RWorksheet_Salinas#3a

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2023-10-11

```
#1
#Based on the above vector LETTERS:

       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. You need to produce a vector that contains the first 11 letters.

     UPPERCASE <- LETTERS
     first11 <- LETTERS [1:11]
     first11
```

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

```
#b. Produce a vector that contains the odd numbered letters.

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

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

```
#c. Produce a vector that contains the vowels

      vowels <- c("A", "E", "I", "O", "U")
      vowels
```

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

```
#or

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

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

```
#Based on the above vector letters:

#d. Produce a vector that contains the last 5 lowercase letters.

      last5 <- tail(letters, 5)
      last5
```

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

```
#e. Produce a vector that contains letters between 15 to 24 letters in lowercase.
```

```r
lowercase <- letters
lttr15_to_24 <- lowercase[15:24]
lttr15_to_24
```

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

```r
#2. Create a vector(not a dataframe) with the average temperatures in April for Tuguegarao City, Manila

#a. What is the R code and its result for creating a character vector for the city/town of Tuguegarao C

city <- c("Tuguegarao City", "Manila", "Iloilo City", "Tacloban", "Samal Island", "Davao City")
print(city)
```

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

```r
#b. The average temperatures in Celcius are 42, 39, 34, 34, 30, and 27 degrees. Name the object as temp
#Write the R code

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

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

```r
#c. Create a dataframe to combine the city and the temp by using 'data.frame().
#What the R code and its result?

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

```
##              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
#OUPUT/RESULT

             #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. Associate the dataframe you have created in 2.(c) by naming the columns using the names() function.
#What is the R code and its result?

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

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

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

```
#OUPUT/RESULT

                #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. Print the structure by using str() function. Describe the output.

    str(city_and_temp)
```

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

```
#Describe the output.
#'data.frame':  6 obs. of  2 variables:, This shows that the data frame have 6 observation or known as
# $ City       : chr  "Tuguegarao City" "Manila" "Iloilo City" "Tacloban" ...
#This shows the City column and indicate that it is a character variable.
#$ Temperature: num  42 39 34 34 30 27
#This shows the Temperature column and indicate that it is a numeric variable.

#f. From the answer in d, what is the content of row 3 and row 4
#What is its R code and its output?

    content<- city_and_temp[3:4,]
    content
```

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

```
#OUPUT


          #City Temperature
#3 Iloilo City          34

#4 Tacloban             34

#g. From the answer in d, display the city with highest temperature and the city with the lowest temper
#What is its R code and its output?


#find the lowest indedx

              lowest_temp <- city_and_temp[which.min(city_and_temp$Temperature),]
```

```
             lowest_temp
```

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

```
#find the highest index

            highest_temp <- city_and_temp[which.max(city_and_temp$Temperature),]
           highest_temp
```

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

```
#OUTPUT, The provided code identifies and retrieves the names of cities that correspond to the lowest a

#2. Create a matrix of one to eight and eleven to fourteen with four columns and three rows.
#a. What will be the R code for the #2 question and its result?

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

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

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


#b. Multiply the matrix by two. What is its R code and its result?

      matrixtwo <- matrix * 2
      print(matrixtwo)
```

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

```
#c. What is the content of row 2? What is its R code?

    matrixtwo[2,]
```

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

```
#d. What will be the R code if you want to display the column 3 and column 4 in row 1 and row 2? What i

    column3and4 <- matrixtwo[1:2, 3:4] #nrow,ncol

    column3and4 #OUTPUT     [,1] [,2]
```

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

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


#e. What is the R code is you want to display only the columns in 2 and 3, row 3? What is its output?

      matrixtwo [3, 2:3]
```

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

```
#OUPUT [1] 12 22

#f. What is the R code is you want to display only the columns 4? What is its output?

      matrixtwo[ ,4]
```

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

```
#OUPUT  [1] 24 26 28

#g. Name the rows as isa, dalawa, tatlo and columns as uno, dos, tres, quatro for the matrix that was c
#What is its R code and corresponding output?

# Create the matrix with the specified values and dimensions

        dimnames(matrixtwo) <- list(c("isa", "dalawa", "tatlo"), c("uno", "dos", "tres", "quatro"))

        matrixtwo
```

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

```
#OUPUT      uno dos tres quatro

      #isa      1   4    7     12
      #dalawa   2   5    8     13
      #tatlo    3   6   11     14

#h. From the original matrix you have created in a, reshape the matrix by assigning a new dimension wit
#What will be the R code and its output?

      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
```

```
#OUPUT     [,1] [,2]

    #[1,]    1    7
```

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


#3 An array contains 1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1

#a. Create an array for the above numeric values. Each values will be repeated twice
#What will be the R code if you are to create a three-dimensional array with 4 columns and 2 rows. What

      values <- c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1)

#twice

      repeated <- rep(values, each = 2)
      array <- array(repeated, dim = c(2, 4, 3))

      array
```

```
## , , 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
```

```
#OUPUT
#, ,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


#b. How many dimensions do your array have? My array has three dimensions.


#c. Name the rows as lowercase letters and columns as uppercase letters starting from the A. The array
#What will be the R codes and its output?

    dimnames(array) <- list(
         row_names <- letters[1:2],
        col_names <- LETTERS[1:4], c("1st-Dimensional Array", "2nd-Dimensional Array", "3rd-Dimensional

      array
```

```
## , , 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
```

```
#OUPUT
#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
```