

We sum each column of matrix of $100 * 1000$ size by using lapply and for loop. It can be seen that lapply method takes less time than for loop method. Code and computed results are below.

```
#sapply

x = data.frame(matrix(c(1:100000),100))

start_time <- Sys.time()
# ...
# WORK
# ...
y1= lapply(x,sum)
end_time <- Sys.time()
elapsed_time <- as.numeric(difftime(time1 = end_time,
                                    time2 = start_time,
                                    units = "secs"))
cat("elapsed time : ",sprintf("%.3f",elapsed_time),"sec",sep="")

## elapsed time : 0.003sec

#for loop
start_time2 <- Sys.time()
y2 =c()
for ( i in 1: 1000){
  y2 = c(y2, mean(x[,i]))
}
end_time2 <- Sys.time()
elapsed_time <- as.numeric(difftime(time1 = end_time2,
                                    time2 = start_time2,
                                    units = "secs"))
cat("elapsed time : ",sprintf("%.3f",elapsed_time),"sec",sep="")

## elapsed time : 0.038sec
```