

RWorksheet#3_Esmalla

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R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

1. There is a built-in vector LETTERS contains the uppercase letters of the alphabet and letters which contains the lowercase letters of the alphabet.

1a. You need to produce a vector that contains the first 11 letters.

```
first_11_letters <- LETTERS[1:11] first_11_letters
```

1b. Produce a vector that contains the odd numbered letters.

```
odd_numbered_letters <- LETTERS[seq(1, length(LETTERS), by = 2)] odd_numbered_letters
```

1c. Produce a vector that contains the vowels

```
vowels <- LETTERS[LETTERS %in% c("A", "E", "I", "O", "U")] vowels
```

Based on the above vector letters:

```
lower_Alphabet <- letters[1:26] lower_Alphabet
```

1d. Produce a vector that contains the last 5 lowercase letters.

```
last_five_let <- letters[22:26] last_five_let
```

1e Produce a vector that contains letters between 15 to 24 letters in lowercase.

```
letters_15_to_24 <- letters[15:24] letters_15_to_24
```

2. Create a vector(not a dataframe) with the average temperatures in April for Tugue-garao City, Manila, Iloilo City, Tacloban, Samal Island, and Davao City. The average temperatures in Celcius are 42, 39, 34, 34, 30, and 27 degrees.

2a. What is the R code and its result for creating a character vector for the city/town of Tuguegarao City, Manila, Iloilo City, Tacloban, Samal Island, and Davao City? Name the object as city. The names should follow the same order as in the instruction

```
city <- c("Tuguegarao City", "Manila", "Iloilo City", "Tacloban", "Samal Island", "Davao City") city
```

2b. The average temperatures in Celcius are 42, 39, 34, 34, 30, and 27 degrees. Name the object as temp.

```
temp <- c(42, 39, 34, 34, 30, 27) temp
```

2c. Create a dataframe to combine the city and the temp by using 'data.frame()'. What the R code and its result?

```
data_temp <- data.frame(City = city, Temperature = temp) data_temp
```

2d. Associate the dataframe you have created in 2.(c) by naming the columns using the names() function. Change the column names by using names() function as City and Temperature.

```
names(data_temp) <- c("City", "Temperature") names(data_temp)
```

2e. Print the structure by using str() function. Describe the output.

```
str(data_temp)
```

2f. From the answer in d, what is the content of row 3 and row 4 What is its R code and its output?

```
row_temp <- data_temp[3:4, ] row_temp
```

City with the highest temperature

```
max_temp_city <- data_temp[data_temp$Temperature == max(data_temp$Temperature), "City"]  
max_temp_city
```

City with the lowest temperature

```
min_temp_city <- data_temp[data_temp$Temperature == min(data_temp$Temperature), "City"]
min_temp_city
```

USING MATRIX

3a.

```
mat <- matrix(c(1:8, 11:14), nrow = 3, ncol = 4) mat
```

3b.

```
mat * 2 mat
```

3c.

```
mat[2, ] mat
```

3d

```
mat[1:2, 3:4] mat
```

3e.

```
mat[3, 2:3] mat
```

3f.

```
mat[, 4] mat
```

3g.

```
rownames(mat) <- c("isa", "dalawa", "tatlo") rownames(mat)
colnames(mat) <- c("uno", "dos", "tres", "quatro") colnames(mat)
dim(mat) <- c(6, 2) mat
```

USING ARRAYS

4 An array contains 1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1

```
my_array <- c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1) my_array
```

4a.

```
new_array <- array(my_array, dim = c(2, 4, 3)) new_array
```

4b.

```
dim(new_array)
```

4c.

```
colnames(new_array) <- c("A", "B", "C", "D") new_array
```

```
rownames(new_array) <- c("a", "b") new_array
```

```
dimnames(new_array)[[3]] <- c("1st-Dimensional Array", "2nd-Dimensional Array", "3rd-Dimensional Array")  
new_array
```