
title: "RWorksheet_Deluna#3A" author: "Nicole De Luna" date: "2023-10-19" output: pdf_document

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>.

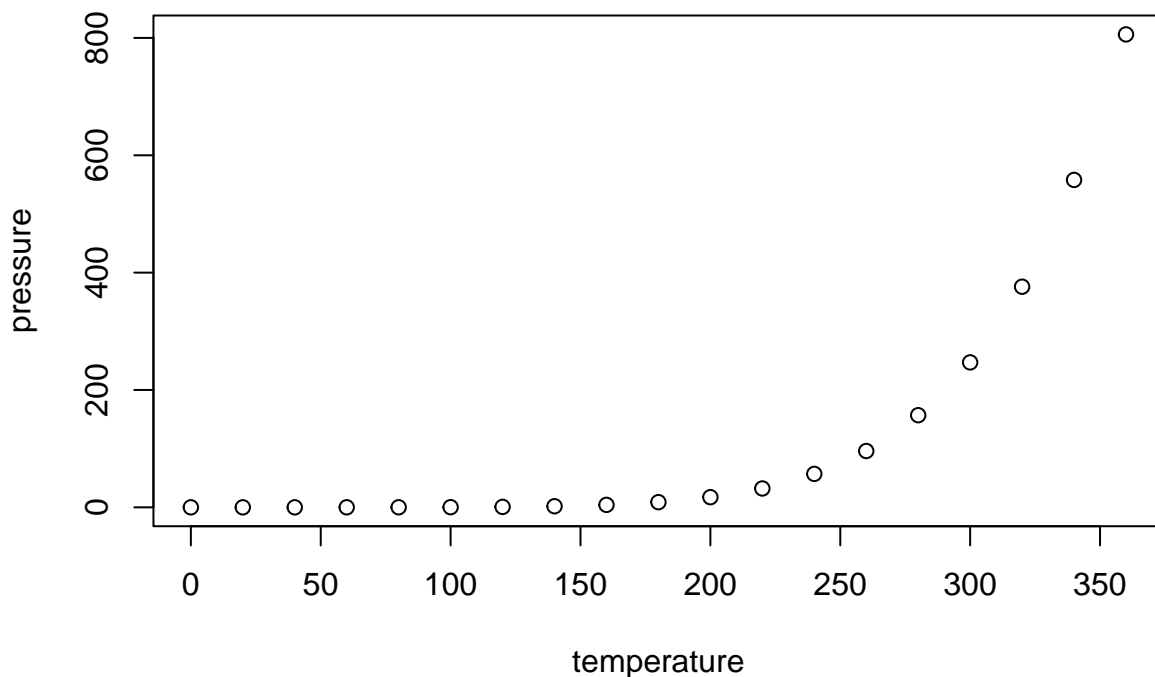
When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
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.

```
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"
```

```
# 1
```

```
# LETTERS vector
```

```

# a.
first11 <- LETTERS[c(1:11)]
first11

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

# b.
lenLet <- length(LETTERS)
oddNum <- LETTERS[seq(lenLet) %% 2 == 1]
oddNum

## [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"

#letters vector
# d
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"

last5 <- letters[c(22:26)]
last5

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

# e
fifto24 <- letters[c(15:24)]
fifto24

## [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"

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

## [1] 42 39 34 34 30 27

# c
city_temp <- data.frame(city,temp)

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
```

```
# d
names(city_temp) <- 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
```

```
# 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
```

```
# the code displayed the structure of the city_temp object
# it displayed the contents of the data frame
# it displayed the summary of the data frame
```

```
# f
```

```
twoRows <- city_temp[3:4,]
```

```
# g
```

```
highest <- city_temp[which.max(city_temp$Temperature),]
highest
```

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

```
lowest <- city_temp[which.min(city_temp$Temperature),]
lowest
```

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

```
# USING MATRICES
```

```
# 2 a
```

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

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

```
# b
```

```
mulMatr <- matr * 2  
mulMatr
```

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

```
# c
```

```
rowTwooo <- mulMatr[2,]  
rowTwooo
```

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

```
# d
```

```
twoColsAndRows <- mulMatr[c(1,2),c(3,4)]  
twoColsAndRows
```

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

```
# e
```

```
twoColsOneRow <- mulMatr[3,c(2,3)]  
twoColsOneRow
```

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

```
# f
```

```
fourCol <- mulMatr[,4]  
fourCol
```

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

```
# g
```

```
dimnames(mulMatr) <- list(c("hana", "dhul", "set"), c("isa", "duha", "tatlo", "apat"))  
mulMatr
```

```
##      isa duha tatlo apat  
## hana    2    8   14   24  
## dhul    4   10   16   26  
## set     6   12   22   28
```

```
# h
```

```
matr
```

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

```

dim(matr) <- c(6,2)
matr

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

# ARRAYS

# 3 a

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

arr <- array(rep_values, dim = c(2,4,3))
arr

## , , 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

# 3 b
# three dimensions

# 3 c
dimnames(arr) <- list(
  letters[1:2], # row names
  LETTERS[1:4], # col names
  c("1st-Dimensional Array", "2nd-Dimensional Array", "3rd-Dimensional Array") # dim names
)

arr

## , , 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
```