

# Pogramación en R

SURESTE

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## 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:

## Velocidades vs. Distancia

```
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
```

`summary` es para ver estadísticas básicas de una variable o de una tabla.

*#recuadro gris*

*cursiva con asteriscos*

**dobles asteriscos negrita**

información de la variable `cars` debo usar: `? cars`

```
? cars
```

*#En la ventana derecha inferior me aparece lo solicitado.*

## determinada columna

```
cars$speed
```

```
##  [1]  4  4  7  7  8  9 10 10 10 11 11 12 12 12 12 13 13 13 13 14 14 14 14 15 15
## [26] 15 16 16 17 17 17 18 18 18 18 19 19 19 20 20 20 20 20 22 23 24 24 24 24 25
```

*#Usamos el signo peso para seleccionar una columna en específico*

## conversión de pies a metros

```
distancia = cars$dist*0.5
```

## cantidad de filas de una columna

```
length(cars$dist)
```

```
## [1] 50
```

## promedio de las velocidades

```
mean(cars$speed)
```

```
## [1] 15.4
```

```
#Estamos calculando el promedio de nuestra tabla
```

## Tipo de dato de la variable

```
mode(cars$speed)
```

```
## [1] "numeric"
```

## Moda de un grupo de valores

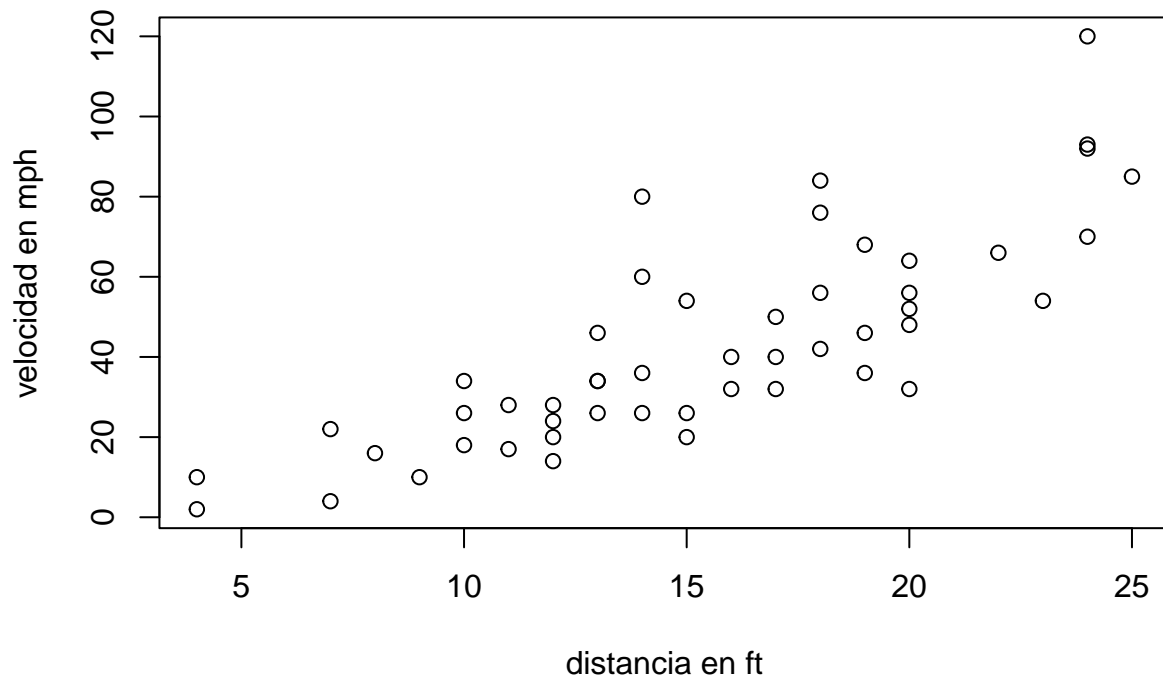
```
get_mode <- function(v) {  
  uniq_vals <- unique(v)  
  uniq_vals[which.max(tabulate(match(v, uniq_vals)))]  
}  
get_mode(cars$speed)
```

```
## [1] 20
```

## *Velocidad vs. Distancia*

```
plot(cars,main="Distancia de frenado del Chevrolet  
Imapala 1963",xlab="distancia en ft", ylab="velocidad en mph")
```

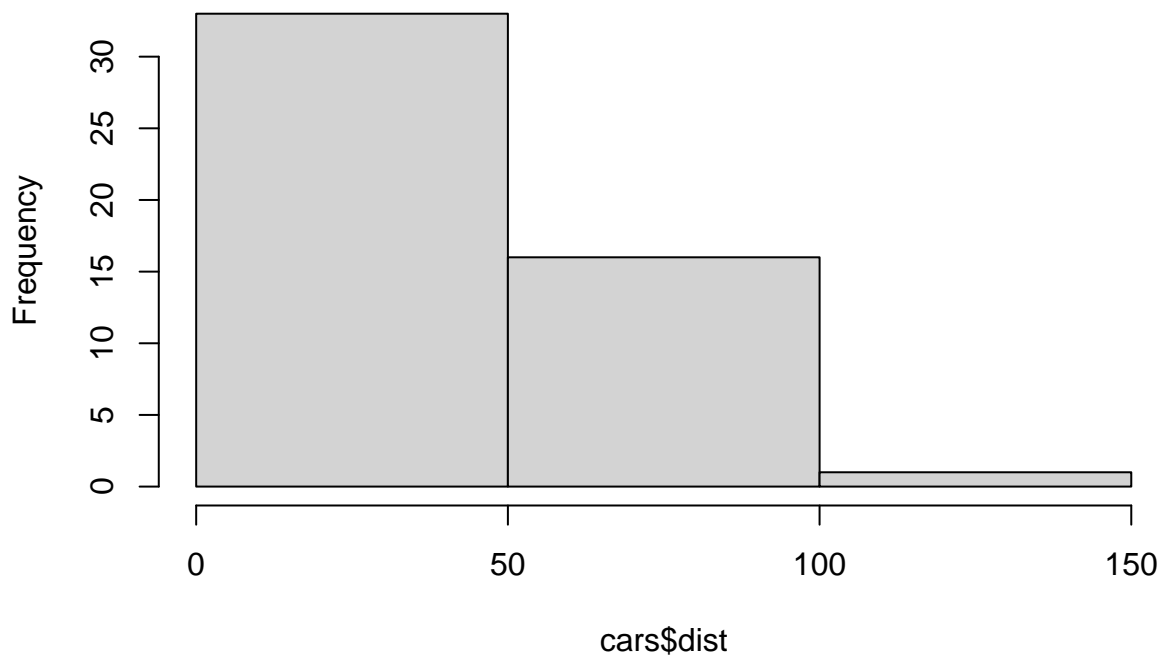
## Distancia de frenado del Chevrolet Imapala 1963



## Histograma

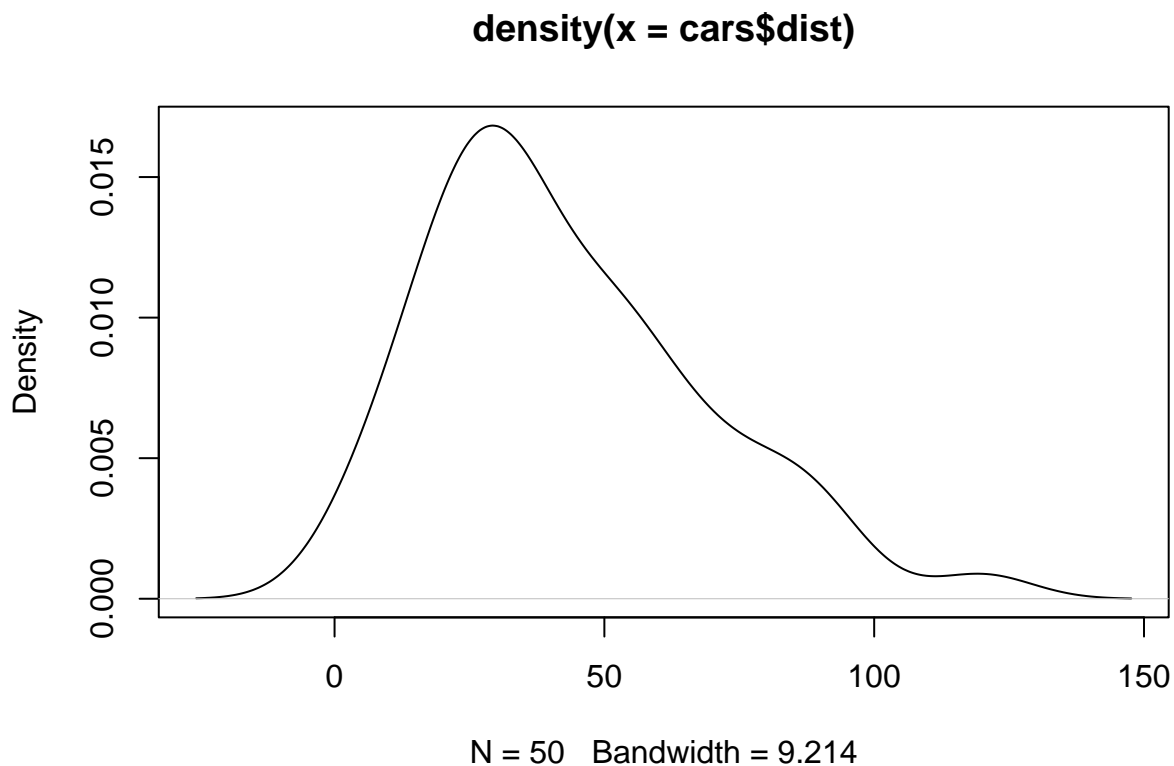
```
hist(cars$dist,breaks = 2)
```

## Histogram of cars\$dist



## Gráfico de Densidad

```
plot(density.default(x=cars$dist))
```



## asignación de valores a una variable

```
a <- 23  
a
```

```
## [1] 23
```

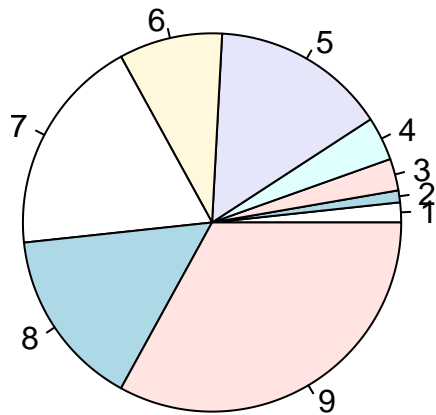
## variable en vector

```
b <- c(5,3,8,11,44,26,55,45,97)  
b
```

```
## [1] 5 3 8 11 44 26 55 45 97
```

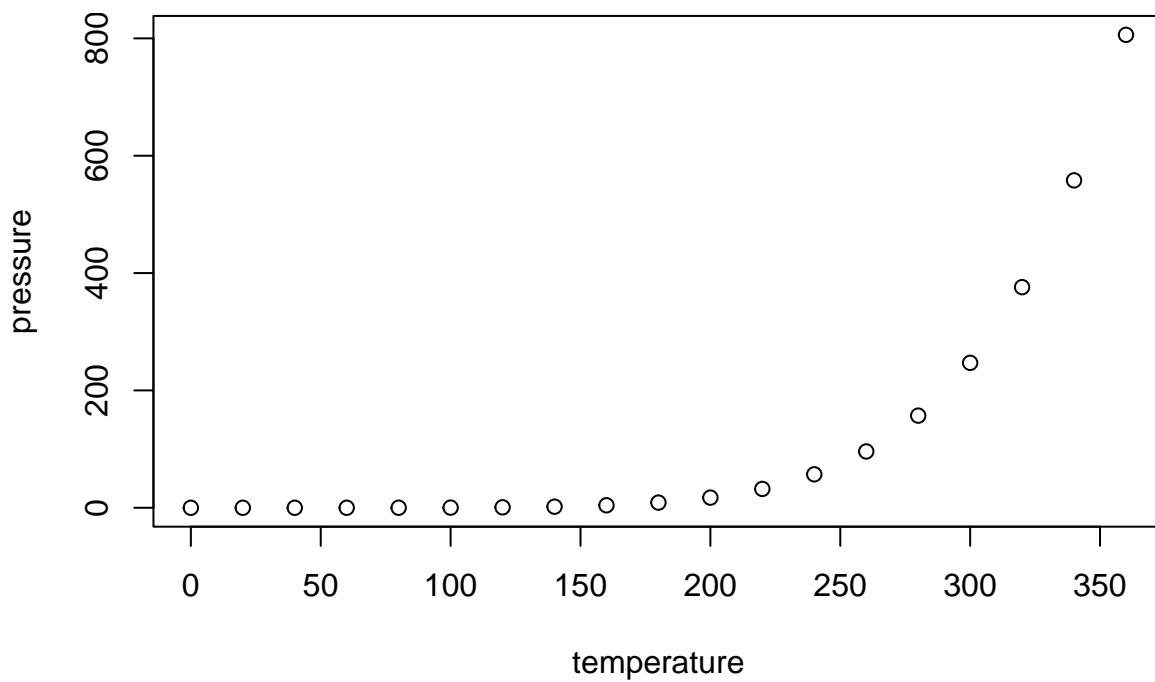
## gráfico de tortas

```
pie(b)
```



## 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. Como importar datos directamente desde la web método manual se importa una vez pero no se a teje rcon el archivo markdown

## Insertar tabla

```
library(readr)
Puertos_Chile <- read_csv("https://themys.sid.uncu.edu.ar/rpalma/R-cran/Puertos_Chile.csv")

## `curl` package not installed, falling back to using `url()`
## Rows: 150 Columns: 6
## -- Column specification -----
## Delimiter: ","
## chr (1): Puerto
```

```
## dbl (5): F, Tecnologia, Normas, Seguridad, Equipo
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Puertos_Chile #Para ver la tabla
```

```
## # A tibble: 150 x 6
##       F Tecnologia Normas Seguridad Equipo Puerto
##   <dbl>      <dbl> <dbl>      <dbl> <dbl> <chr>
## 1     1        5.1   3.5        1.4   0.2 Iqui
## 2     2        4.9   3         1.4   0.2 Iqui
## 3     3        4.7   3.2        1.3   0.2 Iqui
## 4     4        4.6   3.1        1.5   0.2 Iqui
## 5     5         5     3.6        1.4   0.2 Iqui
## 6     6        5.4   3.9        1.7   0.4 Iqui
## 7     7        4.6   3.4        1.4   0.3 Iqui
## 8     8         5     3.4        1.5   0.2 Iqui
## 9     9        4.4   2.9        1.4   0.2 Iqui
## 10    10        4.9   3.1        1.5   0.1 Iqui
## # i 140 more rows
```

```
#tabla desde Excel
```

```
install.packages("readxl")
```

```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.4'
## (as 'lib' is unspecified)
```

```
library(readxl)
mi_tabla <- read_excel("Excel para insertar en Posit Cloud.xlsx", skip = 1)
#El skip es para omitir las primeras filas si hay cosas
mi_tabla #Para ver la tabla
```

```
## # A tibble: 11 x 2
##       X `x^2 + 4`
##   <dbl>      <dbl>
## 1     0         4
## 2     1         5
## 3     2         8
## 4     3        13
## 5     4        20
## 6     5        29
## 7     6        40
## 8     7        53
## 9     8        68
## 10    9        85
## 11   10       104
```

Con comandos for hicimos la suma de 1 a 10 y de 1 a 100

```
ti <- Sys.time()
a=1
b=100 # a y b son el inicio y el fin de la suma
c=0
for(i in a:b) {
```

```
c=c+i  
print(c)  
tf <-Sys.time()  
}
```

```
## [1] 1  
## [1] 3  
## [1] 6  
## [1] 10  
## [1] 15  
## [1] 21  
## [1] 28  
## [1] 36  
## [1] 45  
## [1] 55  
## [1] 66  
## [1] 78  
## [1] 91  
## [1] 105  
## [1] 120  
## [1] 136  
## [1] 153  
## [1] 171  
## [1] 190  
## [1] 210  
## [1] 231  
## [1] 253  
## [1] 276  
## [1] 300  
## [1] 325  
## [1] 351  
## [1] 378  
## [1] 406  
## [1] 435  
## [1] 465  
## [1] 496  
## [1] 528  
## [1] 561  
## [1] 595  
## [1] 630  
## [1] 666  
## [1] 703  
## [1] 741  
## [1] 780  
## [1] 820  
## [1] 861  
## [1] 903  
## [1] 946  
## [1] 990  
## [1] 1035  
## [1] 1081  
## [1] 1128  
## [1] 1176  
## [1] 1225
```

```
## [1] 1275
## [1] 1326
## [1] 1378
## [1] 1431
## [1] 1485
## [1] 1540
## [1] 1596
## [1] 1653
## [1] 1711
## [1] 1770
## [1] 1830
## [1] 1891
## [1] 1953
## [1] 2016
## [1] 2080
## [1] 2145
## [1] 2211
## [1] 2278
## [1] 2346
## [1] 2415
## [1] 2485
## [1] 2556
## [1] 2628
## [1] 2701
## [1] 2775
## [1] 2850
## [1] 2926
## [1] 3003
## [1] 3081
## [1] 3160
## [1] 3240
## [1] 3321
## [1] 3403
## [1] 3486
## [1] 3570
## [1] 3655
## [1] 3741
## [1] 3828
## [1] 3916
## [1] 4005
## [1] 4095
## [1] 4186
## [1] 4278
## [1] 4371
## [1] 4465
## [1] 4560
## [1] 4656
## [1] 4753
## [1] 4851
## [1] 4950
## [1] 5050
```

```
tf-ti
```

```
## Time difference of 0.006072998 secs
```



## Formula de newton

```
ti <- Sys.time()
N <- 100
suma_formula <- N * (N + 1) / 2

print(suma_formula)
```

```
## [1] 5050
```

```
tf <- Sys.time()
```

```
tf-ti
```

```
## Time difference of 0.00177145 secs
```