```r
#1.
A <- c(1, 2, 3, 4, 5)
MatrixA <- matrix(0, nrow = 5, ncol = 5)
print(MatrixA)
```

```
##      [,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
```

```r
for (i in 1:5) {
  for (j in 1:5) {
    MatrixA[i, j] <- abs(A[i] - A[j])
  }
}

print(MatrixA)
```

```
##      [,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
```

```r
num.lines <- 5

for (a in 1:num.lines) {
  for (b in 1:a) {
    cat("*")
  }
  cat("\n")
}
```

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

```r
input.number <- as.numeric(readline("Enter a number to start the Fibonacci sequence: "))
```

```
## Enter a number to start the Fibonacci sequence:
```

```r
assume.number <- 0
x <- 0
y <- 1
repeat {
  if (x > 500) {
    break
  }
  if (x >= assume.number) {
    cat(x, " ")
  }
  temp <- x + y
```

```
  x <- y
  y <- temp
}
```

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

```
cat("\n")
```

```
shoe <-  read.csv("Shoe_sizes.csv")
shoe
```

```
##    Shoe.size Height Gender Shoe.size.1 Height.1 Gender.1
## 1        6.5   66.0      F        13.0       77        M
## 2        9.0   68.0      F        11.5       72        M
## 3        8.5   64.5      F         8.5       59        F
## 4        8.5   65.0      F         5.0       62        F
## 5       10.5   70.0      M        10.0       72        M
## 6        7.0   64.0      F         6.5       66        F
## 7        9.5   70.0      F         7.5       64        F
## 8        9.0   71.0      F         8.5       67        M
## 9       13.0   72.0      M        10.5       73        M
## 10       7.5   64.0      F         8.5       69        F
## 11      10.5   74.5      M        10.5       72        M
## 12       8.5   67.0      F        11.0       70        M
## 13      12.0   71.0      M         9.0       69        M
## 14      10.5   71.0      M        13.0       70        M
```

```
shoe1 <- shoe[c(1:6),]
shoe1
```

```
##   Shoe.size Height Gender Shoe.size.1 Height.1 Gender.1
## 1       6.5   66.0      F        13.0       77        M
## 2       9.0   68.0      F        11.5       72        M
## 3       8.5   64.5      F         8.5       59        F
## 4       8.5   65.0      F         5.0       62        F
## 5      10.5   70.0      M        10.0       72        M
## 6       7.0   64.0      F         6.5       66        F
```

```
femaleData <- subset(shoe, Gender == "Female")
femaleData
```

```
## [1] Shoe.size   Height      Gender      Shoe.size.1 Height.1    Gender.1
## <0 rows> (or 0-length row.names)
```

```
maleData <- subset(shoe, Gender == "Male")
maleData
```

```
## [1] Shoe.size   Height      Gender      Shoe.size.1 Height.1    Gender.1
## <0 rows> (or 0-length row.names)
```

```
nrow(femaleData)
```

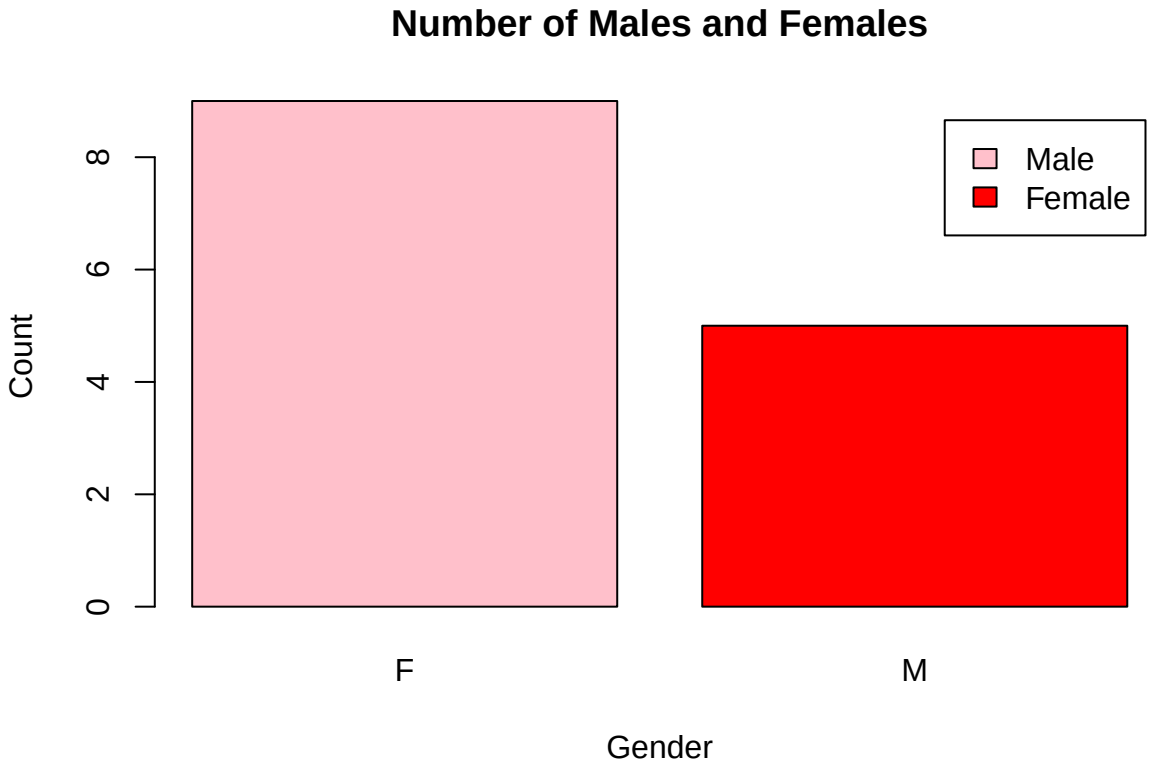
```
## [1] 0
```

```
nrow(maleData)
```

```
## [1] 0
```

```
GraphMF<- table(shoe$Gender)
barplot(GraphMF,
```

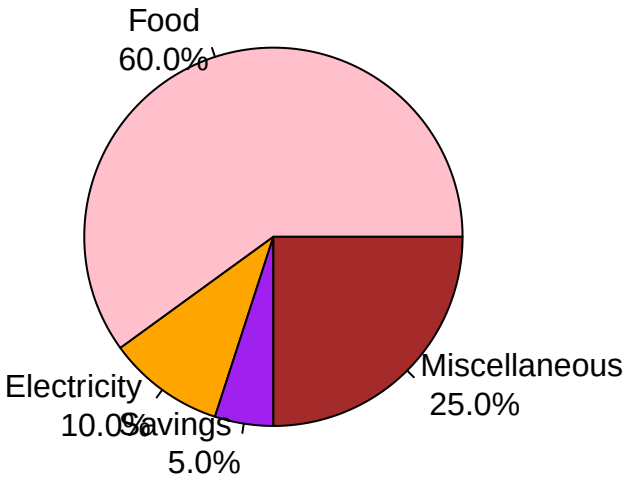
```
        main = "Number of Males and Females",
        xlab = "Gender",
        ylab = "Count",
        col = c("pink", "red"),
        legend.text = c("Male", "Female"),
        beside = TRUE
)
```




```
Expenses <- c(Food = 60, Electricity = 10, Savings = 5, Miscellaneous = 25)

pie(Expenses,
    labels = paste(names(Expenses), "\n", sprintf("%.1f%%", prop.table(Expenses) * 100)),
    col = c("pink", "orange", "purple", "brown"),
    main = "Monthly Expenses of the Dela Cruz Family"
)
```

Monthly Expenses of the Dela Cruz Family




```
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 has 150 observations and 5 variables
```

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

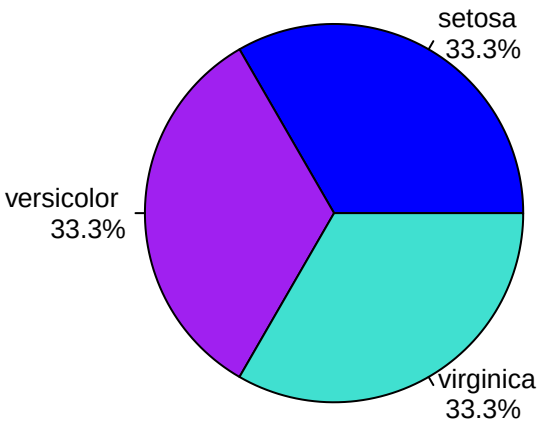
```
## Sepal.Length  Sepal.Width Petal.Length  Petal.Width
##     5.843333     3.057333     3.758000     1.199333
```

```
specs <- table(iris$Species)

clors <- c("blue", "purple", "turquoise")

pie(specs,
    labels = paste(names(specs), "\n", sprintf("%.1f%%", prop.table(specs) * 100)),
    col = clors,
    main = "Species Distribution",
    cex.main = 1.5,
    cex = 0.8
)
```

Species Distribution




```
SetSub <- subset(iris, Species == "setosa")
VersiSub <- subset(iris, Species == "versicolor")
VirgiSub <- subset(iris, Species == "virginica")

# Display the last six rows of each species
cat("Last six rows of Setosa:")
```

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

```
print(tail(SetSub))
```

```
##    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
```

```
cat("Last six rows of Versicolor:")
```

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

```
print(tail(VersiSub))
```

```
##     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
```

```
cat("Last six rows of Virginica:")
```

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

```
print(tail(VirgiSub))
```

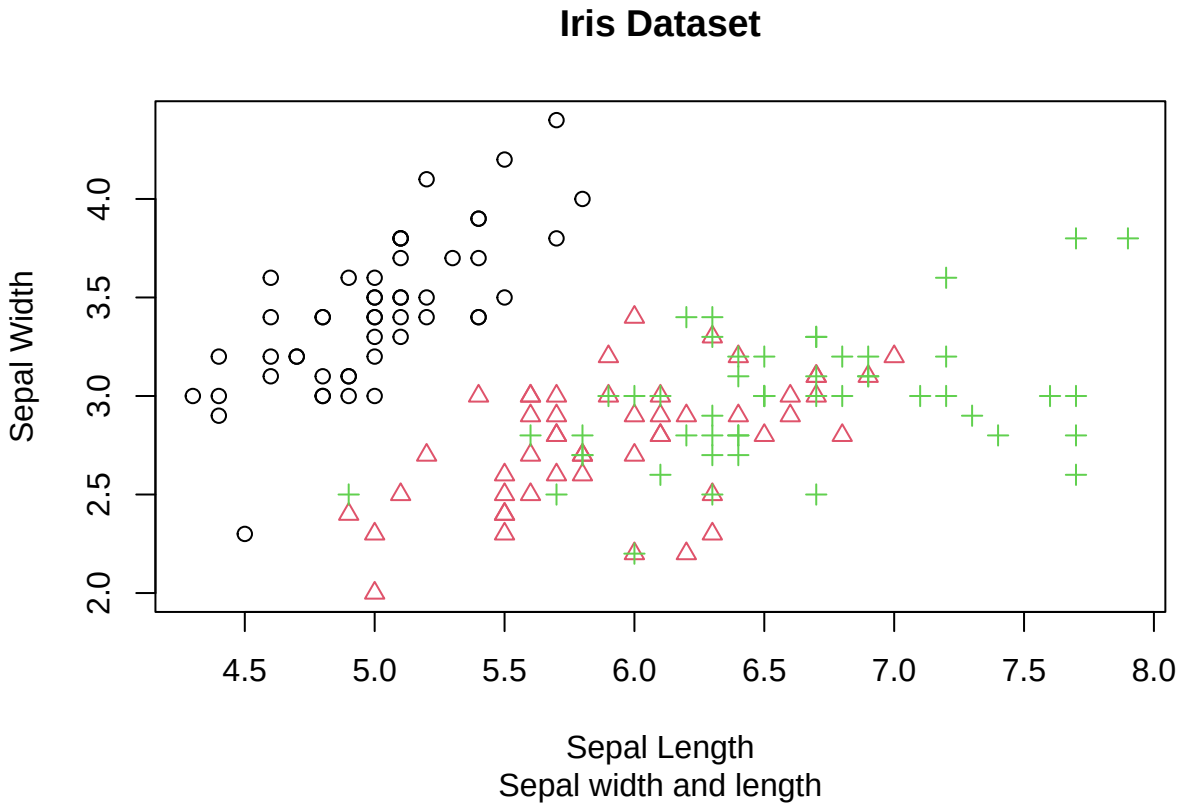
```
##     Sepal.Length Sepal.Width Petal.Length Petal.Width   Species
```

```
## 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)

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

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




```r
#The scatterplot shows similarities between the sepal width and length ranging from 5.5 to 7.0
```

```r
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
```