CS101-WORKSHEET 3

Jacklord Espanola

2022-10-19

#Worksheet-3a in R #Using Vectors

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

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

```r
letters <- c("a", "b", "c", "d", "e", "f", "g", "h", "i", "j", "k", "l", "m", "n", "o", "p", "q", "r",
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" "w" "x" "y" "z"
```

#Based on the above vector LETTERS:

#a. You need to produce a vector that contains the first 11 letters.
```r
first_Eleven <- LETTERS[c(1:11)]
first_Eleven
```

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

#b.Produce a vector that contains the odd numbered letters.
```r
odd_LETTERS<-c(LETTERS[1:26 %% 2 !=0])
odd_LETTERS
```

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

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

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

#Based on the above vector letters:

#d. Produce a vector that contains the last 5 lowercase letters.
```r
lower_case <- letters[c(22:26)]
lower_case
```

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

#e. Produce a vector that contains letters between 15 to 24 letters in lowercase.
```r
letter <- letters[c(15:24)]
letter
```

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

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

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

```r
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. #Name the object as tem

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

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

#c. Associate the temperature temp with the city by using names() function. What
#is the R code and its result?

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

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

#e. From the answer in d, what is the content of index 5 and index 6? What is its #R code?

```r
temp[5:6]
```

```
## Samal Island   Davao City
##           30           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?

```r
m1 <- matrix(data = c(1:8,11:14), nrow = 3, ncol = 4)
m1
```

```
##      [,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?

```r
m2 <- m1*2
m2
```

```
##      [,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?

```r
m2[2,]
```

```
## [1]  4 10 16 26
```

```
#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
 m2[c(1,2),c(3,4)]
```

```
##      [,1] [,2]
## [1,]   14   24
## [2,]   16   26
```

```
#e. What is the R code is you want to display only the columns in 2 and 3, row 3? #What is its output?
m2[c(3),c(2,3)]
```

```
## [1] 12 22
```

```
#f. What is the R code is you want to display only the columns 4? What is its output?
 m2[,4]
```

```
## [1] 24 26 28
```

```
#g. Name the rows as isa, dalawa, tatlo and columns as uno, dos, tres, quatro
#for the matrix that was created in b.'. What is its R code and corresponding #output?
dimnames(m2) <- list(c("isa", "dalawa", "tatlo"),c("uno", "dos", "tres", "quatro"))
m2
```

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

```
#h. From the original matrix you have created in a, reshape the matrix by #assigning a new dimension wi
dim(m1) <- c(6,2)
m1
```

```
##      [,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 #twice. What will be the
num_values <- c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1)
num_values
```

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

```
x <- array(rep(num_values, 2), dim = c(2, 4, 3))
x
```

```
## , , 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(x)
```

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

#c. Name the rows as lowercase letters and columns as uppercase letters starting from the A. The array
```
dimnames(x) <- list(letters[1:2], LETTERS[1:4], c("1st-Dimensional Array ", ""2nd-Dimensional Array", "3
x
```

```
## , , 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
```