RWorksheet#3_Frias

2022-10-23

R Markdown

```
 #Using Vectors
#1. There is a built-in vector LETTERS contains the uppercase letters of the alphabet and letters which
 #LETTERS
##  [1] "A" "B" "C" "D" "E" "F" "G" "H" "I" "J" "K" "L" "M" "N" "O" "P" "Q" "R" "S" ## [20] "T" "U" "V"
 #letters
##  [1] "a" "b" "c" "d" "e" "f" "g" "h" "i" "j" "k" "l" "m" "n" "o" "p" "q" "r" "s" ## [20] "t" "u" "v"


#Based on the above vector LETTERS:
#a. You need to produce a vector that contains the first 11 letters.

LETTERS <- c("A", "B", "C", "D", "E", "F", "G", "H", "I", "J", "K", "L", "M", "N", "O", "P", "Q", "R",

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

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

```
#b. Produce a vector that contains the odd numbered letters.
letters <- c("a", "b", "c", "d", "e", "f", "g", "h", "i", "j", "k", "l", "m", "n", "o", "p", "q", "r",

ODDLTTRS <- letters [1:26 %% 2 == 1]
ODDLTTRS
```

```
##  [1] "a" "c" "e" "g" "i" "k" "m" "o" "q" "s" "u" "w" "y"
```

```
#c. Produce a vector that contains the vowels
VOWELLTTRS <- LETTERS [c(1,5,9,15,21)]
VOWELLTTRS
```

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

```
#Based on the above vector letters:
#d. Produce a vector that contains the last 5 lowercase letters.

vowelLTTRS <- letters [c(1,5,9,15,21)]
vowelLTTRS
```

```
## [1] "a" "e" "i" "o" "u"
```

```
#e. Produce a vector that contains letters between 15 to 24 letters in lowercase.
lttrs <- letters[15:24]
lttrs
```

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

```r
#2. Create a vector with the average temperatures in April for Tuguegarao City, Manila, Iloilo City, Ta

#a. What is the R code and its result for creating a character vector for the city/town of Tuguegarao C

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

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

```r
#b. 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
```

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

```r
#c. Associate the temperature temp with the city by using names() function. What is the R code and its
names(temp) <- city
temp
```

```
## Tuguegarao City          Manila     Iloilo City        Taclobna    Samal Island
##              42              39              34              34              30
##      Davao City
##              27
```

```r
#From the answer in d, what is the content of index 5 and index 6? What is its R code?
Cities <- temp [5:6]
Cities
```

```
## Samal Island   Davao City
##           30           27
```

```r
#Using Matrices
#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?

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

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

```r
#b. Multiply the matrix by two. What is its R code and its result?
a <- matrix(c(1:8, 11:14), nrow = 3, ncol = 4)
      b <- a*2
      b
```

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

```r
#c. What is the content of row 2? What is its R code?
a <- matrix(c(1:8, 11:14), nrow = 3, ncol = 4)
      a
```

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

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

```
      rw2 <- c(a[2,1], a[2,2], a[2,3], a[2,4])
      rw2
```

```
## [1]  2  5  8 13
```

```
#d. What will be the R code if you want to display the column 3 and column 4 in row 1 and row 2? What i
a <- matrix(c(1:8, 11:14), nrow = 3, ncol = 4)
      a
```

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

```
      rw1 <- c(a[1,3], a[1,4], a[2,3], a[2,4])
      rw1
```

```
## [1]  7 12  8 13
```

```
#e. What is the R code is you want to display only the columns in 2 and 3, row 3? What is its output?
a <- matrix(c(1:8, 11:14), nrow = 3, ncol = 4)
      a
```

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

```
      rw3 <- c(a[3,2], a[3,3])
      rw3
```

```
## [1]  6 11
```

```
#f. What is the R code is you want to display only the columns 4? What is its output?
a <- matrix(c(1:8, 11:14), nrow = 3, ncol = 4)
      a
```

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

```
      rw4 <- c(a[1,4], a[2,4], a[3,4])
      rw4
```

```
## [1] 12 13 14
```

```
#g. Name the rows as isa, dalawa, tatlo and columns as uno, dos, tres, quatro for the matrix that was c

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

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

```
      dimnames(a) <- list(c("isa", "dalawa", "tatlo"), c("uno", "dos", "tres", "quatro"))
a
```

```
##        uno dos tres quatro
## isa      1   4    7     12
## dalawa   2   5    8     13
## tatlo    3   6   11     14
```

```
#h. From the original matrix you have created in a, reshape the matrix by assigning a new dimension wit

a <- matrix(c(1:8, 11:14), nrow = 3, ncol = 4)
    #Warning in matrix(1:8, 11:14, nrow = 3, ncol = 4): data: length [8] is not a submultiple or multip
      a
```

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

```
      d <- c(1,2,3,4,5,6,7,8,11,12,13,14)
      d
```

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

```
      e <- matrix(d, nrow = 6, ncol = 2)
      e
```

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

```
      dim(e)
```

```
## [1] 6 2
```

```
#Using Arrays
#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 twice What will be the R


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

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

```
  y <- array(rep(f,2), dim = c(2,4,3))
  y
```

```
## , , 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 do your array have?
dim(y)
```

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

```
#c. Name the rows as lowercase letters and columns as uppercase letters starting from the A. The array
f <- c(1,2,3,6,7,8,9,0,3,4,5,1)
     f
```

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

```
     y <- array(rep(f,2), dim = c(2,4,3))
     y
```

```
## , , 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
```

```
     dimnames(y) <- list(letters[1:2], LETTERS[1:4], c("1st-Dimensional Array", "2nd-Dimensional Array
     y
```

```
## , , 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-Domensional Array
##
##   A B C D
## a 7 9 3 5
## b 8 0 4 1
```