RWorksheet_Punay#3a

#USING VECTORS

```
#1

#a.
LETTERS <- c("A", "B", "C", "D", "E", "F", "G", "H", "I", "J", "K", "L", "M", "N", "O", "P", "Q", "R",
"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"
```

```
#b.
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"
```

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

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

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

```
#d
last_letters <- letters[c (22:26)]
last_letters
```

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

```
#e
last_letters <- letters[c (22:26)]
inbetween_letters <- letters[c (15:24)]
inbetween_letters
```

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

```
#2

#a
city <- c("Tugue-garao City", "Manila", "Iloilo City", "Tacloban", "Samal Island", "Davao City")

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

```r
#c
data_frame<- data.frame(city, temp)
#d
names(data_frame) <- c("City", "Temperature")
data_frame
```

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

```r
#e
str(data_frame)
```

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

The output is a compact and detailed summary of the internal structure of my data frame.

```r
#f
data_frame [3:4,]
```

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

```r
#g
data_frame[which.max(data_frame$Temperature),]
```

```
##               City Temperature
## 1 Tugue-garao City          42
```

```r
data_frame[which.min(data_frame$Temperature),]
```

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

#USING MATRICES

```r
#2

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

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

```r
#b
matrix_a * 2
```

```
##      [,1] [,2] [,3] [,4]
## [1,]    2    8   14   24
```

```
## [2,]    4   10   16   26
## [3,]    6   12   22   28
```

```
#c
matrix_a[2, ]
```

```
## [1]  2  5  8 13
```

```
#d
matrix_a[1:2, 3:4]
```

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

```
#e
matrix_a[3, 2:3]
```

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

```
#f
matrix_a[, 4]
```

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

```
#g
rownames(matrix_a) <- c("isa", "dalawa", "tatlo")
colnames(matrix_a) <- c("uno", "dos", "tres", "quatro")
matrix_a
```

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

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

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

#USING ARRAY

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

arr <- array(values_repeated, 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
```

```r
#b
length(dim(arr))
```

```
## [1] 3
```

```r
#c
dimnames(arr) <- list(
  c("a", "b"),
  c("A", "B", "C", "D"),
  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
```