Rworksheet_Mabalina#3

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##1.LETTERS

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

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

##A

```
first_11_letters <- LETTERS[1:11]
first_11_letters
```

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

##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

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

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

##D

```
last_5_lowercase <- letters[22:26]
last_5_lowercase
```

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

##E

```
letters_15_to_24 <- letters[15:24]
letters_15_to_24
```

```
##  [1] "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

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

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

##C

```r
data <- data.frame(City = city, Temperature = temp)
data
```

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

##D

```r
names(data) <- c("City", "Temperature")
data
```

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

##E

```r
str(data)
```

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

##F

```r
data[3:4, ]
```

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

##G

```r
highest_temp_city <- data[which.max(data$Temperature), ]
lowest_temp_city <- data[which.min(data$Temperature), ]

highest_temp_city
```

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

```r
lowest_temp_city
```

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

###3 ##A

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

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

##B

```
matrix_multiplied <- matrix_data * 2
matrix_multiplied
```

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

##C

```
row_2 <- matrix_data[2, ]
row_2
```

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

##D

```
columns_3_4_row_1_2 <- matrix_data[1:2, 3:4]
columns_3_4_row_1_2
```

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

##E

```
row_3_columns_2_3 <- matrix_data[3, 2:3]
row_3_columns_2_3
```

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

##F

```
column_4 <- matrix_data[, 4]
column_4
```

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

##G

```
rownames(matrix_multiplied) <- c("one", "two", "Three")
colnames(matrix_multiplied) <- c("ONE", "TWO", "THREE", "FOUR")
matrix_multiplied
```

```
##       ONE TWO THREE FOUR
## one     2   8    14   24
## two     4  10    16   26
## Three   6  12    22   28
```

##H

```
reshaped_matrix <- matrix(matrix_data, nrow = 6, ncol = 2)
reshaped_matrix
```

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

##4 ##A

```
values <-c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1)
values_repeated <-rep(values, times = 2)
array_3d <-array(values_repeated, 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 ##The array has 3 dimensions

##C

```
dimnames(array_3d) <-list(c("a", "b"),c("A", "B", "C", "D"),c("1st-Dimensional Array", "2nd-Dimensional
array_3d
```

```
## , , 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
```