WORKING WITH DATES AND TIMES IN R

Time zones

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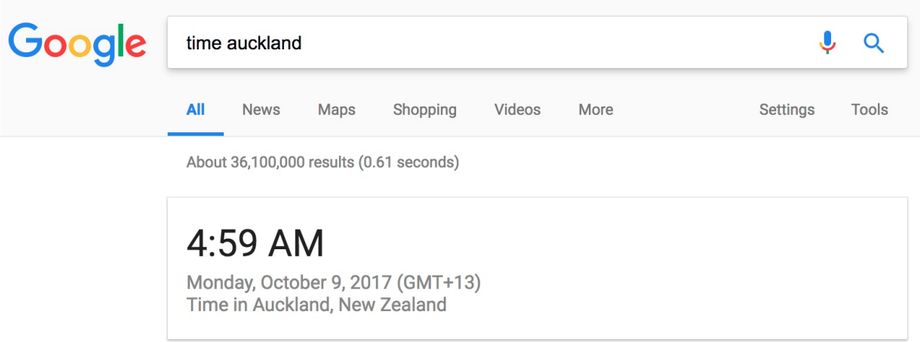
Time zones




```
> Sys.timezone()
[1] "America/Los_Angeles"
```

IANA Timezones

```
> OlsonNames()
  [1] "Africa/Abidjan"         "Africa/Accra"
  [3] "Africa/Addis_Ababa"     "Africa/Algiers"
  [5] "Africa/Asmara"          "Africa/Asmera"
  [7] "Africa/Bamako"          "Africa/Bangui"
...

> length(OlsonNames())
[1] 594
```

Setting and extracting

```
> mar_11 <- ymd_hms("2017-03-11 12:00:00",
+     tz = "America/Los_Angeles")

> mar_11
[1] "2017-03-11 12:00:00 PST"

> tz(mar_11)
[1] "America/Los_Angeles"
```

Manipulating timezones

force_tz() - change the timezone without changing the clock time

```
> mar_11
[1] "2017-03-11 12:00:00 PST"

> force_tz(mar_11, tzone = "America/New_York")
[1] "2017-03-11 12:00:00 EST"
```

with_tz() - view the same instant in a different timezone

```
> mar_11
[1] "2017-03-11 12:00:00 PST"

> with_tz(mar_11, tzone = "America/New_York")
[1] "2017-03-11 15:00:00 EST"
```

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Let's practice!

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More on importing and exporting datetimes

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Fast parsing

parse_date_time() can be slow because it's designed to be forgiving and flexible.

```
> library(fasttime)
> fastPOSIXct("2003-02-27")
[1] "2003-02-26 16:00:00 PST"
```

fast_strptime()

```
> x <- "2001-02-27"

> parse_date_time(x, order = "ymd")
[1] "2001-02-27 UTC"

> fast_strptime(x, format = "%Y-%m-%d")
[1] "2001-02-27 UTC"

> fast_strptime(x, format = "%y-%m-%d")
[1] NA
```

See Details of format in strptime()

Exporting datetimes

```
library(tidyverse)
akl_hourly %>%
  select(datetime) %>%
  write_csv("tmp.csv")
```

tmp.csv

```
datetime
2016-01-01T00:00:00Z
2016-01-01T00:30:00Z
2016-01-01T01:00:00Z
2016-01-01T01:30:00Z
2016-01-01T02:00:00Z
2016-01-01T02:30:00Z
```

Formatting datetimes

```
> my_stamp <- stamp("Tuesday October 10 2017")

Multiple formats matched: "%A %B %d %y%H"(1), "%A %B %y %d%H"(1),
"%A %B %d %Y"(1), "%A October %m %y%d"(1), "%A October %m %Y"(0),
"%A October %H %M%S"(1), "Tuesday %B %d %y%H"(1), "Tuesday %B %y %d%H"(1),
"Tuesday %B %d %Y"(1), "Tuesday October %m %y%d"(1),
"Tuesday October %m %Y"(1), "Tuesday October %H %M%S"(1)
Using: "%A %B %d %Y"

> my_stamp(ymd("2003-02-27"))
[1] "Thursday February 27 2003"

> my_stamp
function (x)
format(x, format = "%A %B %d %Y")
<environment: 0x1086ed780>
```

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Let's practice!

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Wrap-up

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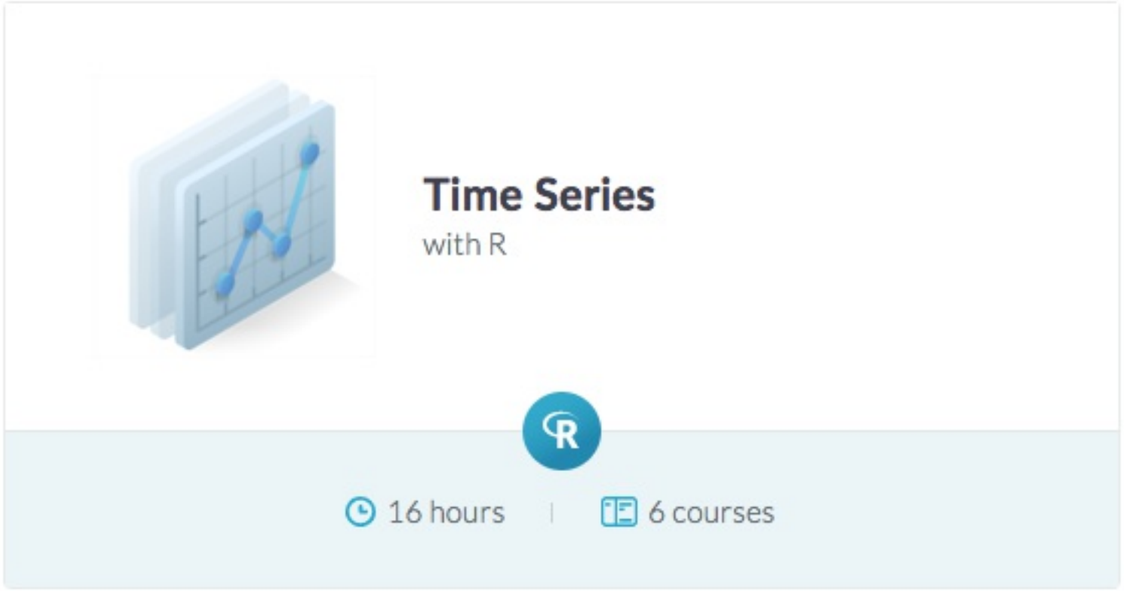
Wrapping-up

- Chapter 1: base R objects Date, POSIXct
- Chapter 2: importing and manipulating datetimes
- Chapter 3: arithmetic with datetimes, periods, durations and intervals
- Chapter 4: time zones, fast parsing, outputting datetimes

Next steps

Next steps

- Time Series in R skill track



Next steps

- ggplot2
- dplyr
- stringr
- Courses that combine multiple packages

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See you in another course!