RWorkSheet_Barrientos#3a

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```r
#Using Vectors
# 1. There is a built-in vector LETTERS contains the uppercase letters of the alphabet and letters whic
LETTERS <- c("A", "B", "C", "D", "E", "F", "G", "H", "I", "J", "K", "L", "M", "N", "O", "P", "Q", "R",
# a. You need to produce a vector that contains the first 11 letters.

LETTERS[1:11]
```

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

```r
# b. Produce a vector that contains the odd numbered letters.
LETTERS[seq(1,26,2)]
```

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

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

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

```r
# Based on the above vector letters:
letters <- c("a", "b", "c", "d", "e", "f", "g", "h", "i", "j", "k", "l", "m", "n", "o", "p", "q", "r",

# d. Produce a vector that contains the last 5 lowercase letters.
letters[22:26]
```

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

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

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

```r
# Create a vector(not a dataframe) with the average temperatures in April for Tugue-garao City, Manila,

# a.  What is the R code and its result for creating a character vector for the city/town of Tuguegarao
city <- c("Tuguegarao City", "Manila", "Iloilo City", "Tacloban", "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)
city <- c("Tuguegarao City", "Manila", "Iloilo City", "Tacloban", "Samal Island", "Davao City")

#c. Create a dataframe to combine the city and the temp by using 'data.frame(). What the R code and its
df <- data.frame(city, temp)

# d. Associate the dataframe you have created in 2.(c) by naming the columns using the names() function
names(df) <- c("city", "temp")

# e. Print the structure by using str() function. Describe the output.
str(df)
```

```
## 'data.frame':    6 obs. of  2 variables:
##  $ city: chr  "Tuguegarao City" "Manila" "Iloilo City" "Tacloban" ...
##  $ temp: num  42 39 34 34 30 27
```

```r
# f. From the answer in d, what is the content of row 3 and row 4 What is its R code and its output?
df[3:4,]
```

```
##            city temp
## 3 Iloilo City   34
## 4    Tacloban   34
```

```r
# g. From the answer in d, display the city with highest temperature and the city with the lowest tempe
df[which.max(df$temp),]
```

```
##              city temp
## 1 Tuguegarao City   42
```

```r
# 2. Create a matrix of one to eight and eleven to fourteen with four columns and three rows.
matrix1 <- matrix(c(1:8, 11:14), nrow = 3, ncol = 4)
# a. What will be the R code for the #2 question and its result?
matrix1
```

```
##      [,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?
matrix1 * 2
```

```
##      [,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?
# the content of row 2 is 3 5 7 9 and its R code is matrix1 * 2

# 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
matrix1[1:2, 3:4]
```

```
##      [,1] [,2]
## [1,]    7   12
## [2,]    8   13
```

```r
# e. What is the R code is you want to display only the columns in 2 and 3, row 3? What is its output?
matrix1[3, 2:3]
```

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

```r
# f. What is the R code is you want to display only the columns 4? What is its output?
matrix1[, 4]
```

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

```r
# g. Name the rows as isa, dalawa, tatlo and columns as uno, dos, tres, quatro for the matrix that was
rownames(matrix1) <- c("isa", "dalawa", "tatlo")
colnames(matrix1) <- c("uno", "dos", "tres", "quatro")
matrix1
```

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

```r
# h. From the original matrix you have created in a, reshape the matrix by assigning a new dimension wi
dim(matrix1) <- c(6, 2)
matrix1
```

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

```r
# ARRAY
# 3. An array contains 1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1
array <- c(1,2,3,6,7,8,9,0,3,4,5,1)
array
```

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

```r
# a.Create an array for the above numeric values. Each values will be repeated twice What will be the R
array2 <- rep(array, time =2)
array2
```

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

```r
array3d <- array(array2, dim = c (2,4,3))
array3d
```

```
## , , 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
```

```r
# b. How many dimensions do your array have?
# It has 3 arrays

#c. Name the rows as lowercase letters and columns as uppercase letters starting from the A. The array
rownames <- c("a", "b")
colnames <- c ("A", "B", "C", "D")
dimnames <- list(rownames,colnames , c ("1st-Dimensional Array", "2nd-Dimensional Array", "3rd-Dimension
dimnames(array3d) <- dimnames
array3d
```

```
## , , 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
```