

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] -0.1965211
```

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

```
## [[1]]
## [1] 0.05321502
##
## [[2]]
## [1] 0.9041713 0.1425779
##
## [[3]]
## [1] 0.323539041 0.006263022 0.564705914
##
## [[4]]
## [1] 0.44949165 0.20126551 0.05923083 0.82800624
```

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
## 8.5000000 -0.2091237  4.0000000  3.4612181
```

`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% -0.6551202 -0.5391280
## 75%  0.5864315  0.7434408
```