Tecnicas y herramientas modernas

Grupo Los Ritmocerontes

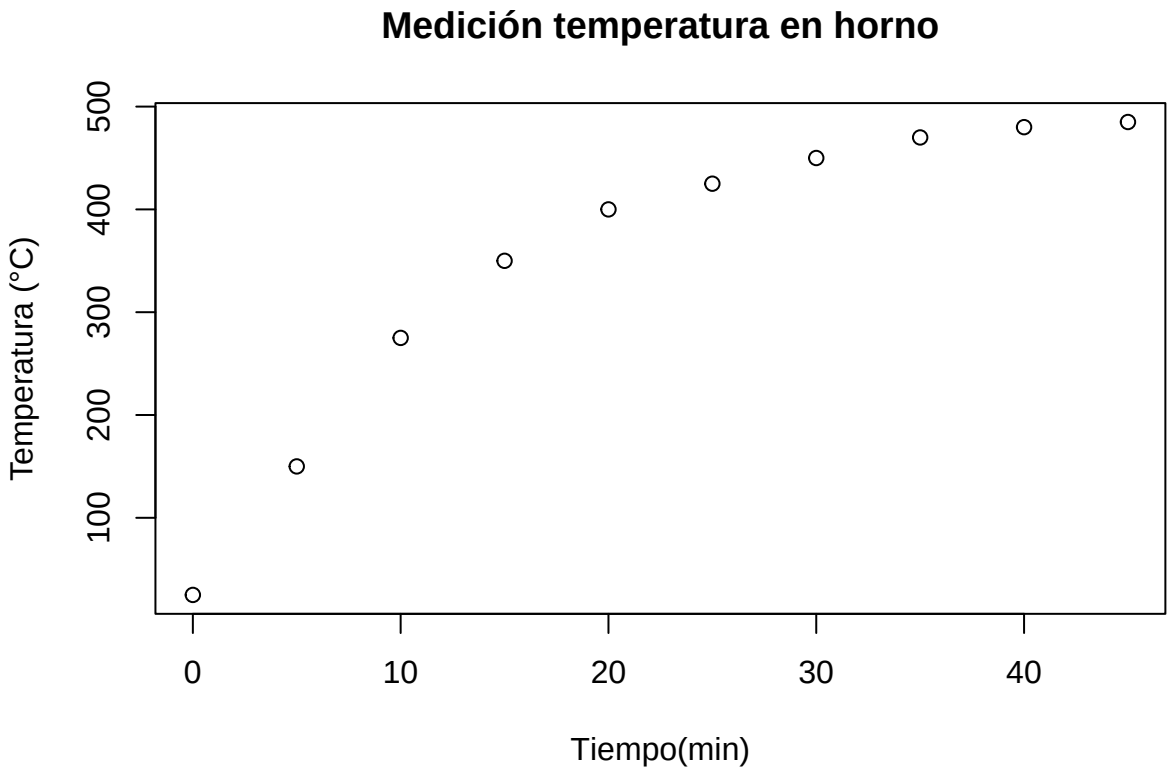
2025-04-24

Medicion temperatura horno

```
library(readxl)
medicion_temperatura_horno <- read_excel("medicion_temperatura_horno.xlsx",
    col_types = c("numeric", "numeric", "numeric",
        "numeric"))
medicion_temperatura_horno
```

```
## # A tibble: 10 x 4
##    `Tiempo (min)` `Temp Sensor 1 (°C)` `Temp Sensor 2 (°C)` `Temp Sensor 3 (°C)`
##             <dbl>                <dbl>                <dbl>                <dbl>
##  1              0                   25                   24                   25
##  2              5                  150                  148                  149
##  3             10                  275                  273                  276
##  4             15                  350                  348                  349
##  5             20                  400                  397                  398
##  6             25                  425                  423                  424
##  7             30                  450                  448                  449
##  8             35                  470                  468                  469
##  9             40                  480                  478                  479
## 10             45                  485                  484                  485
```

```
plot(medicion_temperatura_horno$`Tiempo (min)`,medicion_temperatura_horno$`Temp Sensor 1 (°C)`,main = "
```



Biblioteca Microbenchmark

```
library(microbenchmark)
set.seed(2017)
n <- 10000
p <- 100
X <- matrix(rnorm(n*p), n, p)
y <- X %*% rnorm(p) + rnorm(n)  # Corregido: rnorm(n) en lugar de 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  33.64006  53.73469 138.9380 136.5508 214.2933  268.3167   100
##  pseudoinverse 185.67031 399.34746 482.6094 498.1931 570.2334 1195.9674   100
##  linear system  96.02562 273.86441 352.4067 307.4058 401.2241  699.5341   100
```

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