RWorksheet_Eusuya#3A

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Vectors

1

```
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"
```

A

```
First_11 <- LETTERS[1:11]
First_11
```

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

B

```
odd <- LETTERS[seq(1, length(LETTERS), 2) ]
odd
```

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

C

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

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

D

```
last_5 <- letters[22:26]
last_5
```

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

E

```
middle <- letters[14:24]
middle
```

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

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"
```

B

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

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

C

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

```
##              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

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

E

```
str(places)
```

```
## 'data.frame':    6 obs. of  2 variables:
```

```
##  $ City       : chr  "Tuguegarao City" "Manila" "Iloilo City" "Tacloban" ...
##  $ Temperature: num  42 39 34 34 30 27
```

```
# The output shows the content of the data frame and the data types of each vector
```

F

```
places[3, ]
```

```
##          City Temperature
## 3 Iloilo City          34
```

```
places[4, ]
```

```
##       City Temperature
## 4 Tacloban          34
```

G

```
places[1, ]
```

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

```
places[6, ]
```

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

Matrices

2

A

```
matrix_a <- matrix(c(1,2,3,4,5,6,7,8,11,12,13,14), ncol = 4, nrow = 3)
matrix_a
```

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

B

```
multiply <- matrix_a * 2
multiply
```

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

C

```
multiply[2, ]
```

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

D

```
multiply[1:2, 3:4]
```

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

E

```
multiply[3, 2:3]
```

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

F

```
multiply[, 4]
```

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

G

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

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

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
```

Arrays

3

```
array_A <- array(c(1:3,6:9,0,3:5,1))
array_A
```

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

```
repeat2 <- rep(array_A, 2)
repeat2
```

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

```
array_3D <- array(repeat2, dim = c(2, 4, 3))
array_3D
```

```
## , , 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
```

B

```
dim(array_3D)
```

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

C

```
row_names <- c("a", "b")
col_names <- c("A", "B", "C", "D")
dim_names <- list(row_names, col_names, c("1st-Dimensional Array", "2nd-Dimensional Array", "3rd-Dimens
named_array <- array(repeat2, dim = c(2, 4, 3), dimnames = dim_names)
named_array
```

```
## , , 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
```