

# SeminarHW2

2023-03-22

## lapply function

```
result <- lapply(1:50, function(x) x^2 + 5*x)
unlist(result)
```

```
## [1] 6 14 24 36 50 66 84 104 126 150 176 204 234 266 300
## [16] 336 374 414 456 500 546 594 644 696 750 806 864 924 986 1050
## [31] 1116 1184 1254 1326 1400 1476 1554 1634 1716 1800 1886 1974 2064 2156 2250
## [46] 2346 2444 2544 2646 2750
```

## for function

```
c <- rep(0, 50)
for (i in 1:50){
  c[i] <- i^2 + 5*i
}
c
```

```
## [1] 6 14 24 36 50 66 84 104 126 150 176 204 234 266 300
## [16] 336 374 414 456 500 546 594 644 696 750 806 864 924 986 1050
## [31] 1116 1184 1254 1326 1400 1476 1554 1634 1716 1800 1886 1974 2064 2156 2250
## [46] 2346 2444 2544 2646 2750
```

## compare the time

### lapply

```
start_time <- Sys.time()
end_time <- Sys.time()
result <- lapply(1:200, function(x) x^2 + 5*x)
unlist(result)[1:5]
```

```
## [1] 6 14 24 36 50
```

```
elapsed_time <- as.numeric(difftime(time1 = end_time, time2 = start_time, units = "secs"))
cat("elapsed time: ", sprintf("%.3f", elapsed_time), "sec", sep = "")
```

```
## elapsed time: 0.002sec
```

### for

```
start_time <- Sys.time()
end_time <- Sys.time()
n <- 200
c <- rep(0, n)
for (i in 1:n){
  c[i] <- i^2 + 5*i
}
c[1:5]
```

```
## [1] 6 14 24 36 50
```

```
elapsed_time <- as.numeric(difftime(time1 = end_time, time2 = start_time, units = "secs"))
cat("elapsed time: ", sprintf("%.3f", elapsed_time), "sec", sep = "")
```

```
## elapsed time: 0.006sec
```

We may check that elapsed times for “for” function and “lapply()” function are different: lapply() requires less time than for() function does.