Modulo 3

Grupo TyH

2025-04-30

Usando Sys.time

```
sleep_for_a_minute <- function() { Sys.sleep(14) }
start_time <- Sys.time()
sleep_for_a_minute()
end_time <- Sys.time()
end_time - start_time
```

```
## Time difference of 14.01542 secs
```

Biblioteca tictoc

```
library(tictoc)
library(tictoc)
tic("sleeping")
A<-20
print("dormire una siestita...")
```

```
## [1] "dormire una siestita..."
```

```
Sys.sleep(2)
print("...suena el despertador")
```

```
## [1] "...suena el despertador"
```

```
toc()
```

```
## sleeping: 2.006 sec elapsed
```

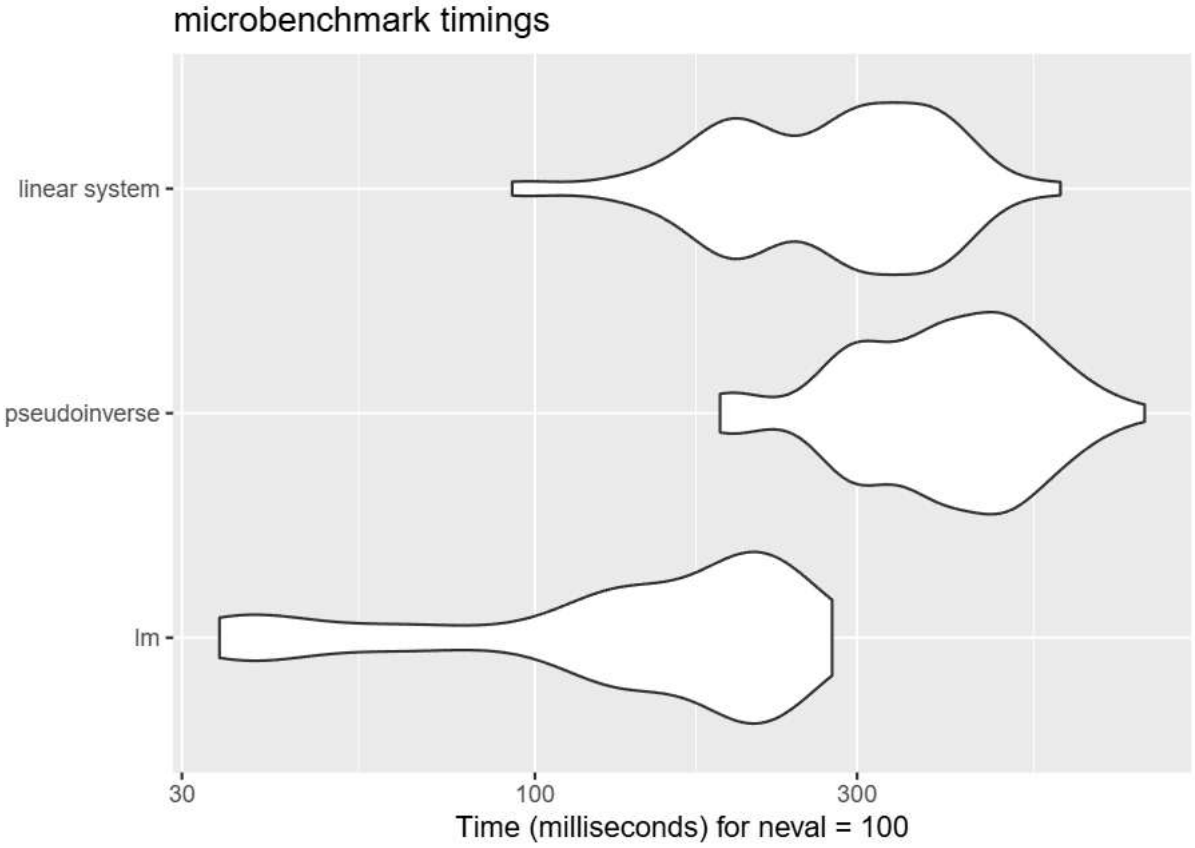
Biblioteca Microbenchmark

```
library(microbenchmark)
set.seed(2017)
n <- 10000
p <- 100
X <- matrix(rnorm(n*p), n, p)
y <- X %*% rnorm(p) + rnorm(100)
check_for_equal_coefs <- function(values) {
tol <- 1e-12
max_error <- max(c(abs(values[[1]] - values[[2]]),
abs(values[[2]] - values[[3]]),
abs(values[[1]] - values[[3]])))
max_error < tol
}
```

```
mbm <- microbenchmark("lm" = { b <- lm(y ~ X + 0)$coef },
"pseudoinverse" = {
b <- solve(t(X) %*% X) %*% t(X) %*% y
},
"linear system" = {
b <- solve(t(X) %*% X, t(X) %*% y)
},
check = check_for_equal_coefs)
mbm
```

```
## Unit: milliseconds
##           expr       min       lq     mean   median       uq      max neval
##             lm  34.10233 106.2338 154.1715 149.6814 213.1786 275.5170   100
##  pseudoinverse 188.03160 300.3099 419.6146 401.3229 499.9231 799.9512   100
##  linear system  92.50915 200.9639 288.1930 300.4245 388.2874 600.2594   100
```

```
library(ggplot2)
autoplot(mbm)
```



Generar un vector secuencia

```
A <- 0
for (i in 1:50000) { A[i] <- (i*2)}
head (A)
```

```
## [1]  2  4  6  8 10 12
```

```
tail (A)
```

```
## [1]  99990  99992  99994  99996  99998 100000
```

Ordenación de un vector por método burbuja

```
# Tomo una muestra de 10 números ente 1 y 100
x<-sample(1:100,10)
# Creo una funci?n para ordenar
burbuja <- function(x){
n<-length(x)
for(j in 1:(n-1)){
for(i in 1:(n-j)){
if(x[i]>x[i+1]){
temp<-x[i]
x[i]<-x[i+1]
x[i+1]<-temp
}
}
}
return(x)
}
res<-burbuja(x)
#Muestra obtenida
x
```

```
##  [1] 43 54 59 99 79 72 76 24 45 62
```

```
#Muestra Ordenada
res
```

```
##  [1] 24 43 45 54 59 62 72 76 79 99
```

```
#Ordanaci?n con el coamando SORT de R-Cran
sort(x)
```

```
##  [1] 24 43 45 54 59 62 72 76 79 99
```

R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

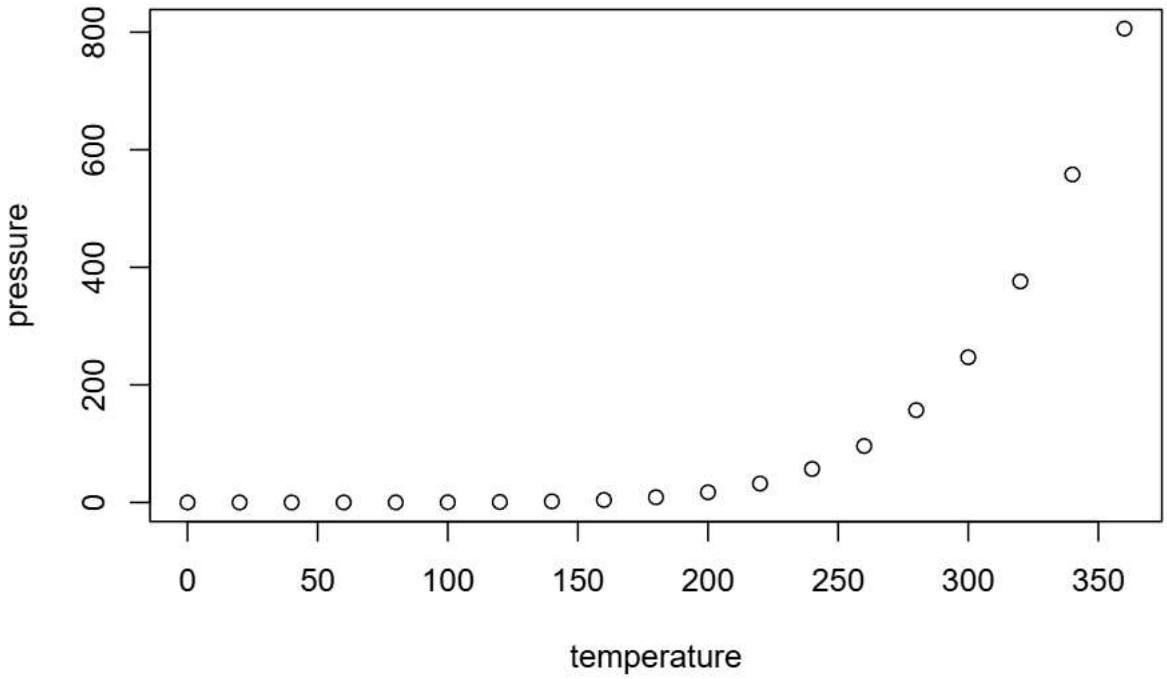
When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

```
##      speed           dist
##  Min.   : 4.0   Min.   :  2.00
##  1st Qu.:12.0   1st Qu.: 26.00
##  Median :15.0   Median : 36.00
##  Mean   :15.4   Mean   : 42.98
##  3rd Qu.:19.0   3rd Qu.: 56.00
##  Max.   :25.0   Max.   :120.00
```

Including Plots

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.