

Week 3

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`lapply()`

```
x <- list(a = 1:5, b = rnorm(10))
lapply(x, mean) ## lapply(x, function, ...)
```

```
## $a
## [1] 3
##
## $b
## [1] -0.1204272
```

```
y <- 1:4
lapply(y, runif)
```

```
## [[1]]
## [1] 0.1903106
##
## [[2]]
## [1] 0.2616992 0.2685343
##
## [[3]]
## [1] 0.8578246 0.0995149 0.1239741
##
## [[4]]
## [1] 0.09273053 0.80587486 0.14021614 0.91583877
```

Anonymous functions

```
x <- list(a = matrix(1:4, 2, 2), b = matrix(1:6, 3, 2))
# we get the first column in each matrix
lapply(x, function(e) e[, 1])
```

```
## $a
## [1] 1 2
##
## $b
## [1] 1 2 3
```

`sapply()`

```
x <- list(a = 1:16, b = rnorm(30), c = 3:5, d = rnorm(3, 4))
sapply(x, mean)
```

```
##           a           b           c           d
## 8.500000000 -0.04057488 4.000000000 3.77596184
```

`apply()`

```
x <- matrix(rnorm(20), 2, 10)
apply(x, 1, quantile, probs = c(0.25, 0.75)) # collapses into and keep the rows
```

```
##           [,1]           [,2]
## 25% -0.1084325 -0.7558210
## 75%  0.9985988  0.4061477
```