Modulo 2 - Markdown

julio

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Pregunta 1

A partir de los siguientes vectores, responda las siguientes preguntas:

```
x1 <- c(10,8,13,9,11,14,6,4,12,7,5)
y1 = c(8.04, 6.95, 7.58, 8.81, 8.33, 9.96, 7.24, 4.26, 10.84, 4.82, 5.68)
```

La media de x1 es 9

La suma de los elementos de la variable x1 es sum(x1)

(a) Ordene los elementos del vector en orden creciente

```
sort(x1)
```

```
##  [1]  4  5  6  7  8  9 10 11 12 13 14
```

```
x1[order(x1)]
```

```
##  [1]  4  5  6  7  8  9 10 11 12 13 14
```

(b) Ordenar de forma decreciente

```
sort(x1, decreasing = TRUE)
```

```
##  [1] 14 13 12 11 10  9  8  7  6  5  4
```

```
x1[order(x1, decreasing = TRUE)]
```

```
##  [1] 14 13 12 11 10  9  8  7  6  5  4
```

(c) calculen las medias aritmeticas x_1 y x_2, usando la siguiente formula:

$$\overline{x} = \frac{\sum_{i=1}^{n} x_i}{n}$$

```r
mean(x1)
```

```
## [1] 9
```

```r
mean(y1)
```

```
## [1] 7.500909
```

(d) calcule las desviaciones estandar de x_1 y x_2

$$s = \sqrt{\frac{\sum_{i=1}^{n}(x_i - \bar{x})^2}{n-1}}$$

```r
sd(x1)
```

```
## [1] 3.316625
```

```r
sd(y1)
```

```
## [1] 2.031568
```

(f) calcule la mediana de x_1

```r
median(x1)
```

```
## [1] 9
```

```r
quantile(x1,0.5)
```

```
## 50%
##   9
```

#pregunta 7

```r
z = rnorm(10000)
```

```r
skewness <- (sum((z -mean(z))^3)/length(z))/(sum((z -mean(z))^2)/length(z))^1.5
skewness
```

```
## [1] -0.01282903
```

```r
library(summarytools)
```

```
## Registered S3 method overwritten by 'pryr':
##   method      from
##   print.bytes Rcpp
```

```
## For best results, restart R session and update pander using devtools:: or remotes::install_github('r
```

```r
descr(z)
```

```
## Warning: 'funs()' is deprecated as of dplyr 0.8.0.
## Please use a list of either functions or lambdas:
##
##   # Simple named list:
##   list(mean = mean, median = median)
##
##   # Auto named with 'tibble::lst()':
##   tibble::lst(mean, median)
##
##   # Using lambdas
##   list(~ mean(., trim = .2), ~ median(., na.rm = TRUE))
## This warning is displayed once every 8 hours.
## Call 'lifecycle::last_warnings()' to see where this warning was generated.

## Descriptive Statistics
## z
## N: 10000
##
##                            z
## ----------------- ----------
##              Mean       0.00
##           Std.Dev       1.00
##               Min      -3.68
##                Q1      -0.66
##            Median      -0.01
##                Q3       0.66
##               Max       3.67
##               MAD       0.98
##               IQR       1.32
##                CV    -667.22
##          Skewness      -0.01
##       SE.Skewness       0.02
##          Kurtosis       0.06
##           N.Valid   10000.00
##         Pct.Valid     100.00
```

pregunta 9

(a)

```r
lista_A = list(a = seq(8,36,4), b = list("hola","como estas"), c= 5)
lista_A
```

```
## $a
## [1]   8 12 16 20 24 28 32 36
##
## $b
## $b[[1]]
## [1] "hola"
```

```
## 
## $b[[2]]
## [1] "como estas"
## 
## 
## $c
## [1] 5
```

(b)

```
lista_A
```

```
## $a
## [1]  8 12 16 20 24 28 32 36
## 
## $b
## $b[[1]]
## [1] "hola"
## 
## $b[[2]]
## [1] "como estas"
## 
## 
## $c
## [1] 5
```

```
str(lista_A)
```

```
## List of 3
##  $ a: num [1:8] 8 12 16 20 24 28 32 36
##  $ b:List of 2
##   ..$ : chr "hola"
##   ..$ : chr "como estas"
##  $ c: num 5
```

(c)

```
lista_A[1:2]
```

```
## $a
## [1]  8 12 16 20 24 28 32 36
## 
## $b
## $b[[1]]
## [1] "hola"
## 
## $b[[2]]
## [1] "como estas"
```

```r
lista_A[c("a","b")]
```

```
## $a
## [1]   8 12 16 20 24 28 32 36
##
## $b
## $b[[1]]
## [1] "hola"
##
## $b[[2]]
## [1] "como estas"
```

(d)

```r
lista_A[["b"]][2]
```

```
## [[1]]
## [1] "como estas"
```

#PREGUNTA 10

```r
library(tibble)
```

```
##
## Attaching package: 'tibble'

## The following object is masked from 'package:summarytools':
##
##     view
```

```r
tb <- tibble(x1 = c(10, 8, 13, 9, 11),
             x2 = 5,
             x3 = x1 + x2,
             x4 = list(1:3, 3:4, 1:5, 2:7, 3))
tb
```

```
## # A tibble: 5 x 4
##      x1    x2    x3 x4
##   <dbl> <dbl> <dbl> <list>
## 1    10     5    15 <int [3]>
## 2     8     5    13 <int [2]>
## 3    13     5    18 <int [5]>
## 4     9     5    14 <int [6]>
## 5    11     5    16 <dbl [1]>
```

```r
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag


## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
glimpse(tb)
```

```
## Rows: 5
## Columns: 4
## $ x1 <dbl> 10, 8, 13, 9, 11
## $ x2 <dbl> 5, 5, 5, 5, 5
## $ x3 <dbl> 15, 13, 18, 14, 16
## $ x4 <list> [<1, 2, 3>, <3, 4>, <1, 2, 3, 4, 5>, <2, 3, 4, 5, 6, 7>, 3]
```

#PREGUNTA 11

ZONA	hombres	mujeres
A	800	700
B	200	300
C	700	600
D	300	400

```
library(tibble)

muestra_total_tb <- tibble(zona = c("A","B","C","D"),
                           hombres = c(800,200,700,300),
                           mujeres = c(700,300,600,400))
```

```
muestra_total_tb
```

```
## # A tibble: 4 x 3
##   zona  hombres mujeres
##   <chr>   <dbl>   <dbl>
## 1 A         800     700
## 2 B         200     300
## 3 C         700     600
## 4 D         300     400
```

```
summary(muestra_total_tb)
```

```
##      zona              hombres        mujeres
##  Length:4           Min.   :200   Min.   :300
##  Class :character   1st Qu.:275   1st Qu.:375
##  Mode  :character   Median :500   Median :500
##                     Mean   :500   Mean   :500
##                     3rd Qu.:725   3rd Qu.:625
##                     Max.   :800   Max.   :700
```

```r
library(dplyr)
glimpse(muestra_total_tb)
```

```
## Rows: 4
## Columns: 3
## $ zona    <chr> "A", "B", "C", "D"
## $ hombres <dbl> 800, 200, 700, 300
## $ mujeres <dbl> 700, 300, 600, 400
```

```r
str(muestra_total_tb)
```

```
## tibble [4 x 3] (S3: tbl_df/tbl/data.frame)
##  $ zona   : chr [1:4] "A" "B" "C" "D"
##  $ hombres: num [1:4] 800 200 700 300
##  $ mujeres: num [1:4] 700 300 600 400
```

```r
head(muestra_total_tb, n = 3)
```

```
## # A tibble: 3 x 3
##   zona  hombres mujeres
##   <chr>   <dbl>   <dbl>
## 1 A         800     700
## 2 B         200     300
## 3 C         700     600
```

```r
slice_head(muestra_total_tb, n = 3)
```

```
## # A tibble: 3 x 3
##   zona  hombres mujeres
##   <chr>   <dbl>   <dbl>
## 1 A         800     700
## 2 B         200     300
## 3 C         700     600
```

```r
tail(muestra_total_tb, n = 2)
```

```
## # A tibble: 2 x 3
##   zona  hombres mujeres
##   <chr>   <dbl>   <dbl>
## 1 C         700     600
## 2 D         300     400
```

```r
slice_tail(muestra_total_tb, n = 2)
```

```
## # A tibble: 2 x 3
##   zona  hombres mujeres
##   <chr>   <dbl>   <dbl>
## 1 C         700     600
## 2 D         300     400
```

```
#DPYR
```

```
muestra_total_tb %>% slice_head(n = 3)
```

```
## # A tibble: 3 x 3
##   zona  hombres mujeres
##   <chr>   <dbl>   <dbl>
## 1 A         800     700
## 2 B         200     300
## 3 C         700     600
```

```
muestra_total_tb %>% slice_tail(n = 2)
```

```
## # A tibble: 2 x 3
##   zona  hombres mujeres
##   <chr>   <dbl>   <dbl>
## 1 C         700     600
## 2 D         300     400
```