RWorksheet_Malayas#4b.Rmd

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for() loop 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. Hint Use abs() function to get the absolute value

```r
vectorA <- c(1, 2, 3, 4, 5)
matrixT <- matrix(0, nrow = 5, ncol = 5)
for (i in 1:5) {
  matrixT[i, i] <- vectorA[i]
}
matrixT
```

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

2. Print the string "*" using for() function.

```r
n <- 5
for (i in 1:n) {
  for (j in 1:i) {
    cat(" * ")
  }
  cat("\n")
}
```

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

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.

```r
start <- as.integer(readline(prompt = "Enter the starting number: "))
```

```
## Enter the starting number:
```

```r
start <- 1
a <- start
b <- 1
cat(a, b, sep = " ")
```

```
## 1 1
```

```r
repeat {
  nxt <- a + b
  if (!is.na(nxt) && nxt > 500) {
    break
  }
 cat(nxt, " ")
  a <- b
  b <- nxt
  }
```

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

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

4. Import the dataset as shown in Figure 1 you have created previously.

```r
shoes <- read.csv("shoes.csv")
```

    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

```r
head(shoes)
```

```
##   Shoesize 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
```

    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.

```r
female_subset <- subset(shoes, Gender == "F")
male_subset <- subset(shoes, Gender == "M")
female_count <- nrow(female_subset)
male_count <- nrow(male_subset)
cat("Female:", female_count, "\n")
```

```
## Female: 14
```

```
cat("Male:", male_count, "\n")
```

Male: 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.

```
gender_counts <- table(shoes$Gender)
barplot(gender_counts,
        main = "Number of Males and Females in Household Data",
        xlab = "Gender",
        ylab = "Count",
        col = c("pink", "lightblue"),

        names.arg = c("Female", "Male"))
```


Number of Males and Females in Household Data
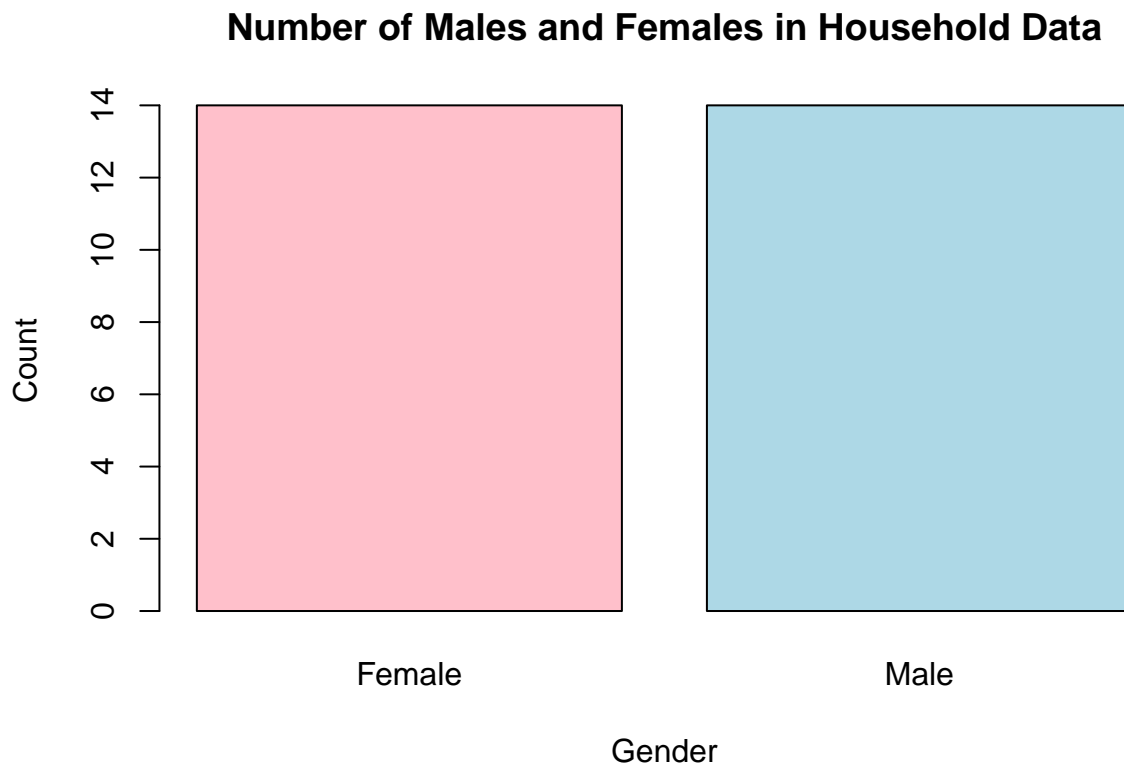
5. The monthly income of Dela Cruz family was spent on the following:

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.

```
expenses <- c(Food = 60, Electricity = 10, Savings = 5, Miscellaneous = 25)
percent_labels <- paste0(names(expenses), " - ", round(expenses / sum(expenses) * 100), "%")
pie(expenses,
    labels = percent_labels,
    col = c("green", "blue", "gold", "red"),
    main = "Dela Cruz Family Monthly Expenses")
```

Dela Cruz Family Monthly Expenses