ATELIER 2

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## Présentation de vecteurs

Les vecteurs sont l’un des objets de bases de R et correspondent à une liste de valeurs. Leurs propriétés fondamentales sont :

1.les vecteurs sont unidimensionnels (i.e. c’est un objet à une seule dimension, à la différence d’une matrice par exemple) ; 2.toutes les valeurs d’un vecteur sont d’un seul et même type ; 3.les vecteurs ont une longueur qui correspond au nombre de valeurs contenues dans le vecteur.

x<- seq(from=0,to=10,by=1)  
x

## [1] 0 1 2 3 4 5 6 7 8 9 10

mean(x)

## [1] 5

sd(x)

## [1] 3.316625

var(x)

## [1] 11

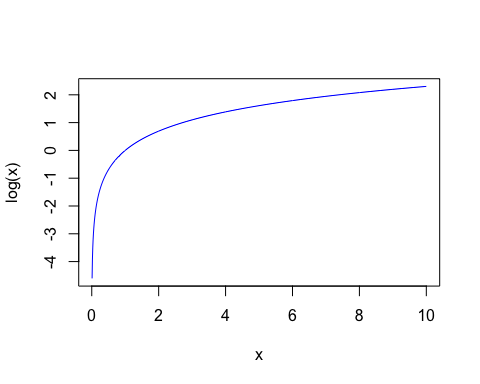
## Including Plots

You can also embed plots, for example:

x <- seq(from=0.01,to=10,by=0.01)  
length(x)

## [1] 1000

plot(x,log(x),type='l',col='blue')



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

#Variables Entières

x<- c(1,2,3)  
x

## [1] 1 2 3

class(x)

## [1] "numeric"

#Variables réelles

y<-c(sqrt(2),sqrt(3),sqrt(5))  
y

## [1] 1.414214 1.732051 2.236068

class(y)

## [1] "numeric"

#Variables qialitatives

z<-c ("pepito","juanito","jorgito")  
z

## [1] "pepito" "juanito" "jorgito"

class(z)

## [1] "character"

mean(z)

## Warning in mean.default(z): argument is not numeric or logical: returning  
## NA

## [1] NA

taille<- c(1.88,1.78,1.67,1.55)  
taille

## [1] 1.88 1.78 1.67 1.55

sexe<-c("f","h","f","f")  
sexe

## [1] "f" "h" "f" "f"

class(taille)

## [1] "numeric"

class(sexe)

## [1] "character"

bd <- data.frame(taille,sexe)  
bd

## taille sexe  
## 1 1.88 f  
## 2 1.78 h  
## 3 1.67 f  
## 4 1.55 f

##Fonctions rep()

x<-rep("pepito",5)  
x

## [1] "pepito" "pepito" "pepito" "pepito" "pepito"

y<-c(rep("f",5),rep("h",3))  
y

## [1] "f" "f" "f" "f" "f" "h" "h" "h"

##Fonction seq

x<-seq(from=-10,to=10,by=2.5)  
x

## [1] -10.0 -7.5 -5.0 -2.5 0.0 2.5 5.0 7.5 10.0

x<-seq(from=-10,to=10,by=5)  
x

## [1] -10 -5 0 5 10

x<-seq(from=-100,to=100,by=4)  
x

## [1] -100 -96 -92 -88 -84 -80 -76 -72 -68 -64 -60 -56 -52 -48  
## [15] -44 -40 -36 -32 -28 -24 -20 -16 -12 -8 -4 0 4 8  
## [29] 12 16 20 24 28 32 36 40 44 48 52 56 60 64  
## [43] 68 72 76 80 84 88 92 96 100

length(x)

## [1] 51

#L’opérateur

x[20]

## [1] -24

x[20:30]

## [1] -24 -20 -16 -12 -8 -4 0 4 8 12 16

20:30

## [1] 20 21 22 23 24 25 26 27 28 29 30

##Vecteurs Remarquables

pi

## [1] 3.141593

exp(1)

## [1] 2.718282

LETTERS

## [1] "A" "B" "C" "D" "E" "F" "G" "H" "I" "J" "K" "L" "M" "N" "O" "P" "Q"  
## [18] "R" "S" "T" "U" "V" "W" "X" "Y" "Z"

month.name

## [1] "January" "February" "March" "April" "May"   
## [6] "June" "July" "August" "September" "October"   
## [11] "November" "December"

month.abb

## [1] "Jan" "Feb" "Mar" "Apr" "May" "Jun" "Jul" "Aug" "Sep" "Oct" "Nov"  
## [12] "Dec"

##Valeurs manquantes

taille<- c(1.88,NA,1.65,1.92,NA,1.55)  
taille

## [1] 1.88 NA 1.65 1.92 NA 1.55

mean(taille,na='TRUE')

## [1] 1.75

sd(taille,na='TRUE')

## [1] 0.178699

summary(taille)

## Min. 1st Qu. Median Mean 3rd Qu. Max. NA's   
## 1.550 1.625 1.765 1.750 1.890 1.920 2

is.na(taille)

## [1] FALSE TRUE FALSE FALSE TRUE FALSE

##Indexation par condition

sexe<-c(rep('f',25),rep('h',50))  
taille<- rnorm(75,165,4)  
bd <- data.frame(sexe,taille)  
taille.f<-taille[sexe=='f']  
taille.f

## [1] 160.4313 168.2123 162.5008 170.7979 161.0577 167.8587 166.4890  
## [8] 166.4086 161.0470 173.6958 176.1915 170.6958 163.5578 166.2256  
## [15] 166.1432 166.2268 158.2584 164.4741 166.7395 169.1188 169.1838  
## [22] 163.7669 164.4280 161.7762 165.3641

taille.h<-taille[sexe=='h']  
taille.h

## [1] 164.8111 167.4442 162.6773 164.1549 169.8679 162.1298 162.3041  
## [8] 164.0429 158.1048 163.5010 160.6417 160.1532 160.2681 161.7681  
## [15] 168.8352 161.6957 170.3854 163.8346 170.4254 160.3311 169.8506  
## [22] 162.4401 166.0243 165.3889 163.0559 163.9124 167.4258 165.5372  
## [29] 167.3260 169.0980 169.5736 170.9980 165.8870 162.9232 166.8587  
## [36] 163.1636 166.1077 160.0789 166.4730 162.6167 152.4375 174.0619  
## [43] 161.9181 168.6569 169.3133 172.5116 158.5716 160.6154 161.0125  
## [50] 171.3378

mean(taille)

## [1] 165.2427

mean(taille.f)

## [1] 166.026

mean(taille.h)

## [1] 164.851

sexe[taille>1.70]

## [1] "f" "f" "f" "f" "f" "f" "f" "f" "f" "f" "f" "f" "f" "f" "f" "f" "f"  
## [18] "f" "f" "f" "f" "f" "f" "f" "f" "h" "h" "h" "h" "h" "h" "h" "h" "h"  
## [35] "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h"  
## [52] "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h"  
## [69] "h" "h" "h" "h" "h" "h" "h"

conditionelle<-sexe[taille<164]  
conditionelle

## [1] "f" "f" "f" "f" "f" "f" "f" "f" "h" "h" "h" "h" "h" "h" "h" "h" "h"  
## [18] "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h" "h"

(table(conditionelle)/length(taille))\*100

## conditionelle  
## f h   
## 10.66667 32.00000

boxplot(taille,taille.f,taille.h)

