Finanzas en R

Notebook Dates

Sebastián Egaña Santibáñez ✉   Nicolás Leiva Díaz ✉

Enlaces del profesor

🔗 https://segana.netlify.app

🐙 https://github.com/sebaegana

in https://www.linkedin.com/in/sebastian-egana-santibanez/

Fechas en R

Current date

Por lo general, siempre debemos partir por obtener la fecha y hora actuales:

```r
Sys.timezone()
```

```
[1] "America/Santiago"
```

```
Sys.Date()
```

```
[1] "2025-07-02"
```

```
Sys.time()
```

```
[1] "2025-07-02 23:25:36 -04"
```

Lubridate

La librería más utilizada para lidiar con fechas en R, corresponde a lubridate enlace, que es parte de tidyverse.

```
library(tidyverse)

now()
```

```
[1] "2025-07-02 23:25:37 -04"
```

String to date

Utilizando los formatos de R por defecto:

```
x <- c("2015-07-01", "2015-08-01", "2015-09-01")

as.Date(x)
```

```
[1] "2015-07-01" "2015-08-01" "2015-09-01"
```

Esto solo funciona debido a que las fechas se encuentra en el formato por defecto. En caso distinto, debemos incorporar el formato de entrada:

```
y <- c("07/01/2015", "07/01/2015", "07/01/2015")

as.Date(y, format = "%m/%d/%Y")
```

```
[1] "2015-07-01" "2015-07-01" "2015-07-01"
```

Utilizando lubridate

Repliquemos lo anterior:

```
library(lubridate)
ymd(x)
```

```
[1] "2015-07-01" "2015-08-01" "2015-09-01"
```

```
mdy(y)
```

```
[1] "2015-07-01" "2015-07-01" "2015-07-01"
```

Como ventaja, lubridate debería reconocer de manera automática los separadores normalmente usado en formatos de fecha.

```
z <- c("07012015", "07012015", "07012015")

mdy(z)
```

```
[1] "2015-07-01" "2015-07-01" "2015-07-01"
```

Crear en base a uniones

```
yr <- c("2012", "2013", "2014", "2015")
mo <- c("1", "5", "7", "2")
day <- c("02", "22", "15", "28")

ISOdate(year = yr, month = mo, day = day)
```

```
[1] "2012-01-02 12:00:00 GMT" "2013-05-22 12:00:00 GMT"
[3] "2014-07-15 12:00:00 GMT" "2015-02-28 12:00:00 GMT"
```

```
as.Date(ISOdate(year = yr, month = mo, day = day))
```

```
[1] "2012-01-02" "2013-05-22" "2014-07-15" "2015-02-28"
```

¿Cómo haríamos esto con lubridate?

```r
ymd(paste0(yr, mo, day))
```

Warning: All formats failed to parse. No formats found.

[1] NA NA NA NA

¿Cuál es el error?

```r
ymd(paste0(yr, '0',mo, day))
```

[1] "2012-01-02" "2013-05-22" "2014-07-15" "2015-02-28"

¿Esto es una solución definitiva?

Modifiquemos los vectores de fecha:

```r
yr_01 <- c("2012", "2013", "2014", "2015", "2023")
mo_01 <- c("1", "5", "7", "2", "12")
day_01 <- c("02", "22", "15", "28", "15")
```

Repetimos el código anterior:

```r
ymd(paste0(yr_01, '0',mo_01, day_01))
```

Warning: 1 failed to parse.

[1] "2012-01-02" "2013-05-22" "2014-07-15" "2015-02-28" NA

Esto es un caso particular, que por lo general lleva a errores. Añademos una función de leading zeros:

```r
library(stringr)
ymd(paste0(yr_01,str_pad(mo_01, 2, pad = "0"), day_01))
```

```
[1] "2012-01-02" "2013-05-22" "2014-07-15" "2015-02-28" "2023-12-15"
```

Cabe mencionar que `str_pad` permite añadir ya sean 0 a la izquierda, a la derecha, o ambos lados.

¿Dudas?

Obtener partes de una fecha:

```
x <- c("2015-07-01", "2015-08-01", "2015-09-01")

year(x)
```

```
[1] 2015 2015 2015
```

```
month(x)
```

```
[1] 7 8 9
```

```
month(x, label = TRUE)
```

```
[1] Jul Aug Sep
12 Levels: Jan < Feb < Mar < Apr < May < Jun < Jul < Aug < Sep < ... < Dec
```

```
month(x, label = TRUE, abbr = FALSE)
```

```
[1] July      August    September
12 Levels: January < February < March < April < May < June < ... < December
```

```
wday(x, label = TRUE, abbr = FALSE)
```

```
[1] Wednesday Saturday  Tuesday
7 Levels: Sunday < Monday < Tuesday < Wednesday < Thursday < ... < Saturday
```

Modificar fechas

```
x <- ymd(x)
x
```

```
[1] "2015-07-01" "2015-08-01" "2015-09-01"
```

```
mday(x)
```

```
[1] 1 1 1
```

```
mday(x) <- c(3, 10, 22)
x
```

```
[1] "2015-07-03" "2015-08-10" "2015-09-22"
```

```
update(x, year = c(2013, 2014, 2015), month = 9)
```

```
[1] "2013-09-03" "2014-09-10" "2015-09-22"
```

```
x + years(1) - days(c(2, 9, 21))
```

```
[1] "2016-07-01" "2016-08-01" "2016-09-01"
```

Crear secuencias de fechas

Utilizando la librería básica de fechas:

```
seq(as.Date("2010-1-1"), as.Date("2015-1-1"), by = "years")
```

```
[1] "2010-01-01" "2011-01-01" "2012-01-01" "2013-01-01" "2014-01-01"
[6] "2015-01-01"
```

```
seq(as.Date("2015/1/1"), as.Date("2015/12/30"), by = "quarter")
```

```
[1] "2015-01-01" "2015-04-01" "2015-07-01" "2015-10-01"
```

```r
seq(as.Date('2015-09-15'), as.Date('2015-09-30'), by = "2 days")
```

```
[1] "2015-09-15" "2015-09-17" "2015-09-19" "2015-09-21" "2015-09-23"
[6] "2015-09-25" "2015-09-27" "2015-09-29"
```

Utilizando lubridate:

```r
seq(ymd("2010-1-1"), ymd("2015-1-1"), by = "years")
```

```
[1] "2010-01-01" "2011-01-01" "2012-01-01" "2013-01-01" "2014-01-01"
[6] "2015-01-01"
```

```r
seq(ymd("2015/1/1"), ymd("2015/12/30"), by = "quarter")
```

```
[1] "2015-01-01" "2015-04-01" "2015-07-01" "2015-10-01"
```

```r
seq(ymd('2015-09-15'), ymd('2015-09-30'), by = "2 days")
```

```
[1] "2015-09-15" "2015-09-17" "2015-09-19" "2015-09-21" "2015-09-23"
[6] "2015-09-25" "2015-09-27" "2015-09-29"
```

En el caso de añadir tiempo, los formatos por defecto de R deben considerar que sean tipo POSIXct y no Date (producidos por `as.Date`)

```r
seq(as.POSIXct("2015-1-1 0:00"), as.POSIXct("2015-1-1 12:00"), by = "hour")
```

```
 [1] "2015-01-01 00:00:00 -03" "2015-01-01 01:00:00 -03"
 [3] "2015-01-01 02:00:00 -03" "2015-01-01 03:00:00 -03"
 [5] "2015-01-01 04:00:00 -03" "2015-01-01 05:00:00 -03"
 [7] "2015-01-01 06:00:00 -03" "2015-01-01 07:00:00 -03"
 [9] "2015-01-01 08:00:00 -03" "2015-01-01 09:00:00 -03"
[11] "2015-01-01 10:00:00 -03" "2015-01-01 11:00:00 -03"
[13] "2015-01-01 12:00:00 -03"
```

Con lubridate:

```r
seq(ymd_hm("2015-1-1 0:00"), ymd_hm("2015-1-1 12:00"), by = "hour")
```

```
 [1] "2015-01-01 00:00:00 UTC" "2015-01-01 01:00:00 UTC"
 [3] "2015-01-01 02:00:00 UTC" "2015-01-01 03:00:00 UTC"
 [5] "2015-01-01 04:00:00 UTC" "2015-01-01 05:00:00 UTC"
 [7] "2015-01-01 06:00:00 UTC" "2015-01-01 07:00:00 UTC"
 [9] "2015-01-01 08:00:00 UTC" "2015-01-01 09:00:00 UTC"
[11] "2015-01-01 10:00:00 UTC" "2015-01-01 11:00:00 UTC"
[13] "2015-01-01 12:00:00 UTC"
```