Grupo sierra Modulo 2

A Preprint

Fabrizio paura
ingenieria industrial
Uncuyo facultad de ingenieria
Mendoza Argentina
fabri.paura@gmail.com

Alesio Negri
facultad de ingenieria
Uncuyo facultad de ingenieria
Mendoza Argentina
alesgamernegri@gmail.com

Franco Orlandi
facultad de ingenieria
Uncuyo facultad de ingenieria
Mendoza Argentina
francodanielorlandi@gmail.com

Ivan Barrera
facultad de ingenieria
Uncuyo facultad de ingenieria
Mendoza Argentina
iebarrera@gmail.com

April 20, 2024

Abstract

Ejercicio de penitencia de Gauss, Fibonacci y Burbuja.

1 Penitencia de Gauss

se realiza la suma de todos los terminos del vector que tiene hasta 5000 terminos. Posteriormente se calcula el tiempo y se vuelve a calcular la suma de los terminos con la tecnica de Gauss.

```r
start_time<-Sys.time()
vecsecu <- seq(1:5000)
vecsecu <- as.vector(vecsecu)
sum <- 0
for(i in vecsecu)
  {sum <- sum + vecsecu[i]}

end_time <- Sys.time()

vecsecu <- seq(1:5522)
vecsecu <- as.vector(vecsecu)
start_time<-Sys.time()
sum <- (vecsecu[1]+vecsecu[5522])*2761
end_time <- Sys.time()
print(sum)
```

```
## [1] 15249003
```

```r
end_time - start_time
```

```
## Time difference of 0.001128435 secs
```

2 Fibonacci

se calcula la serie de Fibonacci hasta un número mayor a 1000000 y a la vez se calcula el tiempo el que tarda el cálculo.

```r
start_time<-Sys.time()
a <- 0
b <- 1
next_num <- a + b
while (next_num <= 1000000) {
        a <- b
        b <- next_num
        next_num <- a + b
end_time<-Sys.time()}
next_num
```

```
## [1] 1346269
```

```r
end_time-start_time
```

```
## Time difference of 0.03391933 secs
```

3 Ordenamiento de la burbuja

consiste en un código que nos permite oredenar una serie de números de manera sencilla y necesita hacer varias iteraciones para que quede completamente ordenado.

```r
bubblesort <- function(v) {
itemCount <- length(v)
repeat {
hasChanged <- FALSE
itemCount <- itemCount - 1
for (i in 1:itemCount) {
        if (v[i] > v[i+1]) {
            t <- v[i]
            v[i] <- v[i+1]
            v[i+1] <- t
            hasChanged <- TRUE
        }
    }
    if (!hasChanged) break
}
    return(v)
}

# Ejemplo de uso

v <- c(9, 8, 7, 3, 1, 100)
print(bubblesort(v))
```

```
## [1]   1   3   7   8   9 100
```

Here goes an introduction text

4 Headings: first level

You can use directly LaTeX command or Markdown text.

LaTeX command can be used to reference other section. See Section 4. However, you can also use **bookdown** extensions mechanism for this.

Figure 1: Sample figure caption.

4.1 Headings: second level

You can use equation in blocks

$$\xi_{ij}(t) = P(x_t = i, x_{t+1} = j | y, v, w; \theta) = \frac{\alpha_i(t) a_{ij}^{w_t} \beta_j(t+1) b_j^{v_{t+1}}(y_{t+1})}{\sum_{i=1}^{N} \sum_{j=1}^{N} \alpha_i(t) a_{ij}^{w_t} \beta_j(t+1) b_j^{v_{t+1}}(y_{t+1})}$$

But also inline i.e $z = x + y$

4.1.1 Headings: third level

Another paragraph.

5 Examples of citations, figures, tables, references

You can insert references. Here is some text (Kour and Saabne 2014b, 2014a) and see Hadash et al. (2018). The documentation for `natbib` may be found at

You can use custom blocks with LaTeX support from **rmarkdown** to create environment.

```
http://mirrors.ctan.org/macros/latex/contrib/natbib/natnotes.pdf%7D
```

Of note is the command `\citet`, which produces citations appropriate for use in inline text.

You can insert LaTeX environment directly too.

```
\citet{hasselmo} investigated\dots
```

produces

Hasselmo, et al. (1995) investigated. . .

```
https://www.ctan.org/pkg/booktabs
```

5.1 Figures

You can insert figure using LaTeX directly.

See Figure 1. Here is how you add footnotes. [^Sample of the first footnote.]

But you can also do that using R.

```r
plot(mtcars$mpg)
```

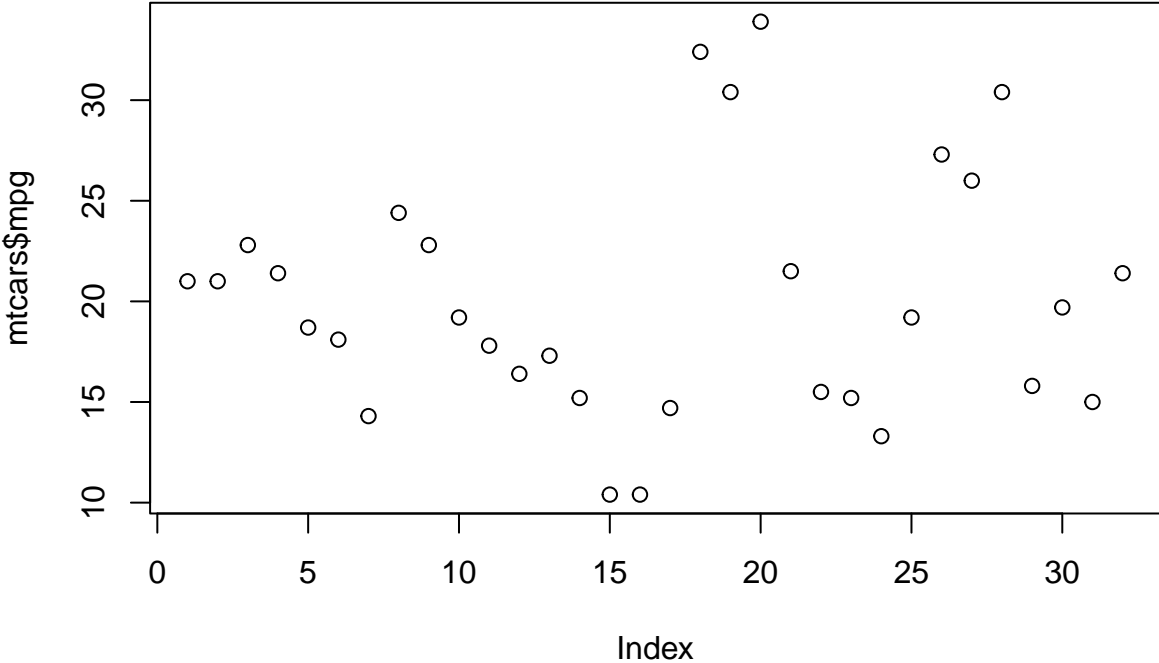You can use **bookdown** to allow references for Tables and Figures.

Figure 2: Another sample figure

Table 1: Sample table title

	Part		Size (μm)
Name	Description		
Dendrite	Input terminal		~100
Axon	Output terminal		~10
Soma	Cell body		up to 10^6

5.2 Tables

Below we can see how to use tables.

See awesome Table~1 which is written directly in LaTeX in source Rmd file.

You can also use R code for that.

```
knitr::kable(head(mtcars), caption = "Head of mtcars table")
```

Table 2: Head of mtcars table

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21.0	6	160	110	3.90	2.620	16.46	0	1	4	4
Mazda RX4 Wag	21.0	6	160	110	3.90	2.875	17.02	0	1	4	4
Datsun 710	22.8	4	108	93	3.85	2.320	18.61	1	1	4	1
Hornet 4 Drive	21.4	6	258	110	3.08	3.215	19.44	1	0	3	1
Hornet Sportabout	18.7	8	360	175	3.15	3.440	17.02	0	0	3	2
Valiant	18.1	6	225	105	2.76	3.460	20.22	1	0	3	1

5.3 Lists

- Item 1
- Item 2
- Item 3

Hadash, Guy, Einat Kermany, Boaz Carmeli, Ofer Lavi, George Kour, and Alon Jacovi. 2018. "Estimate and Replace: A Novel Approach to Integrating Deep Neural Networks with Existing Applications." *arXiv Preprint arXiv:1804.09028.*

Kour, George, and Raid Saabne. 2014a. "Fast Classification of Handwritten on-Line Arabic Characters." In *Soft Computing and Pattern Recognition (SoCPaR), 2014 6th International Conference of*, 312–18. IEEE.