

## worksheet#4

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```
library(ggplot2)
#Using Loop Function
```

1. Using the for loop, create an R script that will display a 5x5 matrix as shown in Figure 1. It must contain vectorA = [1,2,3,4,5] and a 5 x 5 zero matrix.

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

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
```

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

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
```

2. Print the string "\*" using for() function. The output should be the same as shown in Figure

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

```

    }
    print(rightTriangle)
    rightTriangle <- c()
}

```

```

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

```

3. Get an input from the user to print the Fibonacci sequence starting from the 1st input up to 500. Use repeat and break statements. Write the R Scripts and its output.

```

n <- as.integer(readline(prompt = "Enter the number of terms: "))

```

```

## Enter the number of terms:

```

```

a <- 0
b <- 1

cat("Fibonacci Sequence:", a, b)

```

```

## Fibonacci Sequence: 0 1

```

```

# Generate the sequence
repeat {
  c <- a + b
  if (c > 500) {
    break
  }
  cat(", ", c)
  a <- b
  b <- c
}

```

```

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

```

```

#Using Basic Graphics (plot(),barplot(),pie(),hist())

```

4. Import the dataset as shown in Figure 1 you have created previously.
  - a. What is the R script for importing an excel or a csv file? Display the first 6 rows of the dataset? Show your codes and its result.

```

HouseholdData <-read.table("HouseholdData.csv",header = TRUE, sep = ",", as.is = TRUE)
View(HouseholdData)

head(HouseholdData,6)

```

```
##   Shoe.Size Height Gender
## 1      6.5   66.0      F
## 2      9.5   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
```

- 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.

```
male_subset <- subset(HouseholdData, Gender == 'M')
female_subset <- subset(HouseholdData, Gender == 'F')

male_count <- nrow(male_subset)
male_count
```

```
## [1] 14
```

```
female_count <- nrow(female_subset)
female_count
```

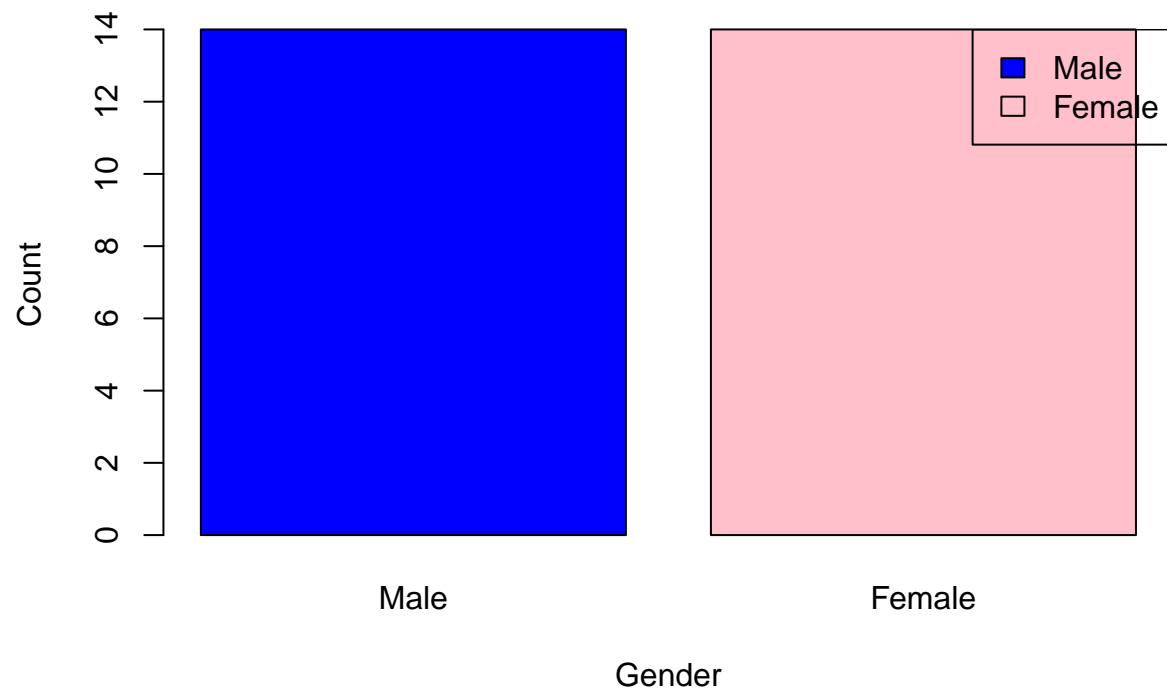
```
## [1] 14
```

- 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.

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

## The number of Males and Females in Household Data



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

```
food <- 60
electricity <- 10
savings <- 5
miscellaneous <- 25

income <- data.frame(food,electricity,savings,miscellaneous)
```