

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

```

104 # Split on data frame
105 library(datasets)
106 head(airquality)
107 print(airquality)
108 split(airquality, airquality$month)
109
110 s <- split(airquality, airquality$month)
111 lapply(s, function(x) colMeans(x[,1:3], na.rm = T))
112 # como nos da algo que podemos recorrer con. ocupamos lapply, para simplificarlo
113 lapply(s, function(x) colMeans(x[,1:3], na.rm = T))
114
115 # cuando hay error
116 traceback() # esto muestra como fue corriendo y cual fue el ultimo paso ejecutado
117 # para ver como bien
118 debug(tu.funcion) # muestra paso a paso hasta encontrar el error, con "n" cambia
119
120 # cuando hay error
121 # con select() marca donde quieres verificar
122
123
124

```

The console shows the following output and user interaction:

```

> my_d1v
[1] 1.478105 1.181941 2.140460

# excellent work!

===== 100%

I would you like to receive credit for completing this course on Coursera.org?

1) No
2) Yes

```

The help window for the `c` function is open, showing the following information:

Combine Values into a Vector or List

Description

This is a generic function which combines its arguments.

The default method combines its arguments to form a vector. All arguments are coerced to a common type which is the type of the named value, and all attributes except names are removed.

Usage

```
c(..., recursive = FALSE)
```

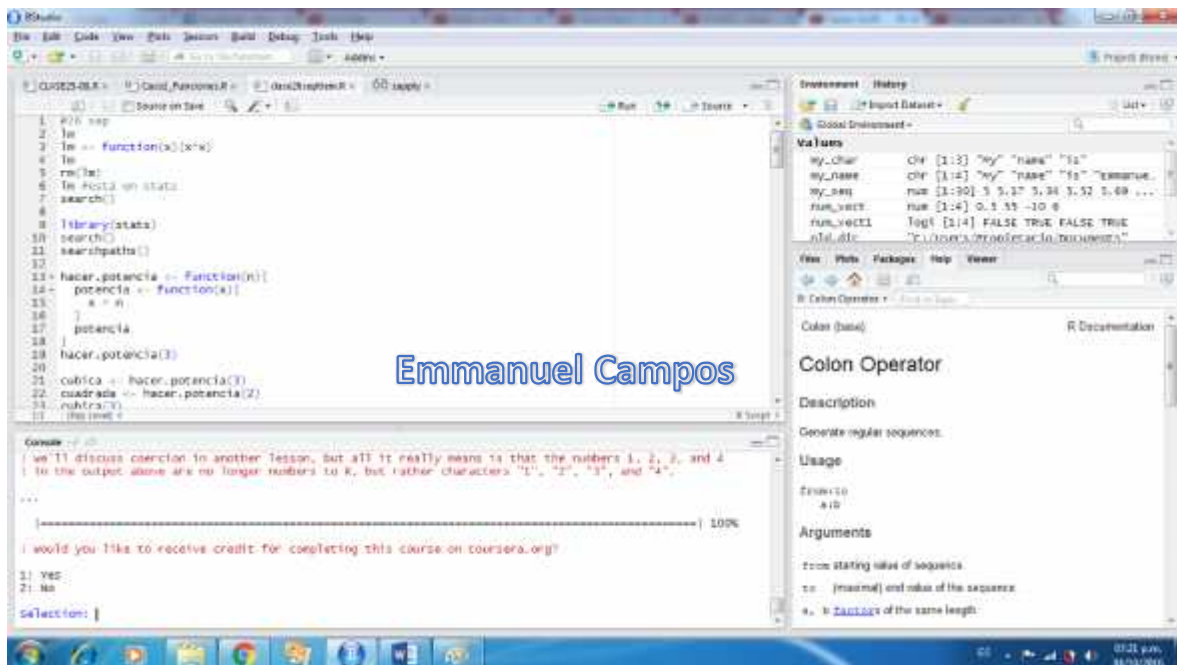
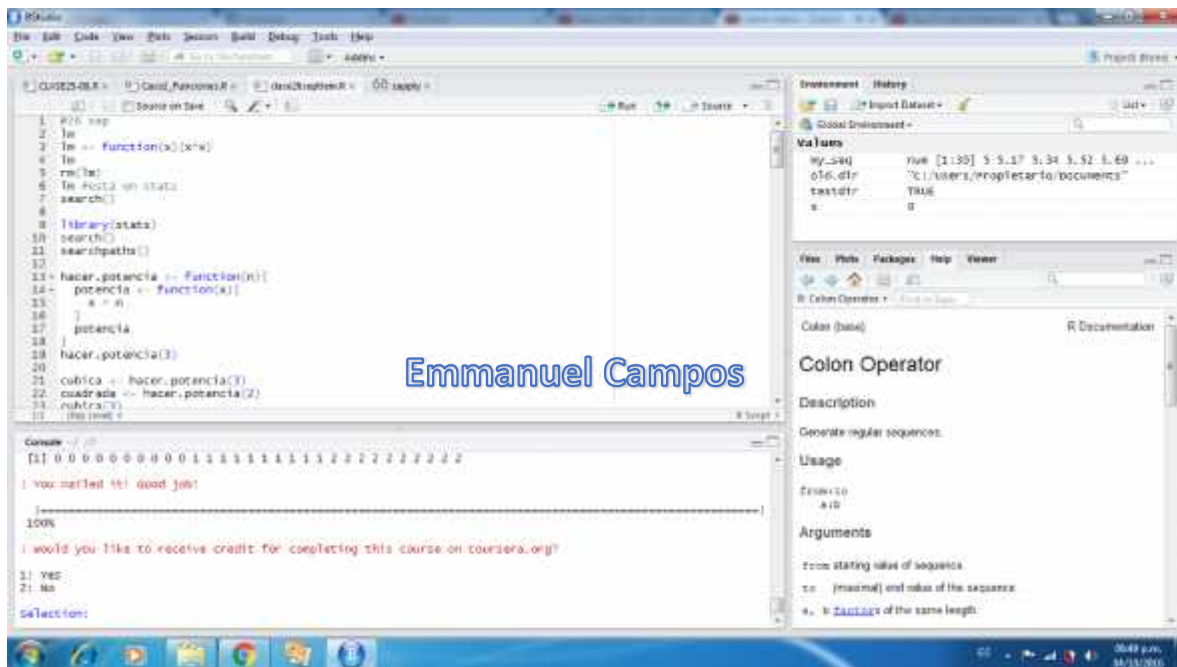
Arguments

... objects to be concatenated

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

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1005 # 1006. Te
1006 # 1007. Te
1007 # 1008. Te
1008 # 1009. Te
1009 # 1010. Te
1010 # 1011. Te
1011 # 1012. Te
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1013 # 1014. Te
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1061 # 1062. Te
1062 # 1063. Te
1063 # 1064. Te
1064 # 1065. Te
1065 # 1066. Te
1066 # 1067. Te
1067 # 1068. Te
1068 # 1069. Te
1069 # 1070. Te
1070 # 1071. Te
1071 # 10
```



The RStudio interface displays a script with the following code:

```

1 #26. seg
2 #m
3 #m <- function(x){x*x}
4 #m
5 rm(m)
6 #m <-22 on stats
7 search()
8
9 library(stats)
10 search()
11 searchpaths()
12
13 #hacer.potencia <- function(n){
14 #  potencia <- function(x){
15 #    x = n
16 #  }
17 #  potencia
18 #  hacer.potencia(3)
19 #}
20
21 cubica <- hacer.potencia(3)
22 cuadrada <- hacer.potencia(2)
23 cubica/2
24 #m <-22

```

The console shows the output of the 'inf-inf' command:

```

> inf-inf
[1] NaN

# nice work!

===== 100%

# would you like to receive credit for completing this course on coursera.org?

1) NO
2) YES

Selection:

```

The Environment pane on the right shows the following objects:

Object	Class	Attributes
my_data	num	[1:100] NA NA 0.0464 -1.8149 -0.0...
my_na	logi	[1:100] TRUE TRUE FALSE FALSE...
my_name	chr	[1:4] "my" "name" "is" "Emmanuel..."
my_seq	num	[1:20] 5 5.1 5.84 5.52 5.69 ...
my_vect	num	[1:4] 0.1 15 -10 8
my_vect1	logi	[1:4] FALSE TRUE FALSE TRUE
old_dir	chr	"C:/Users/Proprietario/Documents"

The Colon Operator documentation is visible on the right side of the interface.

The RStudio interface displays a script with the following code:

```

1 #26. seg
2 #m
3 #m <- function(x){x*x}
4 #m
5 rm(m)
6 #m <-22 on stats
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8
9 library(stats)
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12
13 #hacer.potencia <- function(n){
14 #  potencia <- function(x){
15 #    x = n
16 #  }
17 #  potencia
18 #  hacer.potencia(3)
19 #}
20
21 cubica <- hacer.potencia(3)
22 cuadrada <- hacer.potencia(2)
23 cubica/2
24 #m <-22

```

The console shows the output of the 'inf-inf' command:

```

> inf-inf
[1] NaN

# nice work!

===== 100%

# would you like to receive credit for completing this course on coursera.org?

1) NO
2) YES

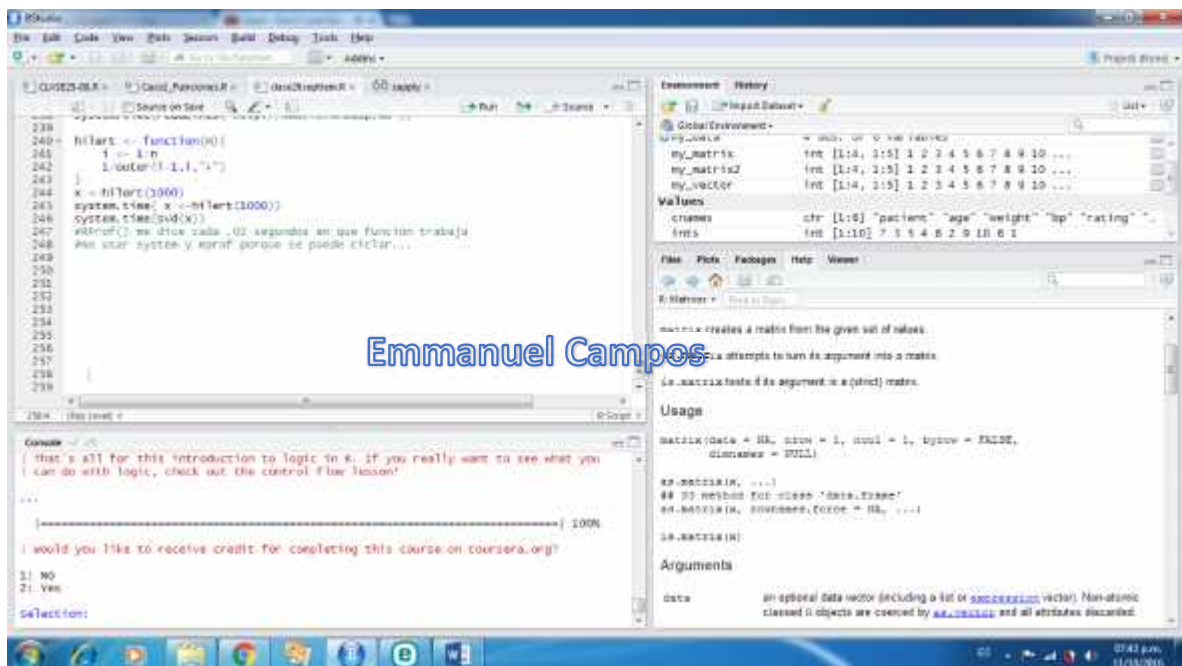
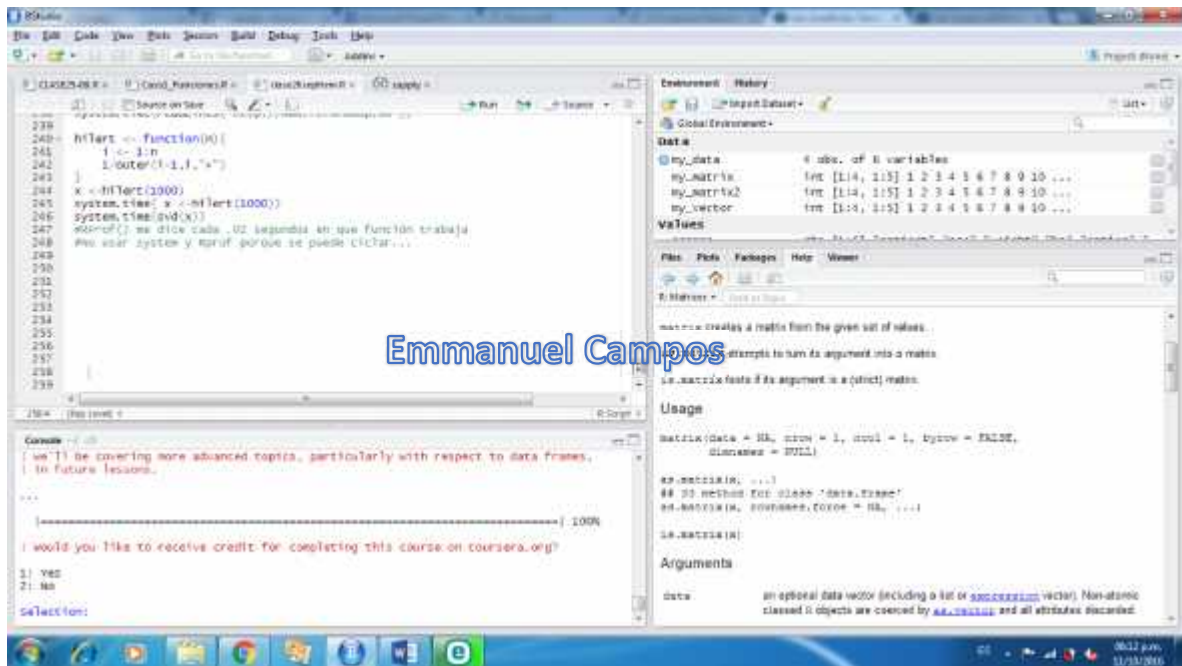
Selection:

```

The Environment pane on the right shows the following objects:

Object	Class	Attributes
my_vect	num	[1:6] 0.5 55 -10 8
my_vect1	logi	[1:4] FALSE TRUE FALSE TRUE
old_dir	chr	"C:/Users/Proprietario/Documents"
test_dir	chr	TRUE
tf	logi	[1:4] TRUE FALSE TRUE FALSE
my_vect	named num	[1:2] 11 2 NA
my_vect2	named num	[1:2] 11 2 NA

The Colon Operator documentation is visible on the right side of the interface.



The RStudio interface displays a script for a function named `paste`. The script includes comments explaining the function's purpose and usage. The console shows the output of the function when called with the arguments "I", "love", and "R!". The environment pane on the right shows the global environment with variables `vec1`, `x`, and `y`. The documentation pane on the right provides a detailed description of the `paste` function, including its usage and arguments.

```

10 # paste: concatenates strings
11 #
12 # "paste" concatenates the elements of the vector "x" into a single string,
13 # separated by the string "sep". The default value of "sep" is " ".
14 #
15 # I could then use this binary operator like "4 3 paste_add_one()" which would
16 # evaluate to 21.
17 #
18 # write your own binary operator below from absolute scratch! Your binary
19 # operator must be called bpf so that the expression:
20 #
21 # "good" bpf "job!"
22 #
23 # will evaluate to: "good job!"
24 #
25 #
26 # bpf = function(x,y) { # remember to add arguments!
27 #   paste(x,y)
28 # }
29 submit()
30
31
32

```

Console:

```

[1] "I love R!"

```

Environment:

Variable	Value
vec1	43840 0.08 [1:7] 1.1 2 NA
x	num [1:10] NA 0.157 NA NA NA ...
y	num [1:20] -0.411 0.219 -1.661 0.28 0.352 ...

Documentation: `paste` (base)

Description: Concatenate vectors after converting to character

Usage: `paste(..., sep = " ", collapse = NULL, quoted = FALSE)`

Arguments: `...` one or more objects to be converted to character vectors

The RStudio interface displays a script for a function named `lapply`. The script includes comments explaining the function's purpose and usage. The console shows the output of the function when called with the arguments `str` and a list of 10 elements. The environment pane on the right shows the global environment with variables `flags`, `shape_mat`, and `vec1`. The documentation pane on the right provides a detailed description of the `lapply` function, including its usage and arguments.

```

127 # lapply: apply a function over a list or vector
128 #
129 # "lapply" applies the function "fun" to each element of the list "x",
130 # returning a list of the same length as "x", where each element is the
131 # result of applying "fun" to the corresponding element of "x".
132 #
133 # str: a function that takes a string and returns its length
134 #
135 # x: a list of 10 elements
136 #
137 # lapply(str, x)
138 #
139 # summary(lapply(str, x))
140 #
141 # str(lapply(str, x))
142 #
143 # matrix(rnorm(100), 10, 10)
144 #
145 # str(m)
146 #

```

Console:

```

[1] "lapply: apply a function over a list or vector"
[2] "str: a function that takes a string and returns its length"
[3] "x: a list of 10 elements"
[4] "lapply(str, x)"
[5] "summary(lapply(str, x))"
[6] "str(lapply(str, x))"
[7] "matrix(rnorm(100), 10, 10)"
[8] "str(m)"

```

Environment:

Variable	Value
flags	104 ints. of 10 variables
shape_mat	int [1:2, 1:5] 0 4 0 2 0 1 0 4 0 50
vec1	logi [1:10] TRUE TRUE TRUE TRUE FALSE TRUE ...

Documentation: `lapply` (base)

Description: Apply a function over a list or vector

Usage: `lapply(X, FUN, ...)`

Arguments: `X` a list or vector, `FUN` a function

Script Editor:

```

1 # You're about to write your first function! Just like you would assign a value
2 # to a variable with the assignment operator, you assign functions to the following
3 # way:
4 #
5 # function_name <- function(arg1, arg2){
6 #   # manipulate arguments in some way
7 #   # return a value
8 # }
9 #
10 # the "variable name" you assign will become the name of your function, arg1 and
11 # arg2 represent the arguments of your function. You can manipulate the arguments
12 # you specify within the function. After sourcing the function, you can use the
13 # function by typing:
14 #
15 # function_name(value1, value2)
16 #
17 # Now we will create a function called boring_function. This function takes
18 # the argument 'x' as input, and returns the value of 'x' without modifying it.
19 # Delete the pound sign in front of the x to make the function work! Be sure to
20 # save this script and type submit() in the console after you make your changes.
21 #
22 boring_function <- function(x){
23   x
24 }
  
```

Console:

```

1 on your quest to become a better data analyst.
...
=====| 100%
1 would you like to receive credit for completing this course on coursera.org?
2) YES
3) NO
Selection:
  
```

Environment:

Object	Class
ok	Function ()
visualinfo	Function ()

Help Window: apply

Apply a Function Over a Ragged Array

Description
Apply a function to each cell of a ragged array, that is to each (non-empty) group of values given by a unique combination of the levels of certain factors.

Usage
apply(X, INDEX, FUN = NULL, ..., simplify = TRUE)

Arguments
X an atomic object, typically a vector
INDEX list of one or more factors, each of same length as X. The elements are coerced to factors by as.factor

Script Editor:

```

1 function ok, FUN, ..., simplify = TRUE, USE.NAMES = TRUE)
2 {
3   FUN <- match.fun(FUN)
4   answer <- apply(X = X, FUN = FUN, ...)
5   if (USE.NAMES && is.character(X) && is.null(names(answer)))
6     names(answer) <- X
7   if (!identical(simplify, FALSE) && length(answer))
8     simplify2array(answer, higher = (simplify == "array"))
9   else answer
10 }
  
```

Console:

```

1 new dataset using a collection of simple and useful functions. Taking the time to
2 do this upfront can save you time and frustration later on in your analysis.
...
=====| 100%
1 would you like to receive credit for completing this course on coursera.org?
2) NO
3) YES
Selection:
  
```

Environment:

Object	Class
ok	Function ()
visualinfo	Function ()

Help Window: apply

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