Rworksheet3a

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```
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
# 1
#Based on the above vector LETTERS:
#A. You need to produce a vector that contains the first 11 letters.
first11 <- LETTERS[c(1:11)]
first11
```

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

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

#B. Produce a vector that contains the odd numbered letters.
oddLetters <- LETTERS [c(1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25)]
oddLetters
```

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

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

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

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

```r
#Output:
# [1] "A" "E" "I" "O" "U"

#Based on the above vector letters:
#D. Produce a vector that contains the last 5 lowercase letters.
  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
  last5 <- letters[c(22:26)]
  last5
```

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

```r
#Output:
# [1] "v" "w" "x" "y" "z"
```

```
#E. Produce a vector that contains letters between 15 to 24 letters in lowercase.
  fifto24 <- letters[c(15:24)]
  fifto24
```

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

```
#Output:
# [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
#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", "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 temp.
temp <- c(42, 39, 34, 34, 30, 27)
temp
```

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

```
#C. Create a dataframe to combine the city and the temp by using 'data.frame(). Whatthe R code and its
city_temp <- data.frame(city,temp)

city_temp
```

```
##               city temp
## 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 the names() function.
names(city_temp) <- c("City", "Temperature")
city_temp
```

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

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

```
str(city_temp)
```

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

```
#Output:
# 'data.frame': 6 obs. of  2 variables:
#$ City       : Factor w/ 6 levels "Davao City","Iloilo City",..: 6 3 2 5 4 1
#$ Temperature: num  42 39 34 34 30 27

# the code displayed the structure of the city_temp object
# it displayed the contents of the data frame
# it displayed the summary of the data frame

#F. From the answer in d, what is the content of row 3 and row 4 What is its R code and its output?
twoRows <- city_temp[3:4,]


#G. From the answer in d, display the city with highest temperature and the city with the lowest tempera
highest <- city_temp[which.max(city_temp$Temperature),]
highest
```

```
##              City Temperature
## 1 Tuguegarao City          42
```

```
lowest <- city_temp[which.min(city_temp$Temperature),]
lowest
```

```
##         City Temperature
## 6 Davao City          27
```

```
# 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?

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

```
##      [,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?

mulMatr <- matr * 2
mulMatr
```

```
##      [,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?

rowTwo <- mulMatr[2,]
rowTwo
```

```
## [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 i
```

```r
TwoColsAndRows <- mulMatr[c(1,2),c(3,4)]
TwoColsAndRows
```

```
##      [,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?

```r
TwoColsOneRow <- mulMatr[3,c(2,3)]
TwoColsOneRow
```

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

#f. What is the R code is you want to display only the columns 4? What is its output?

```r
FourCol <- mulMatr[,4]
FourCol
```

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

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

```r
mulMatr
```

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

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

```r
matr
```

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

```r
dim(matr) <- c(6,2)
matr
```

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

ARRAYS

#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 R

```r
values <- c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1)
rep_values <- rep(values, each = 2)

arr <- array(rep_values, dim = c(2,4,3))
```

```
arr
```

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

```
#b. How many dimensions do your array have?
##   three dimensions

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

arr
```

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