R筆記

1.2

* It’s case sensitive.
* The values stored will show on the right hand and can be overwritten.
  + X <- 3, y <- 5
* Use the code rm to remove values.
* Numbers in quotations are considered character.
  + Z = “123”, Z character
* It can perform most of the arithmetic operations.
  + X\*y
  + x/y
  + y^2
  + sqrt(y)
  + log(y)
  + abs(-14)
* if there’s an incomplete command, R will show a +

ch1.4

* use c(x, y, z) to create a vector to store in the object
  + c(1, 3, 5)
  + c(“john”, “peter”)
* create a sequence
  + 2:7. 2 3 4 5 6 7
  + Seq(from = 1 , to =7, by = 1)
* Repeat
  + Rep(1, times = 10)
  + Rep(“marin”, times=10)
* You can do most of the arithmetic operations on vectors.
* You can extract element from the vectors
  + Y[3]
  + Y[-3] all the elements except the third
  + Y[1:3]
  + Y[c(1, 5)] the first and fifth element
* Matrix
  + - > matrix(c(1,2,3,4,5,6,7,8,9), nrow = 3, byrow = TRUE)
    - [,1] [,2] [,3]
    - [1,] 1 2 3
    - [2,] 4 5 6
    - [3,] 7 8 9
    - > matrix(c(1,2,3,4,5,6,7,8,9), nrow = 3, byrow = FALSE)
    - [,1] [,2] [,3]
    - [1,] 1 4 7
    - [2,] 2 5 8
    - [3,] 3 6 9
  + Save matrix in mat
  + Extract elements form matrix
    - Mat[1, 2] extract the element from the first row and the second column
    - Mat[c(1, 3), 2] row1 and row3, the second element
    - Mat[,1] the first column
    - Mat[2,] the second row

Ch1.5

* Call the function read.csv
  + Help(read.csv)
  + ?read.csv
* Open a csv file
  + Data1 <- read.csv(file. choose(), header = T)
    - File name = .csv
    - True : the first row of the dataset is variable names
  + Data2 <- read. table(file. Choose(), header = T, sep = “,”)
    - File name = .csv
  + Data3 <- read. delim(file.choose(), header = T)
    - Text delimited file, file name = .txt
  + Data4 <- read. table(file. Choose(), header = T, sep = “\t”)
    - File name= .txt
* Import dataset
  + Name
  + Sheet, it can open another worksheet
  + Range
  + Max row, to limit the rows imported
  + Skip
* Click the triangle on the header to change the types of the variables, or skip the variables.

Ch1.6

* Export data from R
  + Call the function: help(write.table)
  + Write. table(datatoexport, file = “exportedfilename.csv”, sep = “,”)
  + Write. table(datatoexport, file = “exportedfilename.csv”, row.names= F, sep = “,”)
    - Delete the first row
  + Write. table(datatoexport, file = “~/Desktop/數量分析/exportedfilename.csv”, sep = “,”)
    - Change the working directory
  + Separate by different character
    - Sep = “,”
    - Sep = “\t”
    - Sep = “ “

Ch1.7

* Importing, checking and working with data
  + Open read table function
    - Help(read.table)
    - ?readtable
* Set data
  + Data1 <- read.table(file, header, sep)
  + File.choose() will open the finder to file path and show the list
* Call sequence
  + Dataname[c(5,6,7,8), ] blank for column

Ch1.8

* Names(dataname)
* Mean(dataname$headername)
* Dataname$headername
* Use attach(dataname) to memorize the data
* Use detach() to remove it
* Ask level() for variables
* Summary(dataname) for the summary of mean and other stuff

Ch1.9

* Mean(Age[Gender==”female”])
* = to assign , == equal

Ch1.10

* Logic statement
  + Age[1:5] = 6 18 16 14 5
  + Temp = age>15 -> temp[1:5] = False True True False False
  + Temp2 = as.numeric(Age > 15) -> temp2[1:5] = 0 1 1 0 0
  + It can be used to check multiple variables
    - Femsmoke <- gender == “female” & smoke ==” Yes”
* Adding logical statement into data
  + Moredata = cbind(LungCapData, Femsmoke)

Ch1.11

* Setting up working directory
  + getwd() -> "/Users/johnalao/Desktop/數量分析"
  + setwd() -> set a net working directory
  + project1 <- "/Users/johnalao/Desktop/數量分析"
    - setwd(project1) to set up different directory for each project
* use the session in the menu -> setting working directory
* next time open a new script
  + getwd()
  + load(filename)
  + and you can keep working on the previous project

ch1.12

* writing script
* select the codes and click on run to execute the codes
* or use command+enter to execute the codes
* after editing the codes, you can use[save.image()] to save Rdata

ch1.13

* install packages
  + install.packages(“epiR”) and select the area where you r at
  + install.packages() to search for all the packages to install
* load packages
  + library(epiR) you have to load packages every time
  + use help(package = epiR) to see the instructions of the package
  + remove.packages(“epiR”) to remove the package
* use tools in menu to execute all the steps above

ch1.14

* Customizing The Look of R Studio
* Click on the options in tools
  + Set default working directory
  + Set save
  + Other details on the appearance

Ch1.15

* Apply functions in R
  + Apply functions are a set of loop functionsn R