



INTERMEDIATE R FOR FINANCE

An introduction to dates in R

Lore Dirick
Instructor, DataCamp

What will you learn?

- If statements
- Loops
- Functions
- Finance examples

Today's date

```
> today <- Sys.Date()  
  
> today  
[1] "2017-03-14"  
  
> class(today)  
[1] "Date"
```

Date classes

- Date
 - Calendar dates
 - "2017-03-14"
- POSIX - Portable Operating System Interface
 - POSIXct and POSIXlt
 - Date + time + timezone
 - "2017-03-14 10:00:21 EDT"

Creating dates

```
> character_date <- "1957-03-04"

> class(character_date)
[1] "character"

> sp500_birthday <- as.Date(character_date)

> sp500_birthday
[1] "1957-03-04"

> class(sp500_birthday)
[1] "Date"
```



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Let's practice!



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Date formats and extractor functions

Date formats

```
> # ISO 8601 Standard: year-month-day
> as.Date("2017-01-28")
[1] "2017-01-28"

> # Alternative form: year/month/day
> as.Date("2017/01/28")
[1] "2017-01-28"

> # Fails: month/day/year
> as.Date("01/28/2017")
Error in charToDate(x) :
  character string is not in a standard unambiguous format

> # Explicitly tell R the format
> as.Date("01/28/2017", format = "%m/%d/%Y")
[1] "2017-01-28"
```


Date formats

| Format | Description |
|-------------|------------------------------|
| %d | Day of the month (01-31) |
| %m | Month (01-12) |
| %y | Year without century (00-99) |
| %Y | Year with century (0-9999) |
| %b | Abbreviated month name |
| %B | Full month name |
| "/" "-" "," | Common separators |

Date format example

| Format | Description |
|-------------|----------------------------|
| %d | Day of the month (01-31) |
| %Y | Year with century (0-9999) |
| %B | Full month name |
| "/" "-" "," | Common separators |

```
> # Lehman Brothers bankruptcy
> # Complex format - what do we use?
> as.Date("September 15, 2008", format = "___")

> as.Date("September 15, 2008", format = "%B %d, %Y")
[1] "2008-09-15"
```

Extractor functions

```
> dates <- as.Date(c("2017-01-03", "2017-01-04"))  
  
> weekdays(dates)  
[1] "Tuesday"    "Wednesday"
```



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Let's practice!