

Worksheet-4b in R

Worksheet for R Programming

Instructions:

- Use RStudio or the RStudio Cloud accomplish this worksheet.
 - The same *GitHub* repository will be used.
- Use the folder you have created which is *worksheet#4*.
 - Create an *.Rmd* (R Markdown) for this worksheet and saved it as *RWorksheet_lastname#4b.Rmd*
- **Knit to pdf** to render a pdf file.
- On your own *GitHub repository*, push the *.Rmd* file, as well as the pdf worksheet knitted to the repo you have created before.
- Do not forget to comment your Git repo on our ISATUVLE
- Accomplish this worksheet by answering the questions being asked and writing the code manually.

Using Loop Function

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

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

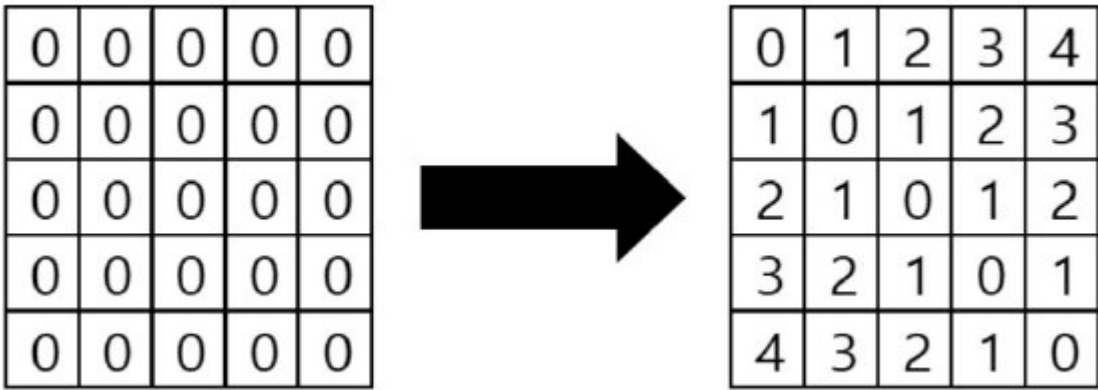


Figure 1: Matrix

```

**
**
**
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**

```

Figure 2: Output

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.

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

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

Shoe size	Height	Gender	Shoe size	Height	Gender
6.5	66.0	F	13.0	77.0	M
9.0	68.0	F	11.5	72.0	M
8.5	64.5	F	8.5	59.0	F
8.5	65.0	F	5.0	62.0	F
10.5	70.0	M	10.0	72.0	M
7.0	64.0	F	6.5	66.0	F
9.5	70.0	F	7.5	64.0	F
9.0	71.0	F	8.5	67.0	M
13.0	72.0	M	10.5	73.0	M
7.5	64.0	F	8.5	69.0	F
10.5	74.5	M	10.5	72.0	M
8.5	67.0	F	11.0	70.0	M
12.0	71.0	M	9.0	69.0	M
10.5	71.0	M	13.0	70.0	M

Figure 3: Shoe Sizes

- 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
- 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.

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.

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

Food	Electricity	Savings	Miscellaneous
60	10	5	25

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.

6. Use the iris dataset.

```
data(iris)
```

a. Check for the structure of the dataset using the `str()` function. Describe what you have seen in the output.

b. Create an R object that will contain the mean of the `sepal.length`, `sepal.width`, `petal.length`, and `petal.width`. What is the R script and its result?

c. Create a pie chart for the Species distribution. Add title, legends, and colors. Write the R script and its result.

d. Subset the species into `setosa`, `versicolor`, and `virginica`. Write the R scripts and show the last six (6) rows of each species.

e. Create a scatterplot of the `sepal.length` and `sepal.width` using the different species (`setosa`, `versicolor`, `virginica`). Add a title = “Iris Dataset”, subtitle = “Sepal width and length”, labels for the x and y axis, the `pch` symbol and colors should be based on the species.

Hint: Need to convert to **factors** the species to store categorical variables.

f. Interpret the result.

Basic Cleaning and Transformation of Objects

7. Import the **alexa-file.xlsx**. Check on the variations. Notice that there are extra *whitespaces* among black variants (Black Dot, Black Plus, Black Show, Black Spot). Also on the white variants (White Dot, White Plus, White Show, White Spot).

	rating	date	variation	verified_reviews	feedback
506	5	2018-07-30	Black Dot	It works great!!	1
507	5	2018-07-30	Black Dot	PHENOMENAL	1
508	4	2018-07-30	Black Dot	I used it to control my smart home devices. Works great.	1
509	5	2018-07-30	Black Dot	Very convenient	1
510	3	2018-07-30	Black Dot	NA	1

Figure 4: Snippet of Alexa Variations

- a. Rename the white and black variants by using `gsub()` function.

Syntax:

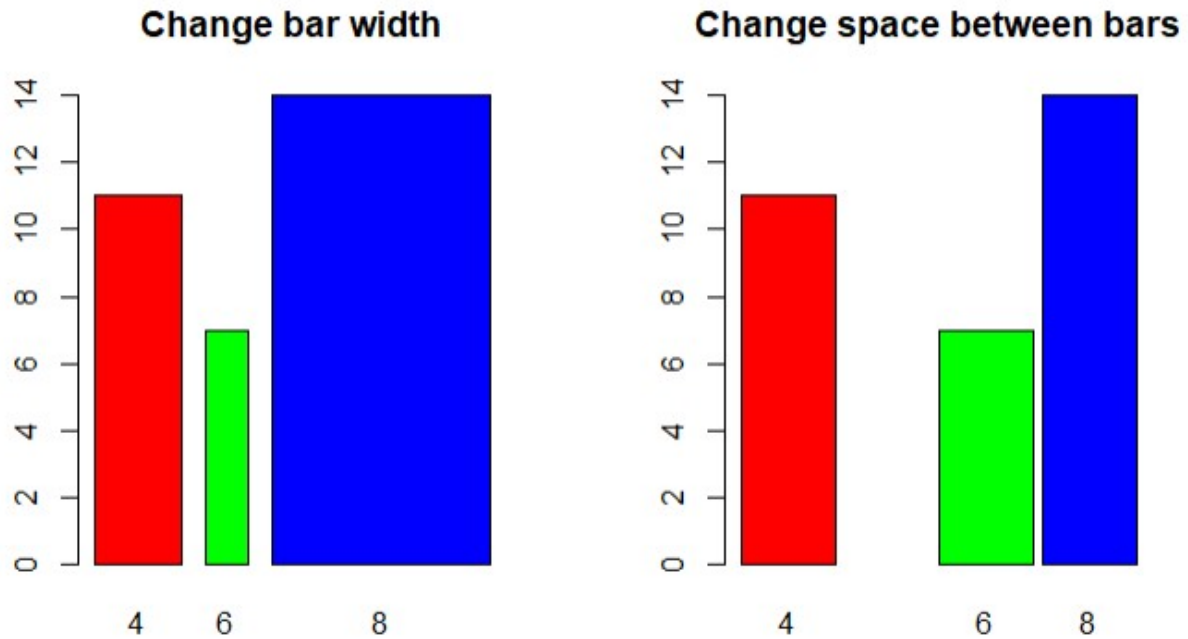
```
RObject$columnName <- gsub("Old Name", "New Name", RObject$columnName)
```

Write the R scripts and show an example of the output by getting a snippet. To embed an image into Rmd, use the function below:

```
knitr::include_graphics("file path")
```

```
# knitr::include_graphics("file path")
```

```
knitr::include_graphics("D:/RScripts/R_Directory/CS101(lectures_23)/BasicsOfR/RBasics/no
```



b. Get the total number of each variations and save it into another object. Save the object as **variations.RData**. Write the R scripts. What is its result?

Hint: Use the `dplyr` package. Make sure to install it before loading the package.

Syntax for `dplyr`

```
RObject %>%
  count(RObject$columnName)
```

Sample Output

c. From the **variations.RData**, create a `barplot()`. Complete the details of the chart which include the title, color, labels of each bar.

d. Create a `barplot()` for the black and white variations. Plot it in 1 frame, side by side. Complete the details of the chart.

Example:

Variation	Total
Black	261
Black Plus	270
Black Show	265
Black Spot	241
Black Dot	516
Charcoal Fabric	430
Configuration: Fire TV Stick	350
Heather Gray Fabric	157

Figure 5: Sample Output

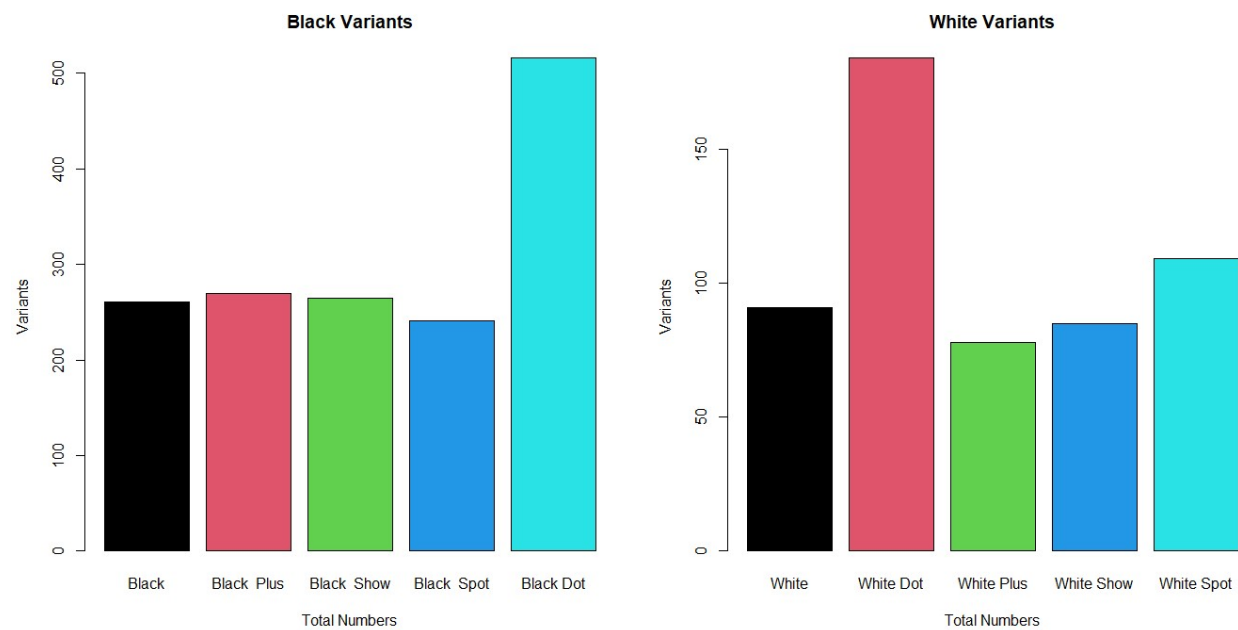


Figure 6: Sample Output