Untitled

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2023-11-08

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

  for(i in 1:5){
  for (j in 1:5) {

 diff <- abs(vectorA[i]-j)

  cat(diff,"")

}

  cat("\n")
}
```

```
## 0 1 2 3 4
## 1 0 1 2 3
## 2 1 0 1 2
## 3 2 1 0 1
## 4 3 2 1 0
```

```
#2


  for(i in 1:5){
    siomai <- rep("*", i)
    print(siomai)
  }
```

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

#3

```
start_num <- as.numeric(readline("Enter the starting number for the Fibonacci sequence: "))
```

```
## Enter the starting number for the Fibonacci sequence:
```

```
if (is.na(start_num)) {
  cat("Please enter a valid numeric starting number.\n")
} else {
```

```
  num1 <- 0
  num2 <- 1

  while (num2 <= 500) {
    if (!is.na(start_num) && num2 >= start_num) {
      cat(num2, " ")
    }

    fib_sum <- num1 + num2
    num1 <- num2
    num2 <- fib_sum
  }

  cat("\n")
}
```

```
## Please enter a valid numeric starting number.
```

4.

```
imprt <- read.csv("Household.csv")
```

```
## Warning in file(file, "rt"): cannot open file 'Household.csv': No such file or
## directory
```

```
## Error in file(file, "rt"): cannot open the connection
```

```
head(imprt)
```

```
## Error in eval(expr, envir, enclos): object 'imprt' not found
```

4. B. Create a subset for gender(female and male). How many observations are there in Male? How about in Female? Write the R scripts and its output.

```
library(readr)
Household <- read_csv("Household.csv")
```

```
## Error: 'Household.csv' does not exist in current working directory ('/cloud/project/worksheet#4.rmd/
```

```
# Filter the data based on Gender
males <- Household[Household$Gender == "M",]
```

```
## Error in eval(expr, envir, enclos): object 'Household' not found
```

```
females <- Household[Household$Gender == "F",]
```

```
## Error in eval(expr, envir, enclos): object 'Household' not found
```

```
# Display the results
males
```

```
## Error in eval(expr, envir, enclos): object 'males' not found
```

```
females
```

```
## Error in eval(expr, envir, enclos): object 'females' not found
```

```
# Calculate the number of observations for each gender
observationF <- nrow(females)
```

```
## Error in eval(expr, envir, enclos): object 'females' not found
```

```r
observationM <- nrow(males)
```

```
## Error in eval(expr, envir, enclos): object 'males' not found
```

```r
# Display the number of observations
cat("Number of Female Observations:", observationF, "\n")
```

```
## Error in eval(expr, envir, enclos): object 'observationF' not found
```

```r
cat("Number of Male Observations:", observationM, "\n")
```

```
## Error in eval(expr, envir, enclos): object 'observationM' not found
```

4. C. Create a graph for the number of males and females for Household Data. Use plot(), chart type = barplot. Make sure to place title, legends, and colors. Write the R scripts and its result.

```r
total <- table(Household$Gender)
```

```
## Error in eval(expr, envir, enclos): object 'Household' not found
```

```r
barplot(total,
        main = "Number of Males and Females", xlab = "Gender", ylab = "Count", col = c("black", "violet
```

```
## Error in eval(expr, envir, enclos): object 'total' not found
```

```r
legend("right", legend = rownames(total), fill = c("black", "violet"))
```

```
## Error in eval(expr, envir, enclos): object 'total' not found
```

5. The monthly income of Dela Cruz family was spent on the following:

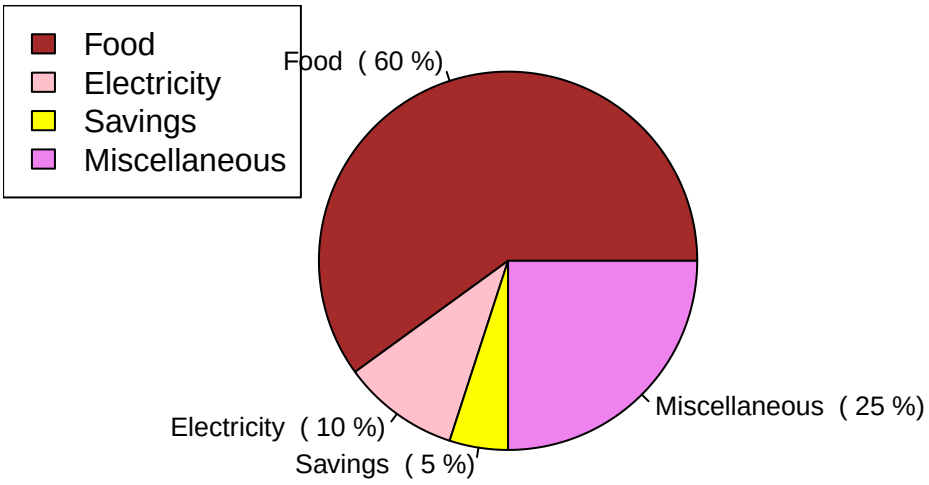
6. A Create a piechart that will include labels in percentage.Add some colors and title of the chart. Write the R scripts and show its output.

```r
spend <- data.frame(
  Category = c("Food", "Electricity", "Savings", "Miscellaneous"),
  Value = c(60, 10, 5, 25)
)

spend$Percentage <- spend$Value / sum(spend$Value) * 100
colors <- c("brown", "pink", "yellow", "violet")

# Adjust the font size with the cex parameter
pie(spend$Value,
    labels = paste(spend$Category, " (", spend$Percentage, "%)"),
    col = colors,
    main = "The Monthly Income Spending of Dela Cruz Family",cex = 0.8)

legend("topleft", spend$Category, fill = colors)
```



6. Use the iris dataset.

A.

```
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 ...
```

I'm curious and I made my research about this. The output of the code provides information about the IRIS dataset, which is renowned for its use in data analysis and machine learning. It reveals the following details:

1. The dataset comprises 150 observations and 5 variables.
2. 'Sepal.Length' represents the sepal length of iris flowers.
3. 'Sepal.Width' represents the sepal width of iris flowers.
4. 'Petal.Length' signifies the petal length of iris flowers.
5. 'Petal.Width' signifies the petal width of iris flowers.
6. 'Species' This is the categorized variables.

B.

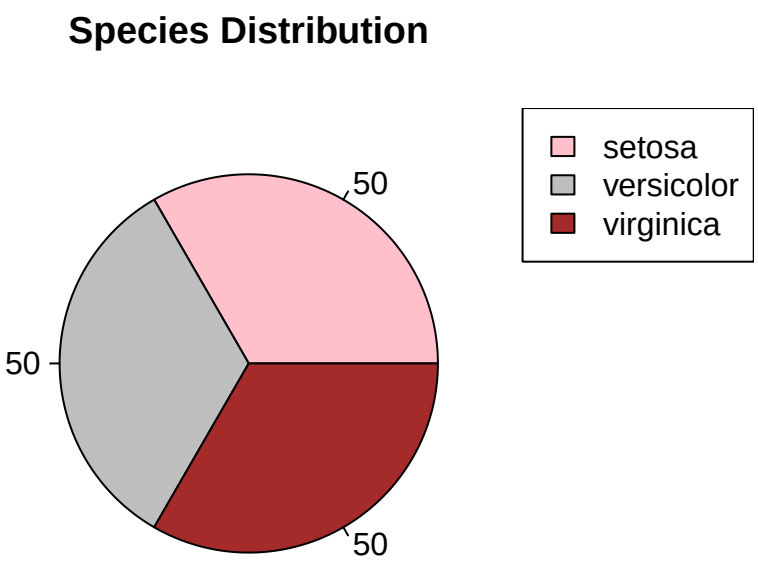
```
value_of_means <- c(
  Lsepal <- mean(iris$Sepal.Length),
  Wsepal <- mean(iris$Sepal.Width) ,
  Lpetal <- mean(iris$Petal.Length),
  Wpetal <- mean(iris$Petal.Width)
)
value_of_means
```

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

C.

```
# Assuming 'iris' is the name of your dataset
species <- table(iris$Species)
colors <- c("pink", "gray", "brown")
```

```r
# Create the pie chart
pie(species, col = colors, labels = species )
legend("topright", legend = levels(iris$Species), fill = colors)
title("Species Distribution")
```



D.

```r
#subset

setosa_subset <- iris[iris$Species == "setosa" ,]
versicolor_subset <- iris[iris$Species == "versicolor",]
virginica_subset <- iris[iris$Species == "virginica",]

#last 6 row each

tail(setosa_subset, 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_subset, 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_subset, 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
```

E.

```
library(ggplot2)

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

# Create a Scatterplot
Scatterplot <- ggplot(iris, aes(x = Sepal.Length, y = Sepal.Width, color = Species, shape = Species)) +
  geom_point(size = 5) +
  labs(
    title = "Iris Dataset",
    subtitle = "Sepal Width and Length",
    x = "Sepal Length",
    y = "Sepal Width"
  ) +
  scale_color_manual(values = c("setosa" = "brown", "versicolor" = "pink", "virginica" = "violet")) +
  scale_shape_manual(values = c("setosa" = 2, "versicolor" = 10, "virginica" = 9))

print(scatterplot)
```

```
## Error in eval(expr, envir, enclos): object 'scatterplot' not found
```

F. Interpret the result.

The plot shows a visual representation of the Sepal Length and Sepal Width for each Iris flower species. Each species is represented by a different color and shape.

SETOSA flowers are brown and have a cross-like shape. VERSICOLOR flowers are pink and have a circle shape. VIRGINICA flowers are violet and have a diamond shape.

TAHIS plot allows you to easily compare and differentiate between different species based on their sepal length and sepal width, offering a comprehensive and visually appealing representation of the data.

7

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

```
## # 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
```

7 A.

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

alexa_file$variation <- gsub("Black Dot", "BlacDot", alexa_file$variation)
alexa_file$variation <- gsub("Black Show", "BlackShow", alexa_file$variation)
alexa_file$variation <- gsub("Black Plus", "BlackPlus", alexa_file$variation)
alexa_file$variation <- gsub("Black Spot", "BlackSpot", alexa_file$variation)

alexa_file
```

```
## # 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
```

7 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
```

```
# Perform the desired operations
variations <- alexa_file %>%
  count(alexa_file$variation)


variations
```

```
## # A tibble: 16 x 2
##    `alexa_file$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(variations, file = "variations_data.Rdata.png")
```

7 C.

```r
# Load the variations data
load("variations.RData")
```

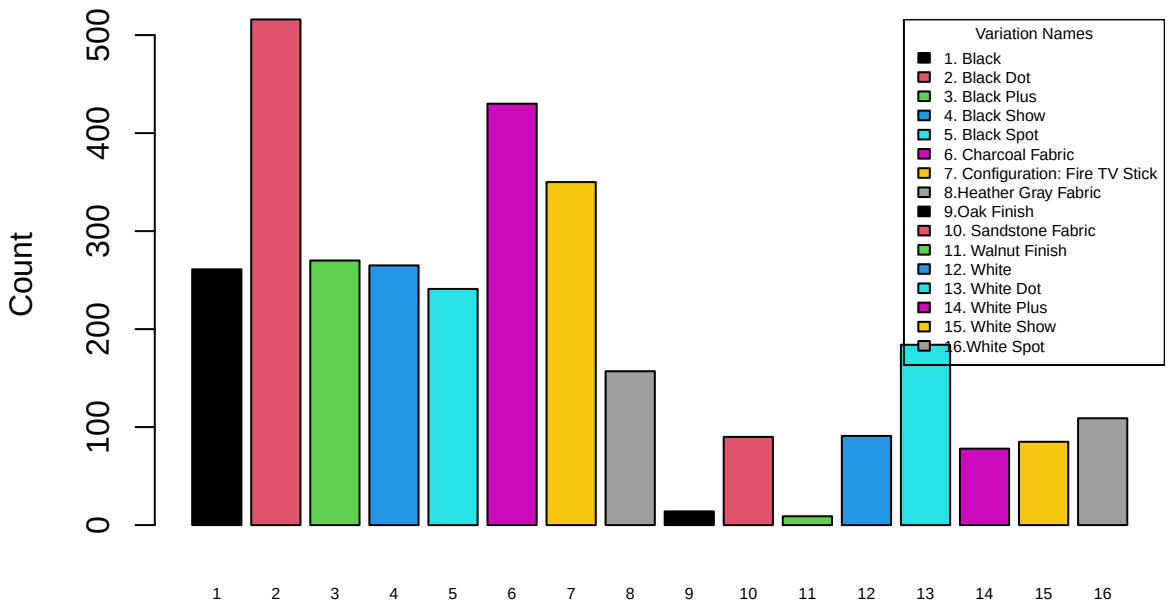
```
## Warning in readChar(con, 5L, useBytes = TRUE): cannot open compressed file
## 'variations.RData', probable reason 'No such file or directory'
```

```
## Error in readChar(con, 5L, useBytes = TRUE): cannot open the connection
```

```r
# Extract the variation names
Vnames <- c(
  "1. Black", "2. Black Dot", "3. Black Plus", "4. Black Show",
  "5. Black Spot", "6. Charcoal Fabric", "7. Configuration: Fire TV Stick",
  "8.Heather Gray Fabric", "9.Oak Finish", "10. Sandstone Fabric",
  "11. Walnut Finish", "12. White", "13. White Dot", "14. White Plus", "15. White Show", "16.White Spot
)

# Barplot
CompletePlot <- barplot(variations$n,
  names.arg = 1:16,
  col = 1:16,
  main = "Product Variations",
  xlab = "Number of Variation",
  ylab = "Count",
  las = 0.0,
  cex.names = 0.5,
  space = 0.2
)

# Add legend
legend("topright", legend = Vnames, fill = 1:16, title = "Variation Names", cex = 0.5)
```




```
knitr::include_graphics("/cloud/project/worksheet#4.rmd/the finalvariation.png")
```

```
## Error in knitr::include_graphics("/cloud/project/worksheet#4.rmd/the finalvariation.png"): Cannot fi
```

#7 D. Create a barplot()

```
# Load the required libraries
library(ggplot2)
library(magrittr)

# Assuming your data frame is named variations
# Replace "alexa_file$variation" with the actual column name in your data frame

# Subset the data for Black variations
blackplot <- variations[variations$`alexa_file$variation` %in% c("Black", "BlackDot", "BlackShow", "Bla

# Subset the data for White variations
whiteplot <- variations[variations$`alexa_file$variation` %in% c("White", "WhiteDot", "WhiteShow", "Whi

#layout one frame
par(mfrow = c(1, 2), mar = c(2, 2, 2, 2))

# Barplot for Black variations
Black <- Barplot(height = Blackplot$n,
                 names.arg = Blackplot$`alexa_file$variation`,
                 col = "Black",
                 main = "Black Variations",
                 xlab = "Number of Variation",
                 ylab = "Count",
                 las = 0.0,
                 cex.names = 0.4,
```

```
                space = 0.2
)
```

```
## Error in Barplot(height = Blackplot$n, names.arg = Blackplot$`alexa_file$variation`, : could not find
```

```
# Barplot for White variations
White <- Barplot(height = Whiteplot$n,
                names.arg = Whiteplot$`alexa_file$variation`,
                col = "White",
                main = "White Variations",
                xlab = "Number of Variation",
                ylab = "Count",
                las = 0.0,
                cex.names = 0.4,
                space = 0.2
)
```

```
## Error in Barplot(height = Whiteplot$n, names.arg = Whiteplot$`alexa_file$variation`, : could not find
```

```
mtext("The Black and White Variations", side = 3, line = 1, cex = 1.2)
```

```
## Error in mtext("The Black and White Variations", side = 3, line = 1, cex = 1.2): plot.new has not be
```

```
knitr::include_graphics("/cloud/project/worksheet#4.rmd/black&white.png")
```

```
## Error in knitr::include_graphics("/cloud/project/worksheet#4.rmd/black&white.png"): Cannot find the
```