RWorksheet_Cartoja-2

Jhona Mae Cartoja

2022-10-08

Instructions: • Use RStudio or the RStudio Cloud accomplish this worksheet. + Save the R script as RWorksheet_lastname#2.R. • Create your own GitHub repository and push the R script as well as this pdf worksheet to your own repo. Accomplish this worksheet by answering the questions being asked and writing the code manually. Using Vectors

1. Create a vector using : operator a. Seq from -5 to 5.

```
x <- -5:5
x
```

```
##  [1] -5 -4 -3 -2 -1  0  1  2  3  4  5
```

```
#The output produces values from numbers -5 to 5.
```

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

```
x <- 1:7.
x
```

```
## [1] 1 2 3 4 5 6 7
```

```
#The value of x are numbers from 1 to 7 in sequence, that is, 1, 2, 3, 4, 5, 6, 7.
```

2.* Create a vector using seq() function a. seq(1, 3, by=0.2) specify step size

```
num <- seq(1, 3, 0.2)
num
```

```
##  [1] 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0
```

```
#The output is numbers from 1 to 3 sequently with a decimal 0.2 in between, that is 1.0 1.2 1.4 1.6 1.8
```

3. A factory has a census of its workers. There are 50 workers in total. The following list shows their ages:

```
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)
age
```

```
##  [1] 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
## [26] 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?
age[3]
```

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

```
#The value in the 3rd element is 22.

#b. Access 2nd and 4th element, what are the values?
age[2]
```

```
## [1] 28
```

```
age[4]
```

```
## [1] 36
```

```
#The value in the 2nd element is 28 and in the fourth element is 36.

#c. Access all but the 1st element is not included
age[2:50]
```

```
##  [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
## [26] 43 53 41 51 35 24 33 41 53 40 18 44 38 41 48 27 39 19 30 61 54 58 26 18
```

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

```
x <- c("first"=3, "second"=0, "third"=9)
x
```

```
##  first second  third 
##      3      0      9
```

```
x[c("first", "third")]
```

```
## first third 
##     3     9
```

```
x
```

```
##  first second  third 
##      3      0      9
```

```
#The program output assigned integer value in the string named "first" and "third" using square bracket
```

5 create a sequence x from -3:2. a. Modify 2nd element and change it to 0;

```
x <- seq(-3:2)
x[2] <- 0
x
```

```
## [1] 1 0 3 4 5 6
```

6.*The following data shows the diesel fuel purchased by Mr. Cruz. a. Create a data frame for month, price per liter (php) and purchase quantity (liter).

```
data_frame <- data.frame(Month =c("price_per_liter_php", "purchase_quantity_liter"),
Jan = c("52.50","25"),Feb = c("57.25","30"),March = c("60.00","40"),Apr = c("65.00","50"),May = c("74.2
data_frame
```

```
##                     Month   Jan   Feb March   Apr   May  June
## 1     price_per_liter_php 52.50 57.25 60.00 65.00 74.25 54.00
## 2 purchase_quantity_liter    25    30    40    50    10    45
```

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

```
price_per_liter_php <- c(52.50, 57.25, 60.00, 65.00, 74.25, 54.00)
price_per_liter_php
```

```
## [1] 52.50 57.25 60.00 65.00 74.25 54.00
```

```
purchase_quantity_liter <- c(25, 30, 40, 50, 10, 45)
purchase_quantity_liter
```

```
## [1] 25 30 40 50 10 45
```

```
weighted.mean(price_per_liter_php, purchase_quantity_liter )
```

```
## [1] 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". 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).

```
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
## [7]     135.0000   3710.0000
```

b. What are the results? The results displayed a number answers needed with the function lenght, sum, mean, median, var, sd, min, and max used with the elements of rivers.

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

```
power <- 1:25
celebrities <- 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 Bryan
x<- 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(power, celebrities, x)
Data_Ranking
```

```
##    power          celebrities   x
## 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     19           J.K Rowling  75
## 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
```

b. Modify the power ranking and pay of J.K. Rowling. Change power ranking to 15 and pay to 90.

```
power [19]<-15
power
```

```
##  [1]  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
```

```
x [19] <-90
x
```

```
##  [1]  67  90 225 110  90 332 302  41  52  88  55  44  55  40 233  34  40  47  90
## [20]  25  39  45  32  40  31
```

```
Magazine_Rank <- data.frame(power, celebrities, x)
Magazine_Rank
```

```
##    power          celebrities   x
## 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
```

c. Interpret the data.

The data was changed by: (1)declaring the object name of the data frame, (2) using brackets[]. Accessing the rank number,(3) by the vector name, where the values need to change, and lastly by declaring the object name again to access the modified data. JK Rowling's rank was changed from 19 to 15 and her annual pay was changed from 75 to 90.