RWorksheet_TIAD#3a

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```
#USING 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.
  Alpha11 <- LETTERS[c(1:11)]
  Alpha11
```

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

```
  #b.
  odd_Alpha <- c(LETTERS[seq(1,26,2)])
  odd_Alpha
```

```
##  [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.
  last5 <- tail(letters,5)
  last5
```

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

```r
  #e.
  alpha15to24 <- letters[c(15:24)]
  alpha15to24
```

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

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

```r
  #c.
  citytemp_df <- data.frame(city, temp)
  citytemp_df
```

```
##              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
  #d.
  names(citytemp_df) <- c("City", "Temperature")
  citytemp_df
```

```
##              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
  #e.
  str(citytemp_df)
```

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

```r
  #f.
  citytemp_df[3:4,]
```

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

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

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

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

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

```r
#USING MATRICES
  #2.
  #a.
  nummatrix <- matrix(c(1,2,3,4,5,6,7,8,11,12,13,14), nrow = 3, ncol = 4)
  nummatrix
```

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

```r
  #b.
  mtrxx2 <- nummatrix * 2
  mtrxx2
```

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

```r
  #c.
  nummatrix[2,]
```

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

```r
  #d.
  nummatrix[1:2, 3:4]
```

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

```r
  #e.
  nummatrix[3, 2:3]
```

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

```r
  #f.
  nummatrix[, 4]
```

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

```r
  #g.
  rownames(mtrxx2) <- c("isa", "dalawa", "tatlo")
  colnames(mtrxx2) <- c("uno", "dos", "tres", "quatro")
  mtrxx2
```

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

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

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

```r
#USING ARRAY
#3.
  #a.
  numARRAY <- array(rep(c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1), 2), c(2, 4, 3))
  numARRAY
```

```
## , , 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
```

```r
#b. I created 3 dimensions so that the values can all fit.
#c.
dimnames(numARRAY)[[1]] <- c("a", "b")
dimnames(numARRAY)[[2]] <- c("A", "B", "C", "D")
dimnames(numARRAY)[[3]] <- c("1st-Dimensional Array", "2nd-Dimensional Array", "3rd-Dimensional Array
numARRAY
```

```
## , , 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
```