WORKSHEET 2

LG GRACE SABIO BSIT 2-A

2022-10-06

```
#1. Create a vector using : operator
#a. Sequence from -5 to 5. Write the R code and its output.Describe its output.
x <- -5:5
x
# [1] -5 -4 -3 -2 -1  0  1  2  3  4  5
#Describe its output.
# - The output displays the sequence of number from -5 up to 5.

#b. x <- 1:7. What will be the value of x?
x <- 1:7
x


#2.* Create a vector using seq() function
#a. seq(1, 3, by=0.2) #specify step size - The step size is by 0.2s.
#Write the R code and its output.
seq(1, 3, by=0.2)
# [1] 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0
#Describe its output.
# - The output displays the sequence of numbers from 1.0
#   until 3.0 with the difference of 0.2


#3. A factory has a census of its workers. There are 50 workers in total.
#The following list shows their ages: 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.
list_data <- 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)
#a. Access 3rd element, what is the value?
third <- list_data[[3]]
third
#what is the value?
#   [1] 22

#b. Access 2nd and 4th element, what are the values?
second <- list_data[[2]]
forth <- list_data[[4]]
elements <- c(second,forth)
elements
#what are the values?
```

```
#    [1] 28 36

#c. Access all but the 1st element is not included. Write the R code and its output.
removefirst <- list_data[2:50]
removefirst
#[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
#[30] 35 24 33 41 53 40 18 44 38 41 48 27 39 19 30 61 54 58 26


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

#Then access x[c("first", "third")
x[c("first", "third")]

#Describe the output.
#   - The output displays the "first" and "third" character horizontally and it create another
#     row under it with the respective values of the characters inputted.

#b. Write the code and its output
#x[c("first", "third")]

#first third
#   3     9

#5. Create a sequence x from -3:2.
x <- -3:2
x

#a. Modify 2nd element and change it to 0;
x[2] <- 0
x
#Describe the output.
#    - The 2nd element of sequence x or the -2 modifies or changes into 0 value

#b. Write the code and its output.
#x[2] <- 0
#x

#[1] -3  0 -1  0  1  2


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

diesel_data <- data.frame(
  Month = c("Price per liter(PhP)", "Purchase-quantity(Liters)") ,
  Jan = c("52.50" , "25"),
  Feb = c("57.25", "30"),
  March = c("60.00", "40"),
  Apr= c("65.00", "50"),
```

```
  May = c("74.25", "10"),
  June = c("54.00", "45")
)
diesel_data

#b. What is the average fuel expenditure of Mr. Cruz from Jan to June?
#Note: Use weighted.mean(liter, purchase)
liter <- c(52.50, 57.25, 60.00, 65.00, 74.25, 54.00)
liter
purchase <- c(25, 30, 40, 50, 10, 45)
purchase
weighted.mean(liter, purchase)


#7. R has actually lots of built-in data sets. For example, the rivers data "gives the lengths
#(in miles) of 141 "major" rivers in North America, as compiled by the US GeologicalSurvey".
#a. Type "rivers" in your R console. Create a vector data with 7 elements, containing the
#number of elements (length) in rivers,their sum (sum), mean (mean), median (median),
#variance (var) standard deviation (sd), minimum (min) and maximum (max).

rivers
data <- c(length(rivers), sum(rivers), mean(rivers), median(rivers), var(rivers),
          sd(rivers), min(rivers), max(rivers))
data

#b. What are the results?
#[1] 141.0000  83357.0000    591.1844    425.0000 243908.4086    493.8708    135.0000
#[8]   3710.0000

#c. Write the code and its outputs.
#rivers
#data <- c(length(rivers), sum(rivers), mean(rivers), median(rivers), var(rivers),
#          sd(rivers), min(rivers), max(rivers))
#data

#[1]    141.0000  83357.0000    591.1844    425.0000 243908.4086    493.8708    135.0000
#[8]   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.

#a. Create vectors according to the above table. Write the codes.
Magazine_data <- data.frame(
PowerRanking = c(1:25),
CelebrityName = c("Tom Cruise","Rolling Stones", "Oprah Winfrey","U2",
                  "Tiger Woods","Steven Speilberg","Howarf Stern","50 Cent",
                  "Cast of the sopranos","Dan Brown","Bruce Springsteen",
                  "Donald Trump","Muhammand 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 Bryan"),
Pay = c(67,90,225,110,90,32,302,41,52,88,55,44,55,40,233,34,40,47,75,25,39,45,32,40,31)
)
```

```
Magazine_data

#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.
Magazine_data[19,"PowerRanking"] <- 15
Magazine_data[19,"Pay"] <- 90
Magazine_data
#    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 Speilberg  32
#7              7          Howarf 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         Muhammand 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 Bryan   31

#c. Interpret the data.
#   - The data shows that the Power Ranking and Pay of a Celebrity named J.K. Rowling
#     was modified. Its power ranking was changed, and the sequence of power ranking of
#     the table became disordered given that the power ranking of J.K. Rowling which is 19
#     was changed into 15 as well its pay from 75 to 90.
```

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:

```
{r cars} summary(cars)
```

Including Plots

You can also embed plots, for example:

```
{r pressure, echo=FALSE} plot(pressure)
```

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