

The results below are generated from an R script.

```
# HW2
# sapply, lapply elapsed time comparison

# data
data <- rnorm(1000000, 0, 1)

# Using sapply
t <- Sys.time()
data_sapply <- sapply(list(data), function(x){round(x,2)})
t_sapply <- Sys.time()

print(t_sapply - t)

## Time difference of 0.04711103 secs

# Time difference of 0.04321408 secs

# Using for loop
func <- function(x){round(x,2) ; invisible(x)} # make result invisible
t <- Sys.time()
for (x in data) {
  func(x)
}
t_for <- Sys.time()

print(t_for - t)

## Time difference of 0.418216 secs

# Time difference of 0.422363 secs
```

The R session information (including the OS info, R version and all packages used):

```
sessionInfo()

## R version 4.2.2 (2022-10-31)
## Platform: aarch64-apple-darwin20 (64-bit)
## Running under: macOS Ventura 13.0.1
##
## Matrix products: default
## LAPACK: /Library/Frameworks/R.framework/Versions/4.2-arm64/Resources/lib/libRlapack.dylib
##
## locale:
## [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8
##
## attached base packages:
## [1] stats      graphics  grDevices  utils      datasets  methods   base
##
## loaded via a namespace (and not attached):
## [1] compiler_4.2.2 tools_4.2.2   highr_0.9      knitr_1.42     xfun_0.35
## [6] evaluate_0.18

Sys.time()

## [1] "2023-03-21 19:21:48 KST"
```