Vectors

x1 ← c( 1,3,5 )

x2 ← c( “male” , “female” )

x3 ← 2:7

seq( from= , to= , by= )

rep( , times= )

rep(seq( from= , to= , by= ) , times= )

x1… may be calculated +, -, \*, /

if two vectors have same length , we may calculate +, -, \*, /

y ← c( 1,3,5,7,9 )

y[3] > 5

y[-3] > 1 3 7 9

y[1:3] > 1 3 5

y[y<6] > 1 3 5

matrix(c( 1,2,3,4,5,6,7,8,9) , nrow=3 , byrow=true )

1 2 3

4 5 6

7 8 9

byrow=false , elements will be entered in column-wise

nickname height

1 Tom 170

2 Jack 180

\*\* data frame 的每個行（column）可以儲存不同變數類型的資料，甚至非狀巢結構的列表亦可。

data1 ← read.csv( file,choose(), header=T )

T = the first row of our dataset are variables or headers

data2 ← read.table( file,choose(), header=T , sep= ” , “ )

sep= ” , “ ( csv file )

sep= ” \t “ ( tab-delimited file )

write.table( DataToExport , file=”...url.../ExportedFileName.csv” , sep= ”, “ )

row.names=false ( no column header )

data <- read.table ( file=”path”, header=TRUE , sep=”\t” )

header = first row

sep =” \t “ >> tab delimited

sep = “, ” >> comma separated

sep = “ “ >> blank

data <- read.table( file.choose() , header=TRUE , sep=”\t” )

rm(data)

dim(data)

head(data) >>> first six rows

tail(data) >>> last six rows

names(data) >>> the headers

dim(data) >>> #row #column

attach(data) >>> put memory in every column

data$Age

$ helps to extract data

levels(factor)

> “male” “female”

read.table(file=“檔名”header=T,sep=“\t”) @ 右上角Import Dataset

2. dim( ) : dimension

3. head( ) : first six rows / tail( ) : last six rows

4. names( ) : factor

summary(data)

> 敘述統計 ( if data is numeric )

> frequency ( if data is factor )

mean(Age[Gender==”male”])

Maleover15 <- data[ Gender==”male” & Age>15 , ]

as numeric => 0 or 1

：as numeric ( condition )

* 0 > false
* 1 > true

equal sign > “ == ”

bind a new column to data > cbind

Newdata <- cbind ( data , newcolumn )

1. help( ) >> instruction

2. library( )

3. install.packages(“ “)

4. remove.packages(“ “)