RWorksheet_Lumauag#4b

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```r
#1
vectorA <- c(1, 2, 3, 4, 5)
matrix_5x5 <- matrix(0, nrow = 5, ncol = 5)


for (i in 1:5) {
  for (j in 1:5) {
    matrix_5x5[i, j] <- vectorA[abs(i - j) + 1]
  }
}

matrix_5x5
```

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

```r
#2
num_rows <- 5


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

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

```r
#3
first <- as.integer(readline(prompt = "Enter starting number for fibonacci sequence(up to 500): "))
```

```
## Enter starting number for fibonacci sequence(up to 500):
```

```r
fibonacci <- c(0,1)

repeat {
  next_fib <- sum(tail(fibonacci, 2))
  if (next_fib > 500) {
    break
  }
  fibonacci <- c(fibonacci, next_fib)
}

result <- fibonacci[fibonacci >= first]
cat("Fibonacci sequence from", first, "up to 500:", result, "\n")
```

```
## Fibonacci sequence from NA up to 500: NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
```

```r
#4
#a
library(readxl)
dataset <- read.csv("C:/RPROJS/SHOESIZES.csv")
head(dataset, 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
```

```r
#b
female_data <- subset(dataset, Gender == "F")
male_data <- subset(dataset, Gender == "M")

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

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

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

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

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

```r
#c
genderCount <- c(Males = 14, Females = 14)


barplot(
  genderCount, names.arg = "Number of Individuals",
  main = "Number of Males and Females in Household Data",
```
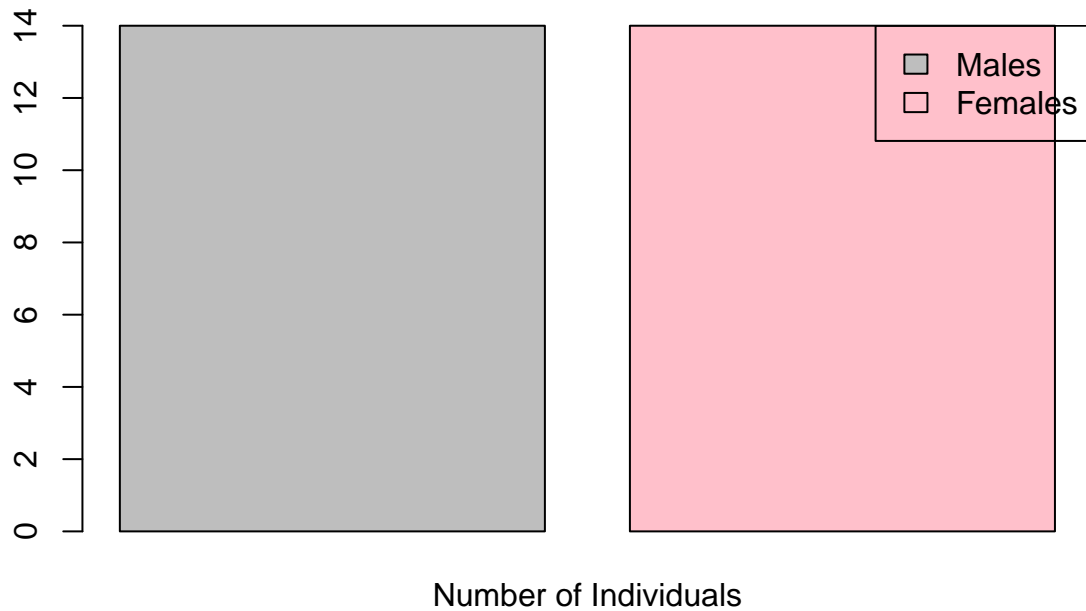
```
    col = c("gray", "pink"))

legend("topright",
       legend = names(genderCount),
       fill = c("gray", "pink"))
```

Number of Males and Females in Household Data

Number of Individuals

```
#5
colors <- c("lightgreen", "lightblue", "pink", "red")
x <- c(60, 10, 5, 25)
mylabel <- c("Food", "Electricity", "Savings", "Miscellaneous")
pie(x, label = mylabel, main = "Monthly Expenses of Dela Cruz family", init.angle = 100, col = colors)
```

Monthly Expenses of Dela Cruz family
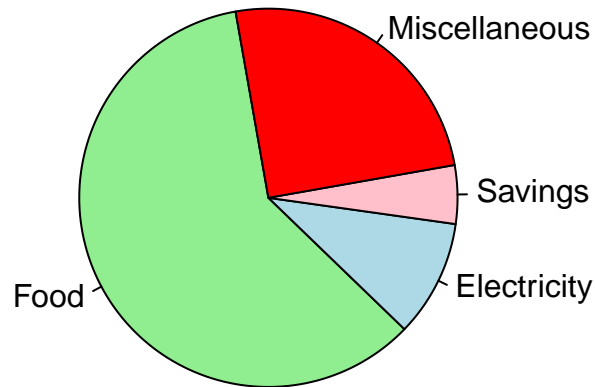

```
#6
#a
data(iris)
str(iris)
```

```
## '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 ...
```

```
#It displays the structure of the object.
```

```
#b
meanValues <- c(
  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)
)

meanValues
```
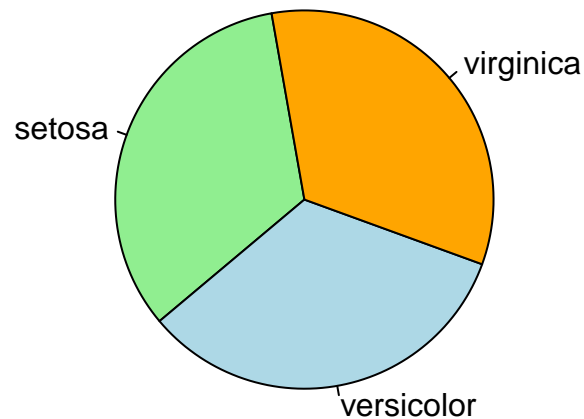
```
## mean_sepal_length  mean_sepal_width mean_petal_length  mean_petal_width
##          5.843333          3.057333          3.758000          1.199333
```

```
#c
colors <- c("lightgreen", "lightblue", "orange")
speciesCounts <- table(iris$Species)

pie(speciesCounts, main = "Species Distribution in Iris Dataset", init.angle = 100, col = colors)
```

Species Distribution in Iris Dataset


```
#d
data(iris)
setosa <- iris[iris$Species == "setosa", ]
versicolor <- iris[iris$Species == "versicolor", ]
virginica <- iris[iris$Species == "virginica", ]

last_six_setosa <- tail(setosa, 6)
last_six_versicolor <- tail(versicolor, 6)
last_six_virginica <- tail(virginica, 6)

cat("Last six rows of Setosa:\n")
```

```
## Last six rows of Setosa:
```

```
print(last_six_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
```

```r
cat("\nLast six rows of Versicolor:\n")
```

```
##
## Last six rows of Versicolor:
```

```r
print(last_six_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
```

```r
cat("\nLast six rows of Virginica:\n")
```

```
##
## Last six rows of Virginica:
```

```r
print(last_six_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
```

```r
data(iris)

species_colors <- c("setosa" = "lavender", "versicolor" = "lightblue", "virginica" = "violet")
species_pch <- c("setosa" = 19, "versicolor" = 17, "virginica" = 15)

plot(
  iris$Sepal.Length,
  iris$Sepal.Width,
  main = "Iris Dataset",
  sub = "Sepal Width and Length",
  xlab = "Sepal Length",
  ylab = "Sepal Width",
  pch = species_pch[iris$Species],
  col = species_colors[iris$Species],
```
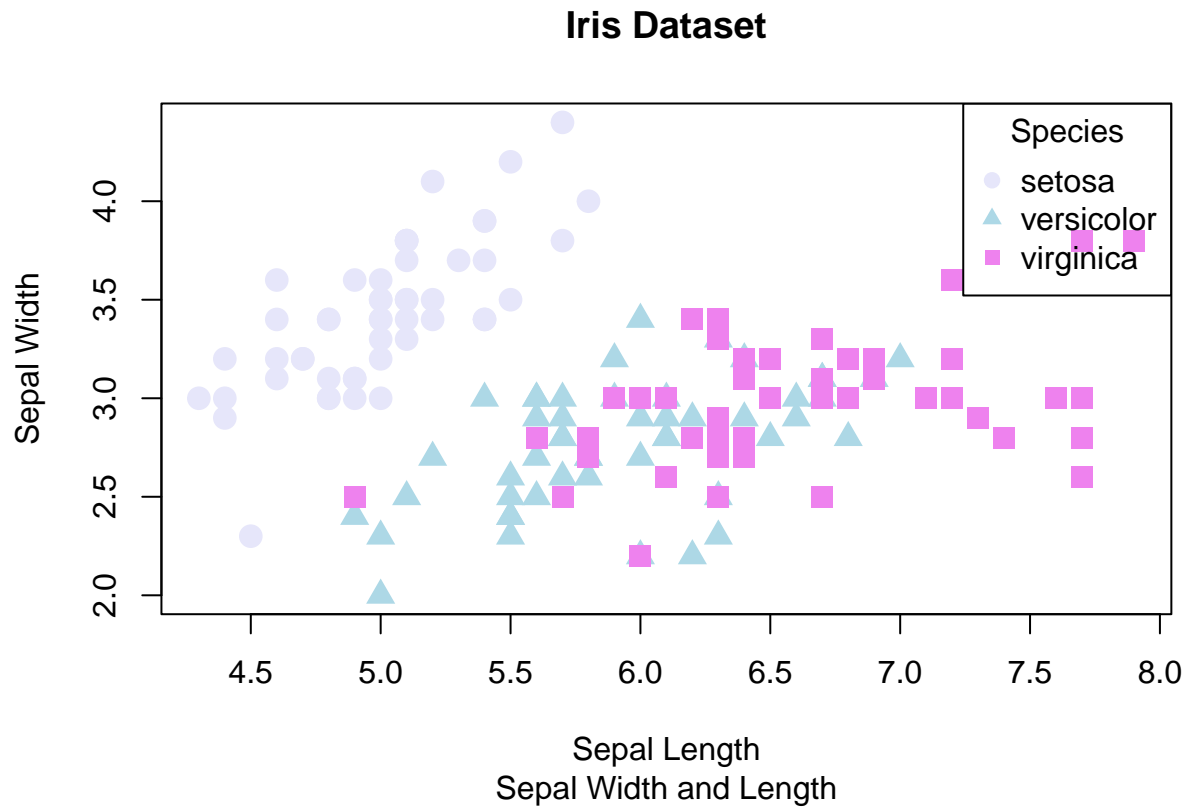
```
      cex = 1.5)

legend("topright",
       legend = levels(iris$Species),
       col = species_colors,
       pch = species_pch,
       title = "Species")
```

Iris Dataset

Sepal Length
Sepal Width and Length

#f It involves loading the Iris dataset and using the str() function to examine its structure, revealin

```
#7
library(readxl)
dataset <- read_excel("C:/RPROJS/alexa_file.xlsx")
dataset
```

```
## # 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
```

```r
table(dataset$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
```

```r
dataset$variation <- gsub("Black\\s+Dot", "Black Dot", dataset$variation)
dataset$variation <- gsub("Black\\s+Plus", "Black Plus", dataset$variation)
dataset$variation <- gsub("Black\\s+Show", "Black Show", dataset$variation)
dataset$variation <- gsub("Black\\s+Spot", "Black Spot", dataset$variation)
dataset$variation <- gsub("White\\s+Dot", "White Dot", dataset$variation)
dataset$variation <- gsub("White\\s+Plus", "White Plus", dataset$variation)
dataset$variation <- gsub("White\\s+Show", "White Show", dataset$variation)
dataset$variation <- gsub("White\\s+Spot", "White Spot", dataset$variation)


table(dataset$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
```

```r
knitr::include_graphics("C:/Users/Matteeuu/Documents/LUMAUAG BSIT 2B/images.jpg")
```



```r
#b
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
variations_count <-dataset %>%
  count(variation, name = "Total")


save(variations_count, file = "variations.RData")


print(variations_count)
```

```
## # A tibble: 16 x 2
##    variation                  Total
##    <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
```
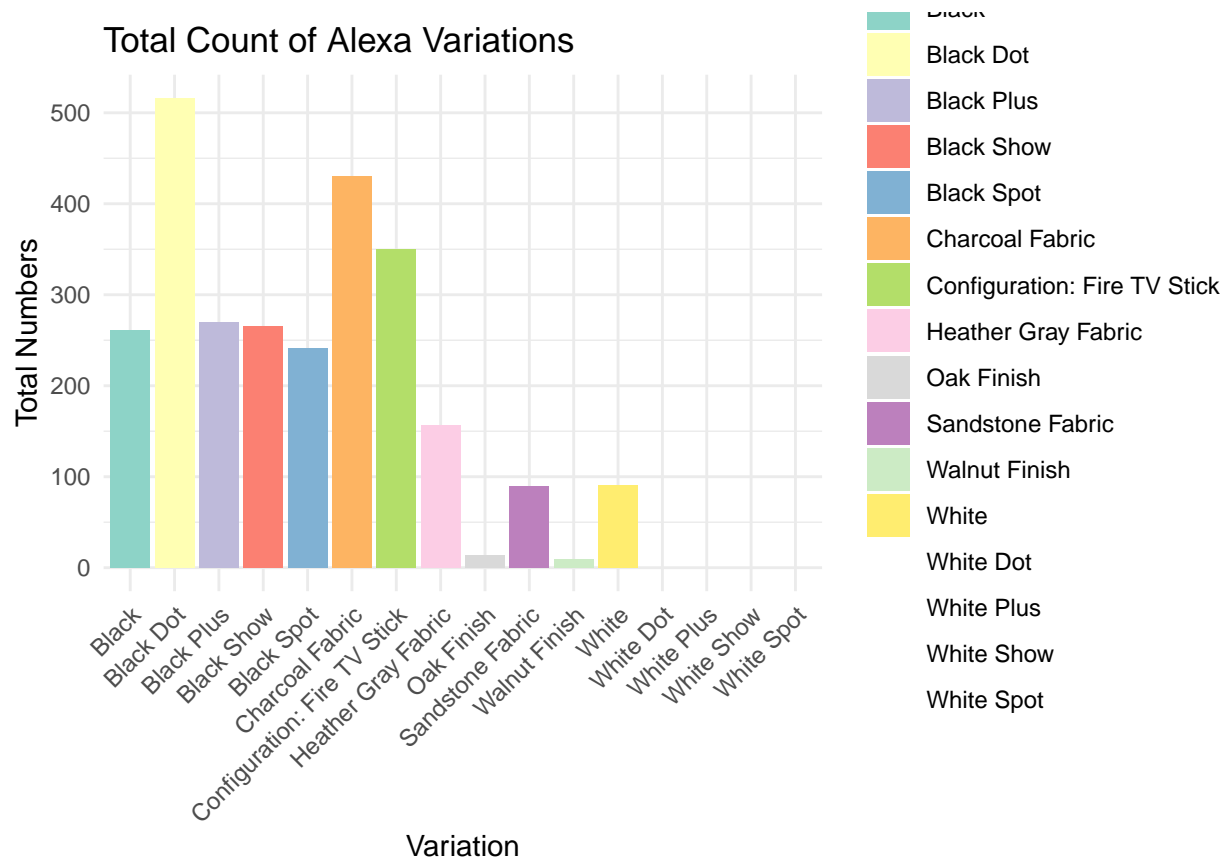
```r
#c
library(ggplot2)

load("variations.RData")


ggplot(variations_count, aes(x = variation, y = Total, fill = variation)) +
  geom_bar(stat = "identity") +
  ggtitle("Total Count of Alexa Variations") +
  xlab("Variation") +
  ylab("Total Numbers") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1)) +
  scale_fill_brewer(palette = "Set3")
```

```
## Warning in RColorBrewer::brewer.pal(n, pal): n too large, allowed maximum for palette Set3 is 12
## Returning the palette you asked for with that many colors
```

Total Count of Alexa Variations

Legend:
- Black
- Black Dot
- Black Plus
- Black Show
- Black Spot
- Charcoal Fabric
- Configuration: Fire TV Stick
- Heather Gray Fabric
- Oak Finish
- Sandstone Fabric
- Walnut Finish
- White
- White Dot
- White Plus
- White Show
- White Spot

```
#d
variations_count$Category <- ifelse(grepl("Black", variations_count$variation), "Black Variants",
                                    ifelse(grepl("White", variations_count$variation), "White Variants"

black_white_variants <- variations_count %>% filter(!is.na(Category))


ggplot(black_white_variants, aes(x = variation, y = Total, fill = variation)) +
  geom_bar(stat = "identity") +
  facet_wrap(~ Category, scales = "free_x") +
  ggtitle("Counts of Alexa Black and White Variants") +
  xlab("Variation") +
  ylab("Total Numbers") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1)) +
  scale_fill_brewer(palette = "Set2")
```

```
## Warning in RColorBrewer::brewer.pal(n, pal): n too large, allowed maximum for palette Set2 is 8
## Returning the palette you asked for with that many colors
```

Counts of Alexa Black and White Variants