Lists of Functions

Daniel Emaasit

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Note: This is from *Functional Programming in R* https://github.com/Emaasit/Functional-Programming-in-R by Daniel Emaasit

List of Functions

Functions can be stored as lists. Hence you can store a group of related functions in a list, like:

```r
compute_mean <- list(
  base = function(x) mean(x),
  manual = function(x) sum(x) / length(x)
)

x <- runif(n = 1e5)
compute_mean$base(x)

## [1] 0.5004012

compute_mean$manual(x)

## [1] 0.5004012

## To call each function, we can use lapply
lapply(compute_mean, function(f) f(x))

## $base
## [1] 0.5004012
##
## $manual
## [1] 0.5004012
```

Another example for descriptive statistics

```r
compute_stats <- function(x) {
  desriptive_stats <- list(
  sum = function(x) sum(x, na.rm = TRUE),
  mean = function(x) mean(x, na.rm = TRUE),
  median = function(x) median(x, na.rm = TRUE)
  )
  lapply(desriptive_stats, function(f) f(x))
}
```

```r
x <- runif(1e6)
compute_stats(x)
```

```
## $sum
## [1] 500350.8
##
## $mean
## [1] 0.5003508
##
## $median
## [1] 0.4999625
```

Or remove duplication by doing this:

```r
compute_stats <- function(x) {
  desriptive_stats <- list(
  sum = function(x) sum(x),
  mean = function(x) mean(x),
  median = function(x) median(x)
  )
  lapply(desriptive_stats, function(f) f(x))
}

x <- runif(1e6)
compute_stats(x)
```

```
## $sum
## [1] 499955.4
##
## $mean
## [1] 0.4999554
##
## $median
## [1] 0.4998519
```

Moving lists of functions to the global environment