# 02-Intermediate-R-for-Finance

Boni

9/2/2020

## Working with Date Time

```r
# Today
x <- Sys.Date()
y <- Sys.time()
x
```

```
## [1] "2020-09-02"
```

```r
y
```

```
## [1] "2020-09-02 10:56:48 CDT"
```

```r
class(x) # Calendar date class
```

```
## [1] "Date"
```

```r
class(y) # POSIX class, with POSIXct and POSIXlt
```

```
## [1] "POSIXct" "POSIXt"
```

```r
# Convert string to Date
date <- "2020-09-01" # Use the standard ISO 8601 Standard: year-month-day or year/month/day
date_as_date <- as.Date(date)
class(date_as_date)
```

```
## [1] "Date"
```

```r
as.numeric(date_as_date) # Find number of days since January 1, 1970
```

```
## [1] 18506
```

```r
# Explicit conversion
as.Date("May 2020 09", format = "%b %Y %d")
```

```
## [1] "2020-05-09"
```

```r
# char_dates
char_dates <- c("1jan17", "2jan17", "3jan17", "4jan17", "5jan17")

# Create dates using as.Date() and the correct format
dates <- as.Date(char_dates, format="%d%b%y")

# Use format() to go from "2017-01-04" -> "Jan 04, 17"
format(dates, format = "%b %d, %y")
```

```
## [1] "Jan 01, 17" "Jan 02, 17" "Jan 03, 17" "Jan 04, 17" "Jan 05, 17"
```

```r
# Use format() to go from "2017-01-04" -> "01,04,2017"
format(dates, format = "%m,%d,%Y")
```

```
## [1] "01,01,2017" "01,02,2017" "01,03,2017" "01,04,2017" "01,05,2017"
```

```r
# Dates
dates <- as.Date(c("2017-01-01", "2017-01-02", "2017-01-03"))

# Create the origin
origin <- as.Date("1970-01-01")

# Use as.numeric() on dates
as.numeric(dates)
```

```
## [1] 17167 17168 17169
```

```r
# Find the difference between dates and origin
dates - origin
```

```
## Time differences in days
## [1] 17167 17168 17169
```

## Extract information from Date Time

```r
# dates
dates <- as.Date(c("2017-01-02", "2017-05-03", "2017-08-04", "2017-10-17"))

# Extract the months
months(dates)
```

```
## [1] "January" "May"     "August"  "October"
```

```r
# Extract the quarters
quarters(dates)
```

```
## [1] "Q1" "Q2" "Q3" "Q4"
```

```r
# dates2
dates2 <- as.Date(c("2017-01-02", "2017-01-03", "2017-01-04", "2017-01-05"))

# Assign the weekdays() of dates2 as the names()
names(dates2) <- weekdays(dates2)

# Print dates2
dates2
```

```
##        Monday      Tuesday    Wednesday     Thursday
## "2017-01-02" "2017-01-03" "2017-01-04" "2017-01-05"
```