RWorksheet_Huervana#3

2023-10-04

```
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"
```

```
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"
```

```
#1 A Produce a vector that contains the first 11 letters.


  LETTERS1to11 <- LETTERS[c(1:11)]
  LETTERS1to11
```

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

```
#1 B Produce a vector that contains the odd numbered letters.

  lengthlet <- length(LETTERS)
  odd_letters <- LETTERS[seq(lengthlet) %% 2 == 1]
  odd_letters
```

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

```
#1 C Produce a vector that contains the vowels.

  vowelsLETTERS <- LETTERS[c(1,5,9,15,21)]
  vowelsLETTERS
```

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

```
#1 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"
```

```
  last5 <- letters[c(22:26)]
  last5
```

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

```
#1 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"
```

```r
# 2 A Create a vector

  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"
```

```r
#2 B  The average temperatures in Celcius

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

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

```r
#2 C Create a dataframe to combine the city and the temp

 cityTemp <- data.frame(city,temp)
  cityTemp
```

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

```r
# 2 D Associate the dataframe you have created in 2.(c)

  names(cityTemp) <- c("City", "Temperature")
  cityTemp
```

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

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

  str(cityTemp)
```

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

```r
  # cityTemp is displayed
  # It displays the content and summary of the data frame.

# 2 F From the answer in d, what is the content of row 3 and row 4

  twoRows <- cityTemp[3:4,]
  twoRows
```

```
##          City Temperature
```

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

```
# 2 G From the answer in d, display the city with highest temperature and the city wit the lowest tempe

  highTemp <- cityTemp[which.max(cityTemp$Temperature),]
  highTemp
```

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

```
  lowTemp <- cityTemp[which.min(cityTemp$Temperature),]
  lowTemp
```

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

```
## Using Matrices



# 2 A Create a matrix of one to eight and eleven to fourteen with four columns and three rows.

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

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

```
#2 B Multiply the matrix by two.

  mulMatrix <- matrix * 2
  mulMatrix
```

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

```
#2 C What is the content of row 2?

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

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

```
#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?

  twoCols_Rows <- mulMatrix[c(1,2),c(3,4)]
  twoCols_Rows
```

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

```
#2 E What is the R code is you want to display only the columns in 2 and 3, row 3?

  twoColsRow <- mulMatrix[3,c(2,3)]
```

```
  twoColsRow
```

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

```
#2 F What is the R code is you want to display only the columns 4?

  fourCols <- mulMatrix[,4]
  fourCols
```

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

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

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

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

```
# 2 F From the original matrix you have created in a, reshape the matrix by assigning a new dimension w

  matrix
```

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

```
  dim(matrix) <- c(6,2)
  matrix
```

```
##      [,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

#3 A Create an array for the above numeric values. Each values will be repeated twice

  numValues <- c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1)
  repValues <- rep(numValues, each = 2)

  arr <- array(repValues, 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
```

```
#3 B How many dimensions do your array have?
  # 3

# 3 c Name the rows as lowercase letters and columns as uppercase letters starting from the A.

  dimnames(arr) <- list(

  letters[1:2],
  LETTERS[1:4],
  c("1st-Dimensional Array", "2nd-Dimensional Array", "3rd-Dimensional Array")
)

  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
```