RWorksheet_Joven#4b

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

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

```
numbers_matrix <- matrix(0, nrow = 5, ncol = 5)
numbers_matrix
```

```
##      [,1] [,2] [,3] [,4] [,5]
## [1,]    0    0    0    0    0
## [2,]    0    0    0    0    0
## [3,]    0    0    0    0    0
## [4,]    0    0    0    0    0
## [5,]    0    0    0    0    0
```

```
for(i in 1:5){
  for(j in 1:5){
      numbers_matrix[i, j] <- abs(numbers_vector[i] - numbers_vector[j])
    }
  }
print(numbers_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
right_triangle <- c()

for (i in 1:5){
  for(j in 1:i+1){
    right_triangle = c(right_triangle, "*")
  }
  print(right_triangle)
  right_triangle <- c()
}
```

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

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

```
#3
terms_number <- as.integer(readline(prompt = "Enter the number of terms: "))
```

```
## Enter the number of terms:
```

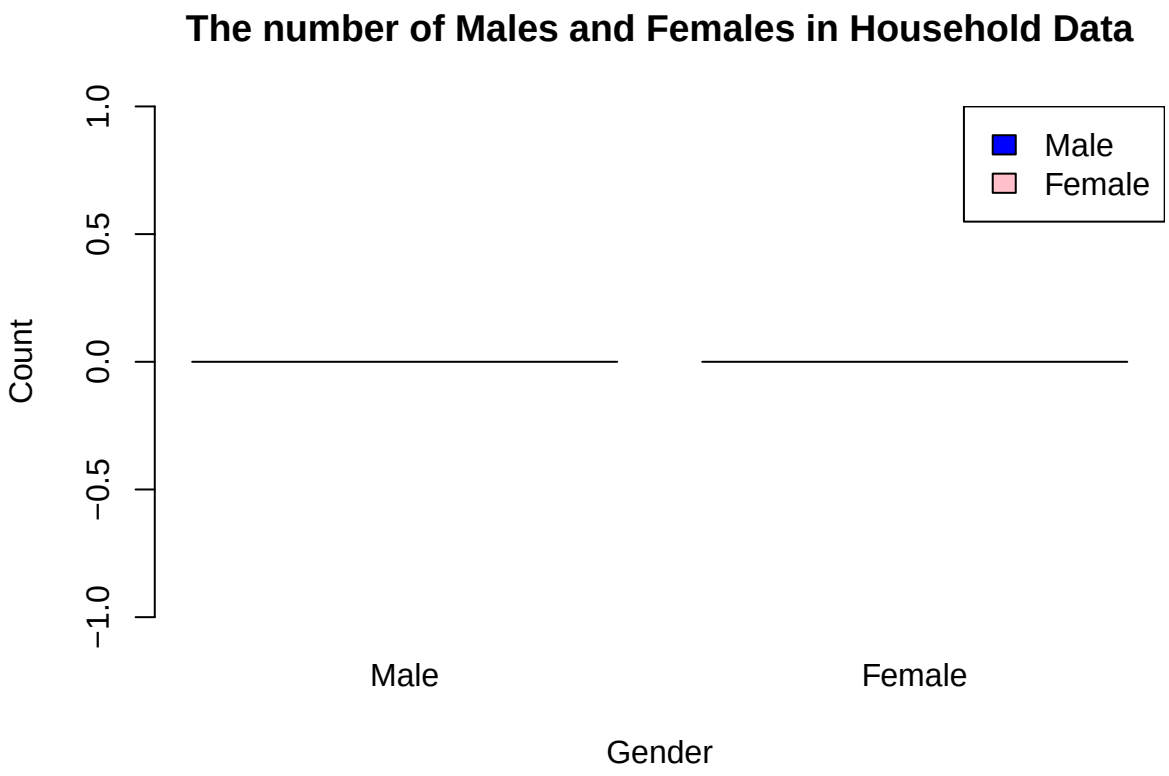
```
a_fibonacci <- 0
b_fibonacci <- 1

cat("Fibonacci sequence: ", a_fibonacci, b_fibonacci)
```

```
## Fibonacci sequence:  0 1
```

```
repeat{
  c_fibonacci <- a_fibonacci + b_fibonacci
  if (c_fibonacci > 500){
    break
  }
  cat(",", c_fibonacci)
  a_fibonacci <- b_fibonacci
  b_fibonacci <- c_fibonacci
}
```

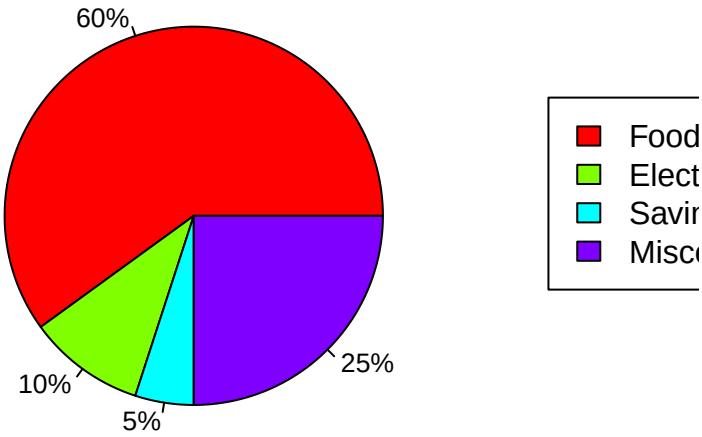
```
## , 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377
```

```
#4
library(readr)
library(openxlsx)

household_data <- read.table("/cloud/project/HouseholdData.csv", header = TRUE, sep = ",", as.is = TRUE)

male_subset <- subset(household_data, household_data$Gender == 'M')
female_subset <- subset(household_data, household_data$Gender == 'F')

male_count <- nrow(male_subset)
female_count <- nrow(female_subset)

count <- c(male_count, female_count)
gender <- c("Male", "Female")

barplot(count,
        names.arg = gender,
        main = "The number of Males and Females in Household Data",
        xlab = "Gender",
        ylab = "Count",
        col = c("blue", "pink"),
        border = "black")

legend("topright",
       legend = gender,
       fill = c("blue", "pink"))
```




```r
#5
monthly_income <- c(60, 10, 5, 25)

month_labels <- round(monthly_income / sum(monthly_income) * 100, 1)
month_labels <- paste(month_labels, "%", sep = "")

pie(monthly_income, main = "The monthly income of Dela Cruz family",
    col = rainbow(length(monthly_income)),
    labels = month_labels,
    cex = 0.8)

legend(1.5, 0.5,
       c("Food", "Electricity", "Savings", "Miscellaneous"),
       fill = rainbow(length(monthly_income)))
```

The monthly income of Dela Cruz family



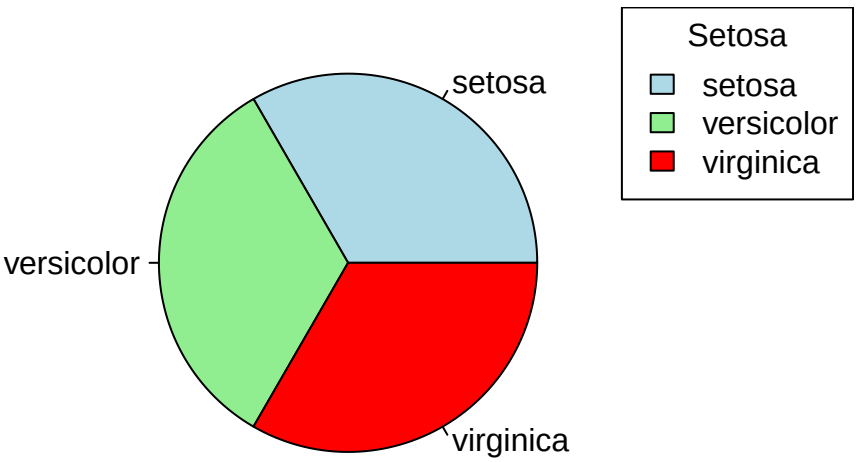

```
#6
data(iris)
str(iris)
```

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

```
iris_means <- colMeans(iris[, c("Sepal.Length", "Petal.Length", "Petal.Width")])
iris_means
```

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

```
pie(table(iris$Species),
    main = "Species distribution",
    labels = levels(iris$Species),
    col = c("lightblue", "lightgreen", "red"))

legend("topright", legend = levels(iris$Species),
       fill = c("lightblue", "lightgreen", "red"),
       title = "Setosa", "Versicolor", "Virginica")
```




```r
setosa_last_six <- tail(subset(iris, Species == "setosa"), n = 6)
versicolor_last_six <- tail(subset(iris, Species == "versicolor"), n = 6)
virginica_last_six <- tail(subset(iris, Species == "virginica"), n = 6)

setosa_last_six
```

```
##    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
versicolor_last_six
```

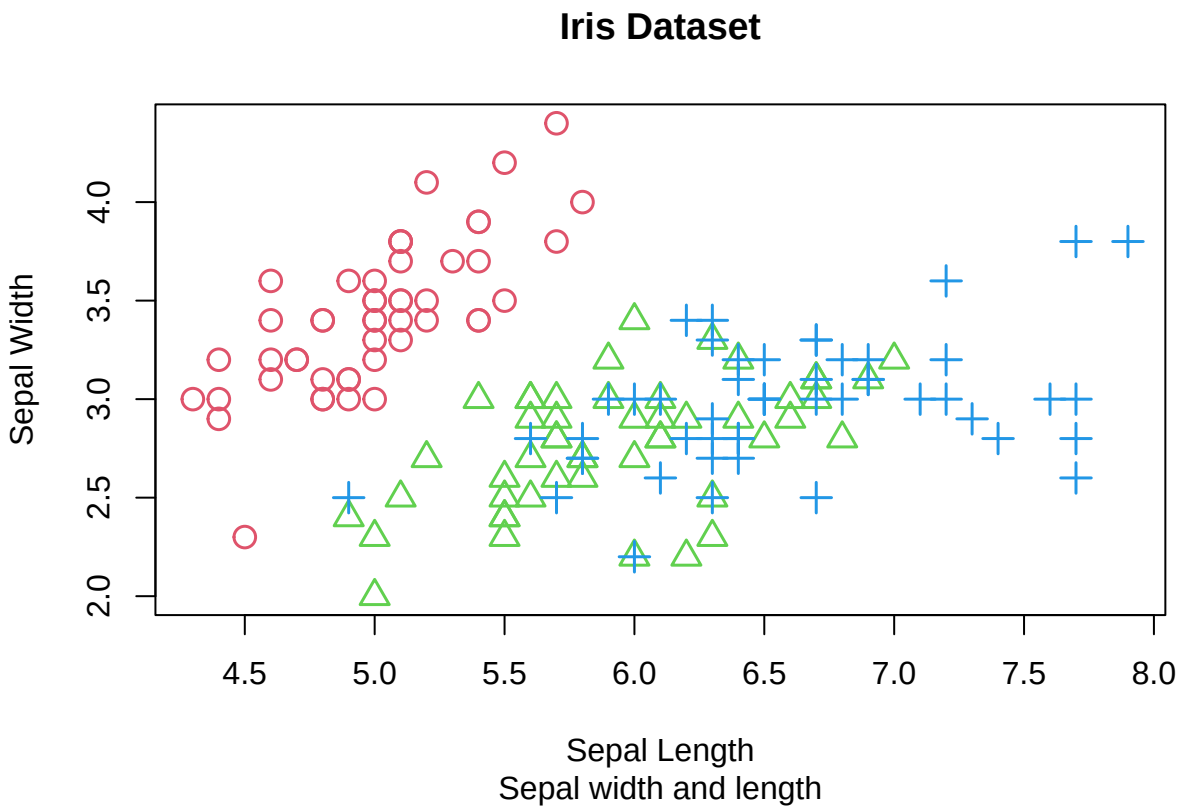
```
##     Sepal.Length Sepal.Width Petal.Length Petal.Width    Species
## 95           5.6         2.7          4.2         1.3 versicolor
## 96           5.7         3.0          4.2         1.2 versicolor
## 97           5.7         2.9          4.2         1.3 versicolor
## 98           6.2         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
virginica_last_six
```

```
##     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
plot(iris$Sepal.Length, iris$Sepal.Width,
     pch = as.integer(iris$Species),
     col = as.integer(iris$Species) + 1,
     main = "Iris Dataset",
     sub = "Sepal width and length",
```

```
     xlab = "Sepal Length",
     ylab = "Sepal Width",
     cex = 1.5,
     lwd = 1.5)
```




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

```
##   [1] setosa     setosa     setosa     setosa     setosa     setosa
##   [7] setosa     setosa     setosa     setosa     setosa     setosa
##  [13] setosa     setosa     setosa     setosa     setosa     setosa
##  [19] setosa     setosa     setosa     setosa     setosa     setosa
##  [25] setosa     setosa     setosa     setosa     setosa     setosa
##  [31] setosa     setosa     setosa     setosa     setosa     setosa
##  [37] setosa     setosa     setosa     setosa     setosa     setosa
##  [43] setosa     setosa     setosa     setosa     setosa     setosa
##  [49] setosa     setosa     versicolor versicolor versicolor versicolor
##  [55] versicolor versicolor versicolor versicolor versicolor versicolor
##  [61] versicolor versicolor versicolor versicolor versicolor versicolor
##  [67] versicolor versicolor versicolor versicolor versicolor versicolor
##  [73] versicolor versicolor versicolor versicolor versicolor versicolor
##  [79] versicolor versicolor versicolor versicolor versicolor versicolor
##  [85] versicolor versicolor versicolor versicolor versicolor versicolor
##  [91] versicolor versicolor versicolor versicolor versicolor versicolor
##  [97] versicolor versicolor versicolor versicolor virginica  virginica
## [103] virginica  virginica  virginica  virginica  virginica  virginica
## [109] virginica  virginica  virginica  virginica  virginica  virginica
## [115] virginica  virginica  virginica  virginica  virginica  virginica
## [121] virginica  virginica  virginica  virginica  virginica  virginica
```

```
## [127] virginica  virginica  virginica  virginica  virginica  virginica
## [133] virginica  virginica  virginica  virginica  virginica  virginica
## [139] virginica  virginica  virginica  virginica  virginica  virginica
## [145] virginica  virginica  virginica  virginica  virginica  virginica
## Levels: setosa versicolor virginica
```