RWorksheet_Cabaña#3a

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```
#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"
```

```
#Based on the above vector LETTERS:
#1a You need to produce a vector that contains the first 11 letters.
Letters11 <- LETTERS[1:11]
Letters11
```

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

```
#1b Produce a vector that contains the odd numbered letters.
Letter_Odd <- letters[seq(1,length(letters),by=2)]
Letter_Odd
```

```
##  [1] "a" "c" "e" "g" "i" "k" "m" "o" "q" "s" "u" "w" "y"
```

```
#1c Produce a vector that contains the vowels
LetterVowels <- LETTERS[c(1,5,9,15,21)]
LetterVowels
```

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

```
#Based on the above vector letters:
#1d Produce a vector that contains the last 5 lowercase letters.
last5letters <- letters[22:26]
last5letters
```

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

```
#1e Produce a vector that contains letters between 15 to 24 letters in lowercase.
letters15to24 <- letters[15:24]
letters15to24
```

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

```
#2 Create a vector(not a dataframe) with the average temperatures in April for Tuguegarao City, Manila,
ave_temp <- c(42,39,34,34,30,27)
ave_temp
```

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

```r
#2a
Cities_vec <- c("Tuguegarao City", "Manila","Iloilo City","Tacloban","Samal Island","Davao City")
Cities_vec
```

```
## [1] "Tuguegarao City" "Manila"          "Iloilo City"     "Tacloban"
## [5] "Samal Island"    "Davao City"
```

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

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

```r
#2c
CityTemp <- data.frame(Cities_vec,Temp)
CityTemp
```

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

```r
#2d
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
#2e
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
```

```r
# It displayed the output with 6 obs. of 2 variables and the class of it.

#2f
Row3_4 <- CityTemp[3:4,]
Row3_4
```

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

```r
#2g
High_Temp <- CityTemp[which.max(CityTemp$Temperature),]
High_Temp
```

```
##              City Temperature
```

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

```
Low_Temp <- CityTemp[which.min(CityTemp$Temperature),]
Low_Temp
```

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

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

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

```
#3b
Mtrix2 <- Matrix * 2
Mtrix2
```

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

```
#3c
MtrixRow2 <- Matrix[2,]
MtrixRow2
```

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

```
#3d
MtrixCol34 <- Mtrix2[c(1:2),c(3:4)]
MtrixCol34
```

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

```
#3e
MtrixColRow <- Mtrix2[3, c(2:3)]
MtrixColRow
```

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

```
#3f
MtrixCol4 <- Mtrix2[,4]
MtrixCol4
```

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

```
#3g
dimnames(Mtrix2) <- list(c("isa","dalawa","tatlo"),c("uno","dos","tres","quatro"))

#3h
Matrix
```

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

```
## [3,]    3    6   11   14
```

```
dim(Matrix) <- c(6,2)
Matrix
```

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

```
#USING ARRAYS

#4 An array contains 1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1
#4a
ArrayNum <- array(c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1),c(2,4,3))
ArrayNum
```

```
## , , 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
```

```
#4b
dim(ArrayNum)
```

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

```
#4c
colnames(ArrayNum) <- c("A","B","C","D")
ArrayNum
```

```
## , , 1
##
##      A B C D
## [1,] 1 3 7 9
## [2,] 2 6 8 0
##
## , , 2
##
##      A B C D
## [1,] 3 5 1 3
```

```
## [2,] 4 1 2 6
##
## , , 3
##
##      A B C D
## [1,] 7 9 3 5
## [2,] 8 0 4 1
```

```
rownames(ArrayNum) <- c("a","b")
ArrayNum
```

```
## , , 1
##
##   A B C D
## a 1 3 7 9
## b 2 6 8 0
##
## , , 2
##
##   A B C D
## a 3 5 1 3
## b 4 1 2 6
##
## , , 3
##
##   A B C D
## a 7 9 3 5
## b 8 0 4 1
```

```
dimnames(ArrayNum)[[3]] <- c("1st-Dimensional Array","2nd-Dimensional Array","3rd-Dimensional Array")
```