Rworksheet_de la Cruz-Hanz #3a

2023-10-03

```
#printing lowercase and uppercase 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"
```

```
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"
```

```
#first eleven letters
firstEleven <- LETTERS [1:11]
firstEleven
```

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

```
#letters that are in the odd numbers
odd_letters <- LETTERS[seq(1, length(letters), by = 2)]
odd_letters
```

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

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

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

```
#last five lowercase letters
lastFive <- letters[22:26]
lastFive
```

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

```
#letters in the index 15 to 24
lettersBetween <- letters [15:24]
lettersBetween
```

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

```r
#average temparture of each city
averageTemp <- c("Tuguegarao City" = 42  ,"Manila" = 39 ,"Iloilo City" = 34, "Tacloban" = 34, "Samal Isl
averageTemp
```

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

```r
#city 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
#temperature vector
temp <- c(42,39,34,34,30,27)
temp
```

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

```r
cityTemp <- data.frame(
  City_Name = (city),
  Temp = (temp))
cityTemp
```

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

```r
#changing column names using names()
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
#str(cityTemp)
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
```

```
#access row 3 and 4
cityTemp[3:4,1:2]
```

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

```
#lowest and max temp of the cities
minTemp <- min(cityTemp$City)
maxTemp <- max(cityTemp$City)
maxTemp
```

```
## [1] "Tuguegarao City"
```

```
minTemp
```

```
## [1] "Davao City"
```

```
#matrix with 2 rows
matrix_1 <- matrix(c(5,6,7,4,3,2,1,2,3,7,8,9),nrow = 2)
matrix_1
```

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

```
#creating a matrix with 3 rows and 2 columns
matrix_2 <-matrix(data = c(3,4,5,6,7,8),3,2)
matrix_2
```

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

```
diagmatrix <- diag(1,nrow = 6,ncol = 5)
diagmatrix
```

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

```r
diagmatrix2 <- diag(6)
diagmatrix2
```

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

```r
matrix_3 <- matrix(c(1:8,11:14),3,4)
matrix_3
```

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

```r
matrixMulti <- matrix_3 * 2
matrixMulti
```

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

```r
matrixRow2 <- matrixMulti [2,1:4]
matrixRow2
```

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

```r
matrixRow3Col2and3 <- matrixMulti [3,c(2,3)]
matrixRow3Col2and3
```

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

```r
matrixColumn4 <- matrixMulti [1:3,4]
matrixColumn4
```

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

```r
#naming rows and columns
rownames(matrixMulti)[1:3] <- c("isa","dalawa","tatlo")

colnames(matrixMulti)[1:4] <- c("uno","dos","tres","quatro")
matrixMulti
```

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

```r
dim(matrix_3) <- c(6,2)
matrix_3
```

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

```r
#creating an array with 2 rows, 4 columns and 3 dimensions
vector1 <- c(1,2,3,6,7,8,9,0,3,4,5,1)
array1 <- array(vector1, dim = c(2,4,3))
array1
```

```
## , , 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
dimOfArray1 <- dim(array1)
dimOfArray1 #array has 2columns 4rows and 3 dimensions
```

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

```r
#renaming columns rows and dimension names

dimnames(array1) <- list(letters[1:2],LETTERS[1:4], c("1st-Dimensional Array", "2nd-Dimensional Array",
array1
```

```
## , , 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
```