RWorksheet_Gallenero#3a

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R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.
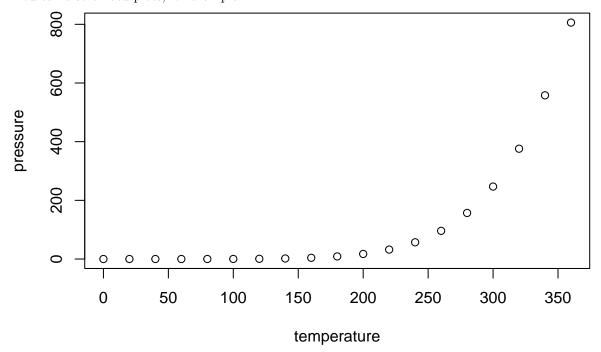
When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

```
##      speed           dist
##  Min.   : 4.0   Min.   :  2.00
##  1st Qu.:12.0   1st Qu.: 26.00
##  Median :15.0   Median : 36.00
##  Mean   :15.4   Mean   : 42.98
##  3rd Qu.:19.0   3rd Qu.: 56.00
##  Max.   :25.0   Max.   :120.00
```

Including Plots

You can also embed plots, for example:

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

```r
#1. Using vectors
# vector LETTERS

#a First eleven letters
first11_LETTERS <- LETTERS[1:11]
first11_LETTERS
```

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

```r
#b odd numbered letters
oddLETTERS <- LETTERS[X=seq(1,26,by=2)]
oddLETTERS
```

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

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

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

```r
#vector letters

#d five lowercase letters
five_lowercase <- letters[22:26]
five_lowercase
```

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

```r
#e letters between 15 to 24 letters in lowercase
lowercase15to24 <- letters[15:24]
lowercase15to24
```

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

```r
#2 Average temperatures

#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
#Output: 42 39 34 34 30 27

#c
City_temp<- data.frame(
  city = c("Tuguegarao City", "Manila", "Iloilo City", "Tacloban",
           "Samal Island", "Davao City"),
  temp = c(42, 39, 34, 34, 30, 27)
)
City_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
```

```
#output
#              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
names(City_temp)[c(1, 2)] <- c("City", "Temperature")
City_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
```

```
#Output:
#         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
str(City_temp)
```

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

```
#f
colnames(City_temp)
```

```
## [1] "City"        "Temperature"
```

```
City_temp[3:4,]
```

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

```r
#g
max_city_temp <- City_temp[which.max(City_temp$Temperature), "City"]
min_city_temp <- City_temp[which.min(City_temp$Temperature), "City"]


max_city_temp
```

```
## [1] "Tuguegarao City"
```

```r
min_city_temp
```

```
## [1] "Davao City"
```

```r
#Using Matrices

#2 Create a matrix of one to eight and eleven to fourteen with four columns and three rows

#a. R code for the number 2 question
matrix(c(1:8, 11:14), ncol=4, nrow=3, )
```

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

```r
#Output:
#     [,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
2 * matrix(c(1:8, 11:14), ncol=4, nrow=3)
```

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

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

#c.content of row 2
matrix(c(1:8, 11:14), ncol=4, nrow=3)[2,]
```

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

```r
#Output: 2  5  8 13

#d. display the column 3 and column 4 in row 1 and row 2
matrix(c(1:8, 11:14), nrow = 3, ncol = 4)[1:2, 3:4]
```

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

4

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


#e. display only the columns in 2 and 3, row 3
matrix(c(1:8, 11:14), nrow = 3, ncol = 4)[3, 2:3]
```

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

```
#output: 6 11



#f. display only the columns 4
matrix(c(1:8, 11:14), nrow = 3, ncol = 4)[, 4]
```

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

```
#Output: 12 13 14

#g. Name the rows as isa, dalawa, tatlo and columns as uno, dos, tres, quatro for the matrix that was c
mat <- 2* matrix(c(1:8, 11:14), nrow = 3, ncol = 4)
rownames(mat) <- c("isa", "dalawa", "tatlo")
colnames(mat) <- c("uno", "dos", "tres", "quatro")
mat
```

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

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


# h. From the original matrix you have created in a, reshape the matrix by assigning a new dimension wi
newMatrix <- matrix(c(1:8, 11:14), nrow = 3, ncol = 4)
dim(newMatrix) <- c(6, 2)
newMatrix
```

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

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

```
#[6,]    6   14

#Using Arrays

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

#a
Array_value <- array (c (1:3, 6:9, 0, 3:5, 1), c (2,4,3))
Array_value
```

```
## , , 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
```

```
#Output
#, , 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
dim(Array_value)
```

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

```r
# Output: 2 4 3


#c
data <- c(1:3, 6:9, 0, 3:5, 1)
Array_value <- array(data, dim = c(2, 4, 3))

dimnames(Array_value) <- list(
  c("a", "b"),
  c("A", "B", "C", "D"),
  c("1st-Dimensional Array", "2nd-Dimensional Array", "3rd-Dimensional Array")
)

Array_value
```

```
## , , 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
```

```
#Output:
#, , 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
```