# RWorksheet_Callanga#2

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```
install.packages("rmarkdown")
install.packages("devtools")
 tinytex::install_tinytex()

#1Create a vector using : operator
  #1.a  Sequence from -5 to 5
  seq <- -5:5
  seq
#Output
  #[1] -5 -4 -3 -2 -1  0  1  2  3  4  5
  #It will display negative and positive numbers and have a 0 at the center of it.



  #2.a  x <- 1:7. What will be the value of x?
  x <- 1:7
  x
  #Output
  #[1] 1 2 3 4 5 6 7

#2 Create a vector using seq() function
  #a seq(1, 3, by=0.2) # specify step size
  #Write the R code and its output. Describe the output.

  seq(1,3,by= 0.2)

  #Output
  #1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0
  #It increases its value by .2 until it reaches its maximum value at 3



#3 A factory has a census of its workers. There are 50 workers in total.
The following list  shows their ages:
  workers_age <- c(34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27,
                22, 37, 34, 19, 20, 57, 49, 50, 37, 46, 25, 17, 37, 43, 53, 41,
                51, 35,
                24,33, 41, 53, 40, 18, 44, 38, 41, 48, 27, 39, 19, 30, 61, 54,
                58, 26,
                18)

  #3.a  Access 3rd element, what is the value?
    workers_age[3]
```

```r
  #Output
  #[1] 22
#3.b  Access 2nd and 4th element, what are the values?
  workers_age[2]
  #Output
  #[1] 28
  workers_age[4]
  #Output
  #[1] 36


#3.c  Access all but the 1st element is not included. Write the R code and
its output.
  workers_age[2:50]
  #Output:
  #[1] 28 22 36 27 18 52 39 42 29 35 31 27 22 37 34 19 20 57 49 50 37 46 25
  17 37 43 53 41  51 35   24 33
  #[33] 41 53 40 18 44 38 41 48 27 39 19 30 61 54 58 26 18



#4 a-b Create a vector x <- c("first"=3, "second"=0, "third"=9). Then named the
vector, names(x).
  # Print the results. Then access x[c("first", "third")]. Describe the output.
  x <- c("first"=3, "second"=0, "third"=9)
  x[c("first", "third")]
  names(x)

  #Output:
  #"first" "second" "third"
  #It was only the characters that were displayed from the vector.




#5. Create a sequence x from -3:2.
  #a. Modify 2nd element and change it to 0;
x <- -3:2
x
#Output
# -3 -2 -1  0  1  2
x[2] <- 0
x

#Output:
# -3  0 -1  0  1  2
#It displays a sequence of negative and positive numbers.


#6. The following data shows the diesel fuel purchased by Mr. Cruz.

Month <- c("Jan", "Feb", "March", "Apr", "May", "June")
Price_per_liter_php <- c(52.50, 57.25, 60.00, 65.00, 74.25, 54.00)
Purchase_quantity_liter <- c(25, 30, 40, 50, 10, 45)
```

```r
#a a. Create a data frame for month, price per liter (php) and
purchase-quantity (liter). Write the codes.
data_frame <- data.frame(Month, Price_per_liter_php, Purchase_quantity_liter )
data_frame
#Output
#Month Price_per_liter_php Purchase_quantity_liter
#1    Jan              52.50                        25
#2    Feb              57.25                        30
#3 March              60.00                        40
#4    Apr              65.00                        50
#5    May              74.25                        10
#6   June              54.00                        45


#b b. What is the average fuel expenditure of Mr. Cruz from Jan to June?
Note: Use
#weighted.mean(liter, purchase)

weighted.mean(Price_per_liter_php, Purchase_quantity_liter)
#Output
#59.2625
```

#7) R has actually lots of built-in datasets. For example, the rivers data
"gives the lengths (in miles) of 141 "major" rivers in North America, as
compiled by the US Geological Survey".

```r
#a.
data <- c(length(rivers), sum(rivers), mean(rivers), median(rivers),
          var(rivers),sd(rivers), min(rivers), max(rivers))

data
#Output
#141.0000  83357.0000     591.1844     425.0000 243908.4086     493.8708
135.0000      3710.0000
```

#8. The table below gives the 25 most powerful celebrities and their annual
pay as ranked by the editions of Forbes magazine and as listed on the
Forbes.com website.

```r
PowerRanking <- 1:25

  #a. Create vectors according to the above table. Write the codes.
CelebrityName <- c("Tom Cruise", "Rolling Stones", "Oprah Winfrey", "U2",
                "Tiger Woods", "Steven Spielberg", "Howard Stern",
                "50 Cent", "Cast of the sopranos",
                "Dan Brown", "Bruce Springsteen", "Donald Trump",
                "Muhammad Ali", "Paul McCartney",
                "George Lucas", "Elton John", "David Letterman",
                "Phil Mickelson", "J.K Rowling",
                "Bradd Pitt", "Peter Jackson", "Dr. Phil McGraw",
                "Jay Lenon", "Celine Dion", "Kobe Bryant")
Pay <- c(67, 90, 225, 110, 90, 332, 302, 41, 52, 88, 55, 44, 55, 40,
233, 34, 40, 47, 75, 25, 39, 45, 32, 40, 31)
```

```
Data_Ranking <- data.frame(PowerRanking, CelebrityName, Pay)
Data_Ranking


#b    Modify the power ranking and pay of J.K. Rowling. Change power ranking
to 15 and pay to 90. Write the codes and its output.
PowerRanking [19] <- 15
PowerRanking
#Output
# 1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 15 20 21 22 23 24 25


Pay [19] <- 90
Pay


#Output
#67  90 225 110  90 332 302  41  52  88  55  44  55  40 233  34  40  47  90
25  39  45  32  40
#31


#c    Interpret the data.
Magazine_Ranking <- data.frame(PowerRanking, CelebrityName, Pay)
Magazine_Ranking


#Output
#    PowerRanking        CelebrityName Pay
# 1             1            Tom Cruise  67
# 2             2        Rolling Stones  90
# 3             3         Oprah Winfrey 225
# 4             4                    U2 110
# 5             5           Tiger Woods  90
# 6             6      Steven Spielberg 332
# 7             7          Howard Stern 302
# 8             8               50 Cent  41
# 9             9 Cast of the sopranos  52
# 10           10             Dan Brown  88
# 11           11     Bruce Springsteen  55
# 12           12          Donald Trump  44
# 13           13          Muhammad Ali  55
# 14           14        Paul McCartney  40
# 15           15          George Lucas 233
# 16           16            Elton John  34
# 17           17        David Letterman  40
# 18           18        Phil Mickelson  47
# 19           15           J.K Rowling  90
# 20           20            Bradd Pitt  25
# 21           21         Peter Jackson  39
# 22           22       Dr. Phil McGraw  45
# 23           23             Jay Lenon  32
# 24           24            Celine Dion  40
# 25           25           Kobe Bryant  31
```

## 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:
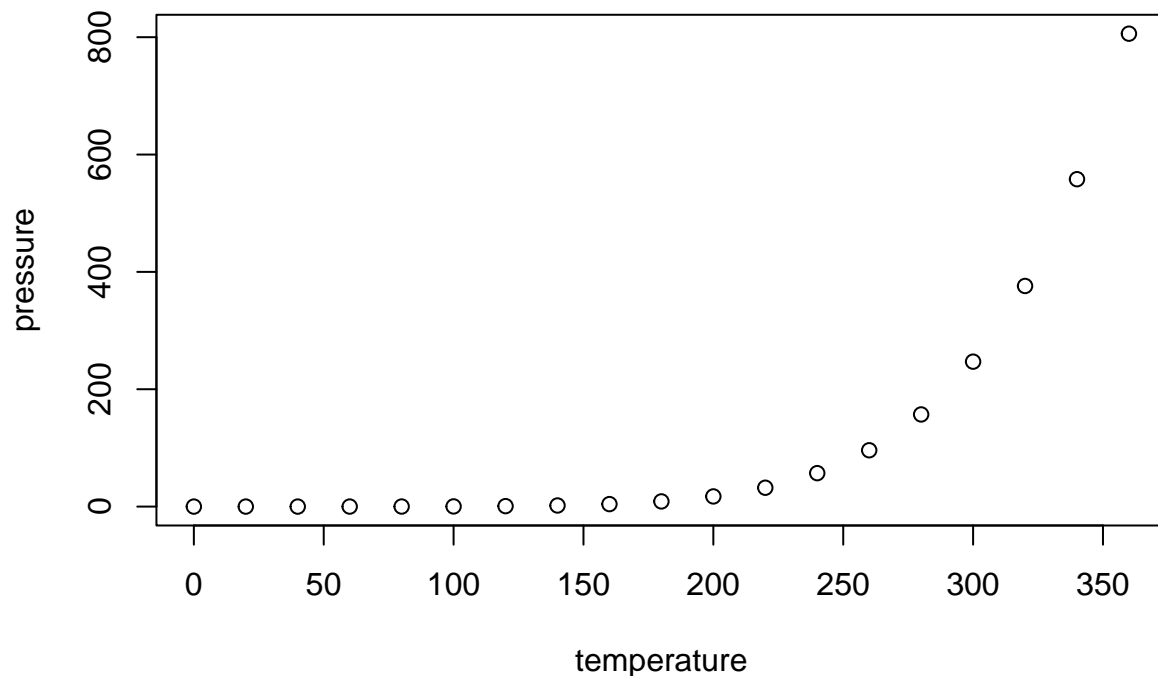


Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.