RWorksheet_Delacruz#3a

2023-10-04

```
#1.
Uppercase <- LETTERS
Uppercase
```

```
##  [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"
```

```
Lowercase <- letters
Lowercase
```

```
##  [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

eleven <- Uppercase[1:11]
eleven
```

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

```
#1.b
odd_letters <- Uppercase[seq(1, length(Uppercase), by = 2)]
odd_letters
```

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

```
#1.c

vowels <- Uppercase[Uppercase %in% c("A", "E", "I", "O", "U")]
vowels
```

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

```
#1.d

five_last <- tail(Lowercase,5)
five_last
```

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

```r
#1.e

fifteen_niyon <- Lowercase [15:24]
fifteen_niyon
```

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

```r
#2.a
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
Temp <- c(42, 39, 34, 34, 30, 27)
Temp
```

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

```r
#2.c
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
```

```r
#2.d

names(city_temp) <- c("City", "Temperature")
names(city_temp) #[1] "City"        "Temperature"
```

```
## [1] "City"        "Temperature"
```

```r
#2.e
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
```

```
#It shows the type which is 'data.frame', it tells us how many objects of 2 variables.
#They also state the type of variable if the list is char(string) and num(integer)
```

```
#2.f
city_temp[3:4,]
```

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

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

```
#2.g
highest_temp <- max(city_temp$City)
highest_temp
```

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

```
#Taguegarao City

lowest_temp <- min(city_temp$City)
lowest_temp
```

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

```
#Davao City
```

```
#2.a
matrix1 <- matrix(c(1:8, 11:14), nrow=3, ncol=4)
matrix1
```

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

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

```
#2.b

matrix2 <- matrix1*2
matrix2
```

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

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

```
#2.c
matrix2[2,]
```

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

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

```
#2.d
son_of_matrix2 <-matrix2[1:2, 3:4]
#     [,1] [,2]
#[1,]   14   24
#[2,]   16   26
```

```
#2.e
matrix2[3, 2:3]
```

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

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

```
#2.f
matrix2[, 4]
```

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

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

```
#2.g
rownames(matrix2) <- c("isa", "dalawa", "tatlo")
colnames(matrix2) <- c("uno", "dos", "tres", "quatro")
#       uno dos tres quatro
#isa      2   8   14     24
#dalawa   4  10   16     26
#tatlo    6  12   22     28
```

```
#2.h
dim(matrix2) <- c(6,2)
matrix2
```

```
##      [,1] [,2]
## [1,]    2   14
## [2,]    4   16
## [3,]    6   22
## [4,]    8   24
## [5,]   10   26
## [6,]   12   28
```

```
#[,1] [,2]
#[1,]    2   14
#[2,]    4   16
#[3,]    6   22
#[4,]    8   24
#[5,]   10   26
#[6,]   12   28
```

```
#3.a
num_value <- c(2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1)
numArray <- array(data = rep(num_value, each = 2), dim=c(2,4,3))
numArray
```

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

```
#, , 1

#[,1] [,2] [,3] [,4]
#[1,]    2    3    6    7
#[2,]    2    3    6    7

#, , 2

#[,1] [,2] [,3] [,4]
#[1,]    8    9    0    3
#[2,]    8    9    0    3

#, , 3

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

```
#3.b
dim(numArray)
```

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

```r
#[1] 2 rows, 4 columns, 3 groups = 3 dimensions.
```

```r
#3.c
dimnames(numArray) <- list(Lowercase[1:2], Uppercase[1:4], c("1st-Dimensional Array", "2nd-Dimensional A
numArray
```

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

```r
#, , 1st-Dimensional Array

#A B C D
#a 2 3 6 7
#b 2 3 6 7

#, , 2nd-Dimensional Array

#A B C D
#a 8 9 0 3
#b 8 9 0 3

#, , 3rd-Dimensional Array

#A B C D
#a 4 5 1 2
#b 4 5 1 2
```