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INSTITUTO TECNOLÓGICO DE TIJUANA

SUBDIRECCIÓN ACADÉMICA
DEPARTAMENTO DE INGENIERÍA EN SISTEMAS
COMPUTACIONALES

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MATERIA:

Minería de datos.

UNIDAD 1

Practica 2.

DOCENTE:

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Funciones

Practique encontrar 20 funciones más en R y haga un ejemplo de ello.

1. Rnorm: función que toma números aleatorios de -1 a 1.

The screenshot shows the RStudio interface. The script editor on the left contains the following code:

```
1 # Error: función que toma números aleatorios de -1 a 1.  
2 rnorm(5)
```

The console at the bottom shows the output of the `rnorm(5)` function:

```
[1] 2.22823672 0.16566304 -0.07811512 -0.12147751  
[5] -0.93244547
```

The Environment pane on the right shows the global environment with variables: `answer` (68.2024), `counter` (682024), `i` (1.81008343980484), `my.data` (1x20), `N` (15), and `ranNum` (1e+06).

2. Trunc: función que elimina decimales de un número.

The screenshot shows the RStudio interface. The script editor on the left contains the following code:

```
1 #1- Error: función que toma números aleatorios de -1 a 1.  
2 rnorm(5)  
3 #2- Trunc: función que elimina decimales de un número.  
4 trunc(5.789)
```

The console at the bottom shows the output of the `trunc(5.789)` function:

```
[1] 5
```

The Environment pane on the right shows the global environment with variables: `answer` (68.2024), `counter` (682024), `i` (1.81008343980484), `my.data` (1x20), `N` (15), and `ranNum` (1e+06).

3. Números diferentes.

The screenshot displays the RStudio environment with three main panels:

- Script Editor:** Contains the following R code:

```
1 #1- rnorm: función que toma números aleatorios de -1 a 1.  
2 rnorm(5)  
3 #2. 2. Trunc: función que elimina decimales de un numero  
4 trunc(5.789)  
5 #3. Números diferentes.  
6 5 != 8
```
- Environment Panel:** Shows the Global Environment with a search bar and a list of objects. The 'Data' tab is active, displaying a table of values:

Object	Value
A	int [1:4, 1:5] 1 2 3 4 5 6 7 8...
answer	68.2024
C	0
counter	682024
i	1.81008343980484
my.data	int [1:20] 1 2 3 4 5 6 7 8 9 10 ...
N	15
ranNum	1e+06
- Console:** Shows the R session output:

```
R 4.1.2 · ~/ ·  
R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.  
  
R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.  
  
Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.  
  
[workspace loaded from ~/.RData]  
  
> rnorm(5)  
[1] 2.22823672 0.16566304 -0.07811512 -0.12147751  
[5] -0.93244547  
> trunc(5.789)  
[1] 5  
> 5 != 8  
[1] TRUE  
> |
```

4. función para concatenar.

The screenshot displays the RStudio interface with the following components:

- Source Editor:** Contains R code with comments in Spanish explaining the functions used for concatenation.
- Environment/History:** Shows the objects created in the global environment, including a data frame with variables like 'answer', 'C', 'counter', 'i', 'my.data', 'N', 'ranNum', 't', and 'x'.
- Console:** Shows the execution of the code, resulting in the concatenation of the vectors 'x' and 't'.

Source Editor Code:

```
1 #1- Rnorm: función que toma números aleatorios de -1 a 1.  
2 rnorm(5)  
3 #2. 2. Trunc: función que elimina decimales de un número.  
4 trunc(5.789)  
5 #3. Números diferentes.  
6 5 != 8  
7 #4. Esta función es para concatenar  
8 x <- c(2,4,6)  
9 t <- c("One", "two", "Three")  
10 x; t
```

Environment/History Data:

Object	Class	Value
A	int [1:4, 1:5]	1 2 3 4 5 6 7 8 ...
answer	double	68.2024
C	double	0
counter	double	682024
i	double	1.81008343980484
my.data	int [1:20]	1 2 3 4 5 6 7 8 9 10 ...
N	double	15
ranNum	double	1e+06
t	chr [1:3]	"one" "two" "Three"
x	num [1:3]	2 4 6

Console Output:

```
> x <- c(2,4,6)  
> t <- c("One", "two", "Three")  
> x; t  
[1] 2 4 6  
[1] "One" "two" "Three"  
>
```

5. Asignar nombres a elementos.

The screenshot shows the R Studio interface. The script editor on the left contains the following code:

```
1 #1- Rnorm: función que toma números aleatorios de -1 a 1.
2 rnorm(5)
3 #2. 2. Trunc: función que elimina decimales de un número
4 trunc(5.789)
5 #3. Números diferentes.
6 5 != 8
7 #4. Esta función es para concatenar
8 x <- c(2,4,6)
9 t <- c("One", "two", "three")
10 x; t
11 #5. Asignar nombres a elementos.
12 n <- c(2,4,6)
13 names(n) <- c("I", "II", "III")
14 n
15 |
```

The console on the bottom left shows the output of the commands:

```
> x <- c(2,4,6)
> t <- c("One", "two", "three")
> x; t
[1] 2 4 6
[1] "One" "two" "three"
> n <- c(2,4,6)
> names(n) <- c("I", "II", "III")
> n
  I  II III
2  4  6
```

The Environment pane on the right shows the objects created in the global environment:

Object	Value
A	int [1:4, 1:5] 1 2 3 4 5 6 7 8 ...
answer	68.2024
c	0
counter	682024
i	1.81008343980484
my.data	int [1:20] 1 2 3 4 5 6 7 8 9 10 ...
n	Named num [1:3] 2 4 6
N	15
ranNum	1e+06
t	chr [1:3] "One" "two" "three"
x	num [1:3] 2 4 6

6. Sqrt: función que calcula raíz cuadrada.

The screenshot shows the R Studio interface. The script editor on the left contains the following code:

```
1 #1- Rnorm: función que toma números aleatorios de -1 a 1.
2 rnorm(5)
3 #2. 2. Trunc: función que elimina decimales de un número
4 trunc(5.789)
5 #3. Números diferentes.
6 5 != 8
7 #4. Esta función es para concatenar
8 x <- c(2,4,6)
9 t <- c("One", "two", "three")
10 x; t
11 #5. Asignar nombres a elementos.
12 n <- c(2,4,6)
13 names(n) <- c("I", "II", "III")
14 n
15 #6. Sqrt: función que calcula raíz cuadrada.
16 sqrt(64)
```

The console on the bottom left shows the output of the commands:

```
> x <- c(2,4,6)
> t <- c("One", "two", "three")
> x; t
[1] 2 4 6
[1] "One" "two" "three"
> n <- c(2,4,6)
> names(n) <- c("I", "II", "III")
> n
  I  II III
2  4  6
> sqrt(64)
[1] 8
```

The Environment pane on the right shows the objects created in the global environment:

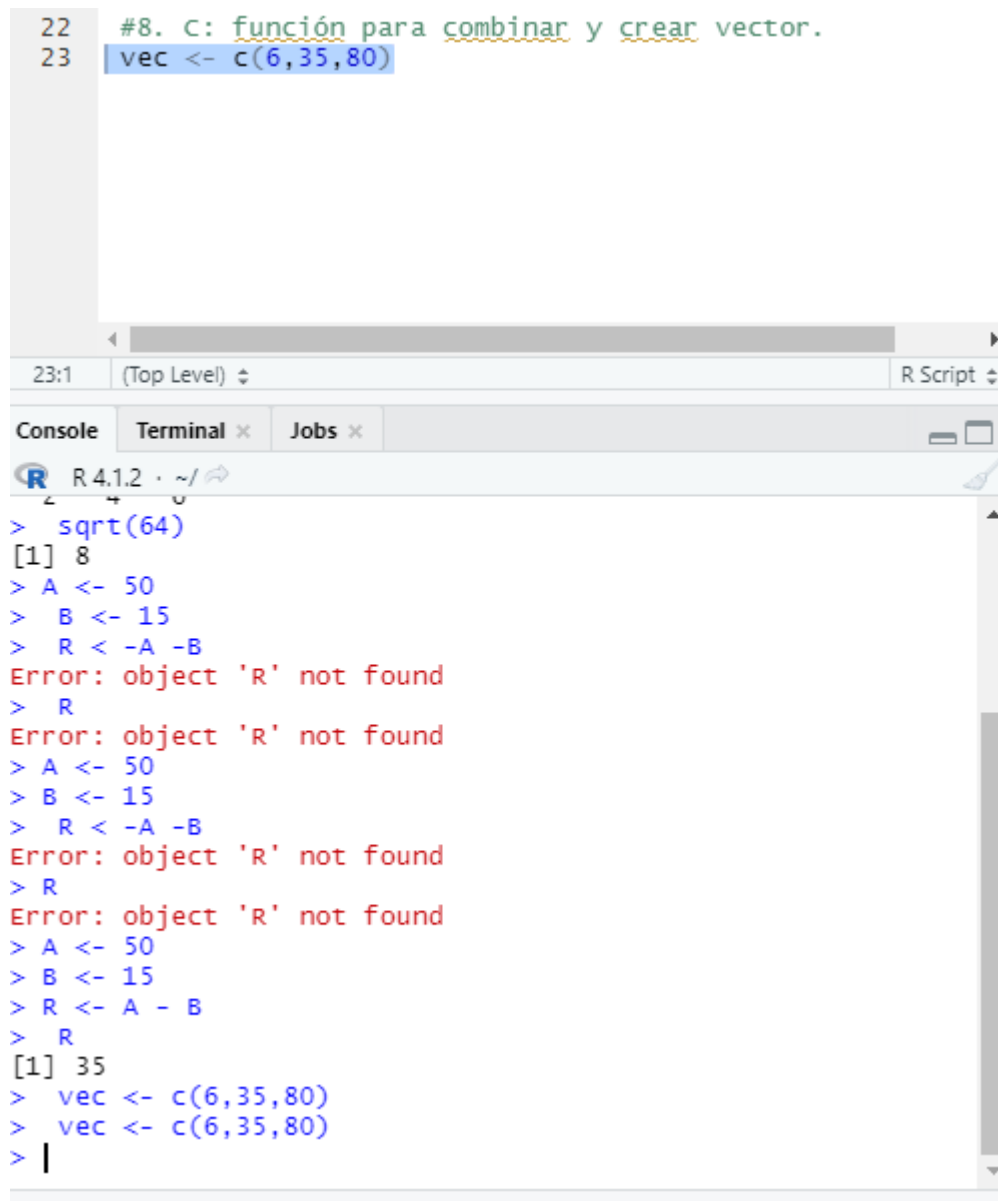
Object	Value
A	int [1:4, 1:5] 1 2 3 4 5 6 7 8 ...
answer	68.2024
c	0
counter	682024
i	1.81008343980484
my.data	int [1:20] 1 2 3 4 5 6 7 8 9 10 ...
n	Named num [1:3] 2 4 6
N	15
ranNum	1e+06
t	chr [1:3] "One" "two" "three"
x	num [1:3] 2 4 6

7. Operación sencilla con variables.

```
> A <- 50  
> B <- 15  
> R <- A - B  
> R  
[1] 35  
> |
```

8. C: función para combinar y crear vector.

```
22 #8. c: función para combinar y crear vector.  
23 vec <- c(6,35,80)
```



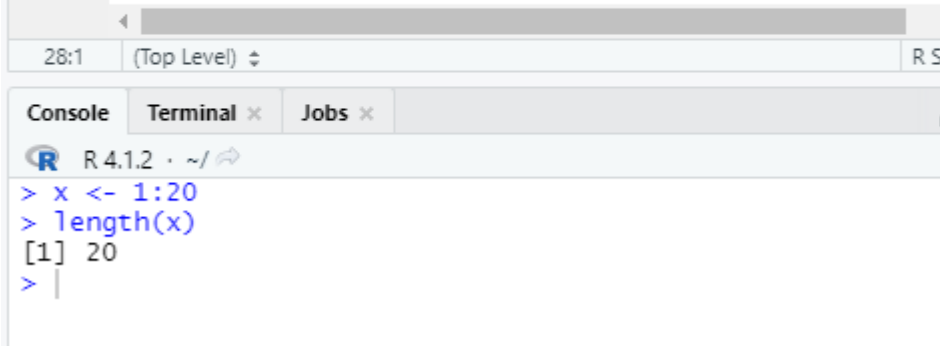
```
> sqrt(64)  
[1] 8  
> A <- 50  
> B <- 15  
> R <- -A -B  
Error: object 'R' not found  
> R  
Error: object 'R' not found  
> A <- 50  
> B <- 15  
> R <- -A -B  
Error: object 'R' not found  
> R  
Error: object 'R' not found  
> A <- 50  
> B <- 15  
> R <- A - B  
> R  
[1] 35  
> vec <- c(6,35,80)  
> vec <- c(6,35,80)  
> |
```

9. adicionar un número.

```
> suma(x=4, y=6)
[1] 10
> |
```

10. muestra el número de elementos de un vector.

```
26 #10. muestra el número de elementos de un vector.
27 x <- 1:20
28 length(x)
```



```
28:1 (Top Level) ↕ R S
```

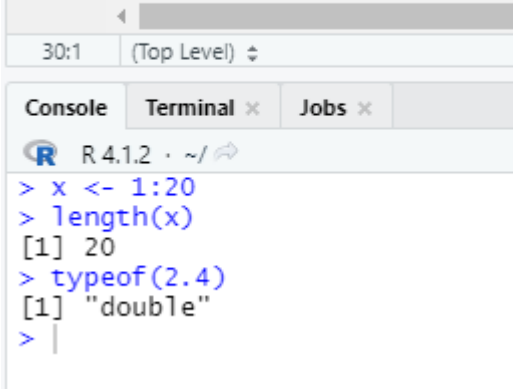
Console Terminal x Jobs x

R 4.1.2 · ~/

```
> x <- 1:20
> length(x)
[1] 20
> |
```

11. tipo de dato.

```
29 #11. tipo de dato
30 typeof(2.4)
```



```
30:1 (Top Level) ↕
```

Console Terminal x Jobs x


R 4.1.2 · ~/

```
> x <- 1:20
> length(x)
[1] 20
> typeof(2.4)
[1] "double"
> |
```


12. función que escribe texto sobre la variable.

```
> x <- 2
> and <- 4
> cat (x, "raised to", y, "is", x ^ y, "\ n")
2 raised to 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 is 2 4 8 16 32 64 128 256 512 1024 2
048 4096 8192 16384 32768 65536 131072 262144 524288 1048576 n
```

13. Generar n números aleatorios entre inicio y final de ejecución

```
6 #  
7 runif(10,0,30)  
1 (Top Level) ↕ R Sc  
sole Terminal x Jobs x  
R 4.1.2 · ~/   
runif(10,0,30)  
] 21.551536 1.075283 17.154343 21.151409 4.539453 3.466495 26.109793  
] 27.652230 20.877220 8.020419
```

14. Devuelve el número máximo de vectores

```
38 #14. Devuelve el número máximo de vectores  
39 y <- 1:20  
40 max(y)  
41  
38:42 (Top Level) ↕ R S  
Console Terminal x Jobs x  
R 4.1.2 · ~/   
> runif(10,0,30)  
[1] 21.551536 1.075283 17.154343 21.151409 4.539453 3.466495 26.109793  
[8] 27.652230 20.877220 8.020419  
> #14.  
> y <- 1:20 max(y)  
Error: unexpected symbol in "y <- 1:20 max"  
> y <- 1:20 max(y)  
Error: unexpected symbol in "y <- 1:20 max"  
> y <- 1:20  
> max(y)  
[1] 20  
> |
```

15. Redondea un número con los decimales indicados


```
41 #15. Redondea un numero con los decimales indicados
42 round(10.98)
43
```

42:1 (Top Level) ↕ R Script

Console Terminal x Jobs x

R 4.1.2 · ~/

```
> runif(10,0,30)
[1] 21.551536 1.075283 17.154343 21.151409 4.539453 3.466495 26.109793
[8] 27.652230 20.877220 8.020419
> #14.
> y <- 1:20 max(y)
Error: unexpected symbol in "y <- 1:20 max"
> y <- 1:20 max(y)
Error: unexpected symbol in "y <- 1:20 max"
> y <- 1:20
> max(y)
[1] 20
> round(10.98)
[1] 11
> |
```

16. Devuelve el número medio de vector

```
43 #16. Devuelve el número medio de vector
44 y <- 1:20
45 min(y)
```

45:1 (Top Level) ↕ R Script

Console Terminal x Jobs x

R 4.1.2 · ~/

```
> runif(10,0,30)
[1] 21.551536 1.075283 17.154343 21.151409 4.539453 3.466495 26.109793
[8] 27.652230 20.877220 8.020419
> #14.
> y <- 1:20 max(y)
Error: unexpected symbol in "y <- 1:20 max"
> y <- 1:20 max(y)
Error: unexpected symbol in "y <- 1:20 max"
> y <- 1:20
> max(y)
[1] 20
> round(10.98)
[1] 11
> y <- 1:20
> min(y)
[1] 1
> |
```

17. Mostrar el promedio de los datos.

```

46 #17. Mostrar el promedio de los datos.
47 z <- 1:20
48 mean(z)
48:1 (Top Level) ↕

```

Console Terminal × Jobs ×

R 4.1.2 · ~/

```

> runif(10,0,30)
[1] 21.551536 1.075283 17.154343 21.151409 4.539453 3.4664
[8] 27.652230 20.877220 8.020419
> #14.
> y <- 1:20 max(y)
Error: unexpected symbol in "y <- 1:20 max"
> y <- 1:20 max(y)
Error: unexpected symbol in "y <- 1:20 max"
> y <- 1:20
> max(y)
[1] 20
> round(10.98)
[1] 11
> y <- 1:20
> min(y)
[1] 1
> z <- 1:20
> mean(z)
[1] 10.5
>

```

18. Mostrar los tres primeros datos

```

49 #18. Mostrar los tres primeros datos
50 z <- 1:20
51 head(z)
52
51:1 (Top Level) ↕

```

Console Terminal × Jobs ×

R 4.1.2 · ~/

```

> runif(10,0,30)
[1] 21.551536 1.075283 17.154343 21.151409 4.539453 3.
[8] 27.652230 20.877220 8.020419
> #14.
> y <- 1:20 max(y)
Error: unexpected symbol in "y <- 1:20 max"
> y <- 1:20 max(y)
Error: unexpected symbol in "y <- 1:20 max"
> y <- 1:20
> max(y)
[1] 20
> round(10.98)
[1] 11
> y <- 1:20
> min(y)
[1] 1
> z <- 1:20
> mean(z)
[1] 10.5
> z <- 1:20
> head(z)
[1] 1 2 3 4 5 6
>

```

19. Mostrar los últimos tres datos

```

52 #19. Mostrar los últimos tres datos
53 z <- 1:20
54 tail(z)

```

54:1 (Top Level) ⚡

Console Terminal x Jobs x

R 4.1.2 · ~/

```

> y <- 1:20 max(y)
Error: unexpected symbol in "y <- 1:20 max"
> y <- 1:20 max(y)
Error: unexpected symbol in "y <- 1:20 max"
> y <- 1:20
> max(y)
[1] 20
> round(10.98)
[1] 11
> y <- 1:20
> min(y)
[1] 1
> z <- 1:20
> mean(z)
[1] 10.5
> z <- 1:20
> head(z)
[1] 1 2 3 4 5 6
> z <- 1:20
> tail(z)
[1] 15 16 17 18 19 20
>

```

20. Crear una matriz unidimensional

```

55 #20. Crear una matriz unidimensional
56 x <- matrix(4:10)
57 x

```

57:1 (Top Level) ⚡

Console Terminal x Jobs x

R 4.1.2 · ~/

```

[1] 1
> z <- 1:20
> mean(z)
[1] 10.5
> z <- 1:20
> head(z)
[1] 1 2 3 4 5 6
> z <- 1:20
> tail(z)
[1] 15 16 17 18 19 20
> x <- matrix(4:10) x
Error: unexpected symbol in "x <- matrix(4:10) x"
> x <- matrix(4:10)
> x
      [,1]
[1,]    4
[2,]    5
[3,]    6
[4,]    7
[5,]    8
[6,]    9
[7,]   10
>

```