

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 threerows.

#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
```