

RWorksheet_Garrido-3a

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

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

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

```
## [1] "A" "B" "C" "D" "E" "F" "G" "H" "I" "J" "K"
```

#b. Produce a vector that contains the odd-numbered letters

```
odd_num_letters <- LETTERS[seq(1, 26, by = 2)]
odd_num_letters
```

```
## [1] "A" "C" "E" "G" "I" "K" "M" "O" "Q" "S" "U" "W" "Y"
```

#c. Produce a vector that contains the vowel

```
vowels <- LETTERS[c(1, 5, 9, 15, 21)]
vowels
```

```
## [1] "A" "E" "I" "O" "U"
```

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

```
last5 <- letters[22:26]
last5
```

```
## [1] "v" "w" "x" "y" "z"
```

#e. Produce a vector that contains letters between 15 to 24 (lowercase).

```
letters_Between15_24 <- letters[15:24]
letters_Between15_24
```

```
## [1] "o" "p" "q" "r" "s" "t" "u" "v" "w" "x"
```

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

#a. What is the R code and its result for creating a character vector for the

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

```
## [1] "Tuguegarao City" "Manila"           "Iloilo City"      "Tacloban"
## [5] "Samal Island"    "Davao City"
```

```
#b. The average temperatures in Celcius are 42, 39, 34, 34, 30, and 27 degrees.
temperature <- c(42, 39, 34, 34, 30, 27)
temperature
```

```
## [1] 42 39 34 34 30 27
```

```
#c. Create a dataframe to combine the city and the temp by using 'data.frame()'.
cities_temperature <- data.frame(City = city, Temperature = temperature)
cities_temperature
```

```
##           City Temperature
## 1 Tuguegarao City         42
## 2      Manila           39
## 3  Iloilo City           34
## 4    Tacloban           34
## 5  Samal Island          30
## 6   Davao City           27
```

```
#d. Associate the dataframe you have created in 2.(c) by naming the columns using
```

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

```
##           City Temperature
## 1 Tuguegarao City         42
## 2      Manila           39
## 3  Iloilo City           34
## 4    Tacloban           34
## 5  Samal Island          30
## 6   Davao City           27
```

2. Create a matrix of one to eight and eleven to fourteen with four columns and three rows.

```
#a. What will be the R code for the #2 question and its result?
```

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

```
##      [,1] [,2] [,3] [,4]
## [1,]   1   4   7  12
## [2,]   2   5   8  13
## [3,]   3   6  11  14
```

```
#b. Multiply the matrix by two. What is its R code and its result
```

```
matrix_data * 2
```

```
##      [,1] [,2] [,3] [,4]
## [1,]   2   8  14  24
## [2,]   4  10  16  26
## [3,]   6  12  22  28
```

```
#c. What is the content of row 2? What is its R code
```

```
matrix_data[2, ]
```

```
## [1] 2 5 8 13
#d. Display column 3 and column 4 in row 1 and row 2

matrix_data[1:2, 3:4]

##      [,1] [,2]
## [1,]    7   12
## [2,]    8   13
#e. Display only columns 2 and 3 in row 3

matrix_data[3, 2:3]

## [1] 6 11
#f. Display only column 4

matrix_data[, 4]

## [1] 12 13 14
#g. Name the rows and columns

matrix_2 <- matrix_data * 2
rownames(matrix_2) <- c("isa", "dalawa", "tatlo")
colnames(matrix_2) <- c("uno", "dos", "tres", "quatro")
matrix_2
```

```
##      uno dos tres quatro
## isa      2  8  14    24
## dalawa   4 10  16    26
## tatlo    6 12  22    28
```

```
#h. Reshaping the Matrix
```

```
dim(matrix_data) <- c(6, 2)
matrix_data
```

```
##      [,1] [,2]
## [1,]    1    7
## [2,]    2    8
## [3,]    3   11
## [4,]    4   12
## [5,]    5   13
## [6,]    6   14
```

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

```
#a. Create an array for the above numeric values. Each values will be repeated
```

```
array_data <- array(rep(c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1), 2),
                    dim = c(2, 4, 3))
array_data
```

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

```
## [1,] 1 3 7 9
## [2,] 2 6 8 0
##
## , , 2
##
##      [,1] [,2] [,3] [,4]
## [1,] 3 5 1 3
## [2,] 4 1 2 6
##
## , , 3
##
##      [,1] [,2] [,3] [,4]
## [1,] 7 9 3 5
## [2,] 8 0 4 1
```

#b. How many dimensions does the array have?

```
length(dim(array_data))
```

```
## [1] 3
```

#c. Name the rows as lowercase letters and columns as uppercase letters starting

```
rownames(array_data) <- c("a", "b")
colnames(array_data) <- c("A", "B", "C", "D")
dimnames(array_data) <- list(c("a", "b"),
                             c("A", "B", "C", "D"),
                             c("1st-Dimensional Array",
                                "2nd-Dimensional Array",
                                "3rd-Dimensional Array"))
array_data
```

```
## , , 1st-Dimensional Array
##
##   A B C D
## a 1 3 7 9
## b 2 6 8 0
##
## , , 2nd-Dimensional Array
##
##   A B C D
## a 3 5 1 3
## b 4 1 2 6
##
## , , 3rd-Dimensional Array
##
##   A B C D
## a 7 9 3 5
## b 8 0 4 1
```