Lists of Functions

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February 28, 2016

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:

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

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))  
}  
  
x <- runif(1e6)  
compute\_stats(x)

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

Or remove duplication by doing this:

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