RWorksheet_Sabarillo#3a

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1.a

```
LETTERS[1:11]
```

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

1.b

```
LETTERS[seq(1,26,2)]
```

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

1.c

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

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

1.d.

```
tail(letters, 5)
```

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

1.e

```
letters[15:24]
```

```
##  [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"
```

2.b

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

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

2.c - The vectors were combined to make a table.

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

2.d - The vectors city was changed into City and temp into Temperature.

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

2.e - It displays the structure of the data frame.

```
str(df)
```

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

2.f - Iloilo City:34 & Tacloban:34

```
df[3:4, ]
```

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

2.g

```
highest_temp_city <- df[which.max(df$Temperature), "City"]
lowest_temp_city <- df[which.min(df$Temperature), "City"]

print(paste("City with highest temperature:", highest_temp_city))
```

```
## [1] "City with highest temperature: Tuguegarao City"
```

```
print(paste("City with lowest temperature:", lowest_temp_city))
```

```
## [1] "City with lowest temperature: Davao City"
```

#MATRIX 2.a - Creates a 3x4 matrix with the specified values.

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

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

```
#2.b -Multiplies the matrix by 2.

mult_mat <- mat * 2
mult_mat
```

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

```
#2.c - Extracts the second row.

row2 <- mat[2,]
row2
```

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

```
#2.d - Extracts a sub-matrix with rows 1 and 2, and columns 3 and 4.

subset_matrix <- mat[1:2, 3:4]
subset_matrix
```

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

```
#2.e - Extracts a sub-matrix with row 3 and columns 2 and 3.

subset_matrix_2 <- mat[3, 2:3]
subset_matrix_2
```

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

```
#2.f - Extracts the fourth column.

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

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

```
#2.g - Assigns names to the rows and columns of the multiplied matrix.

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

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

```
#2.h -  Reshapes the original matrix to have 2 columns and 6 rows.

reshaped_matrix <- matrix(mat, 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
```

#ARRAY 3.a

```r
arnum <- array(rep(c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1), 2), dim = c(2, 4, 3))
arnum
```

```
## , , 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
#3.b

dim(arnum)
```

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

```r
#3.c

dimnames(arnum) <- list(letters[1:2], LETTERS[1:4], c("1st-Dimensional Array", "2nd-Dimensional Array",
arnum
```

```
## , , 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
```