" "BlackPlus"
## [151] "BlackPlus"
```

```
knitr::include_graphics("/cloud/project/worksheet#4/alexa_ss.jpg")
```



```
#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
variations_total <- A_File %>%
count(variation)

save(variations_total, file = "variations.RData")
variations_total
```

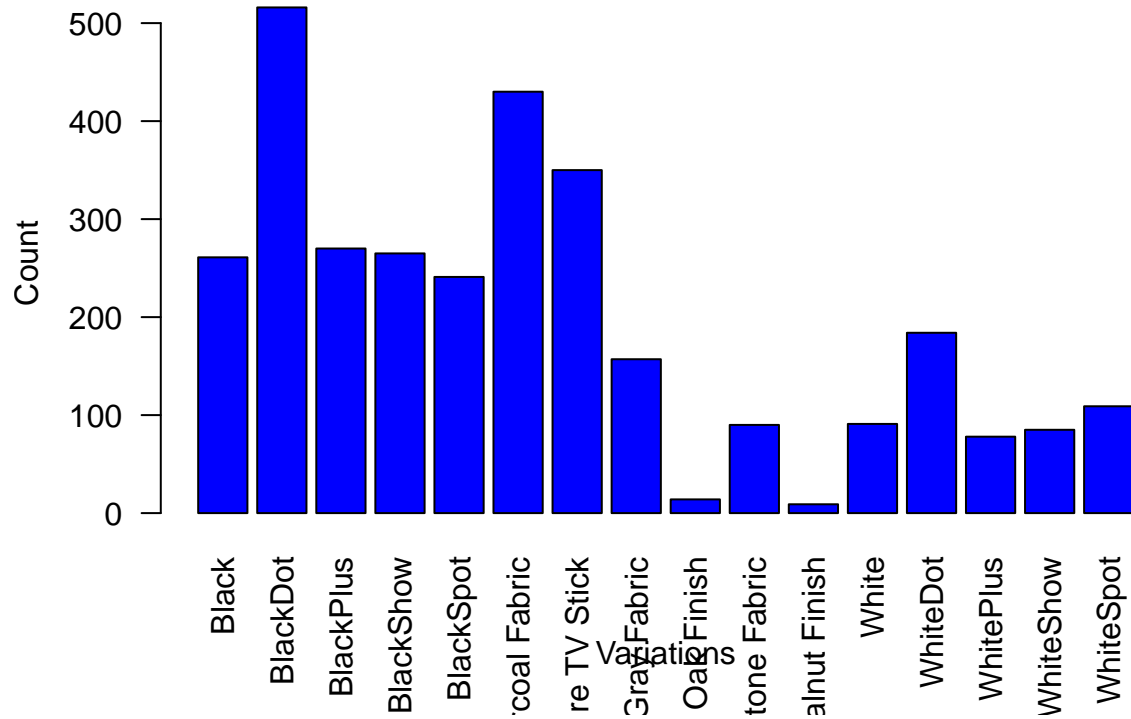
```
## # A tibble: 16 x 2
##   variation          n
##   <chr>          <int>
## 1 Black          261
## 2 BlackDot       516
## 3 BlackPlus      270
## 4 BlackShow      265
## 5 BlackSpot      241
## 6 Charcoal Fabric 430
## 7 Configuration: Fire TV Stick 350
## 8 Heather Gray Fabric 157
## 9 Oak Finish      14
## 10 Sandstone Fabric 90
## 11 Walnut Finish   9
## 12 White          91
## 13 WhiteDot       184
## 14 WhitePlus      78
## 15 WhiteShow      85
## 16 WhiteSpot     109
```

```
#7c.
load("variations.RData")

barplot(variations_total$n, names.arg = variations_total$variation,
col = "blue", main = "Alexa's Variations",
xlab = "Variations", ylab = "Count", las = 2)
```



## Alexa's Variations



#7d.

```
black_variants <- variations_total %>%
  filter(grepl("Black", variation))
```

```
white_variants <- variations_total %>%
  filter(grepl("White", variation))
```

```
par(mfrow = c(1, 2)) # Arrange plots side by side
```

```
barplot(black_variants$n, names.arg = black_variants$variation, col = "black", main = "Black Variants",
  barplot(white_variants$n, names.arg = white_variants$variation, col = "gray", main = "White Variants",
```

