|  |
| --- |
| # Q1 |
|  | setwd('G:/Data Science Speciality Track/R programming') |
|  | getwd() |
|  | # look at the 'iris' dataset that comes with R. |
|  | library(datasets) |
|  | data(iris) |
|  | # A description of the dataset can be found by running |
|  | ?iris |
|  | str(iris) |
|  | head(iris) |
|  | virginica<-subset(iris,Species == 'virginica') |
|  |  |
|  | sl<-data.frame(virginica$Sepal.Length) |
|  |  |
|  | sl<-data.frame(iris$Sepal.Length[iris$Species=="virginica"]) |
|  | sl |
|  | summary(sl) |
|  | # Mean :6.588 ~ 7 |
|  |  |
|  | # Q2 |
|  | # Simple: either the rows (1), the columns (2) or both (1:2) |
|  | apply(iris[, 1:4], 2, mean)# by columns |
|  | # Sepal.Length Sepal.Width Petal.Length Petal.Width |
|  | # 5.843333 3.057333 3.758000 1.199333 |
|  | apply(iris[, 1:4], 1, mean)# by rows |
|  |  |
|  | # Q3 |
|  | # Load the 'mtcars' dataset |
|  | library(datasets) |
|  | data(mtcars) |
|  |  |
|  | # object names 'mtcars' in your workspace |
|  | # information about the dataset by running |
|  | ?mtcars |
|  | str(mtcars) |
|  | head(mtcars) |
|  | # calculate the average miles per gallon (mpg) |
|  | # by number of cylinders in the car (cyl) |
|  | tapply(mtcars$cyl, mtcars$mpg, mean) |
|  | # Apply a function to each cell of a ragged array, |
|  | # that is to each (non-empty) group of values |
|  | # given by a unique combination of the levels of certain factors. |
|  | apply(mtcars, 2, mean)# mean for every column |
|  | sapply(split(mtcars$mpg, mtcars$cyl), mean) |
|  | # 4 6 8 |
|  | # 26.66364 19.74286 15.10000 |
|  | # sapply is a user-firendly version of lapply |
|  | # by default returning a vector or matrix if appropriate |
|  | # description of lapply: |
|  | # lapply returns a list of the same length as X, |
|  | # each element of which is the result of applying FUN |
|  | # to the corresponding element of X |
|  |  |
|  | # create a list with 2 elements |
|  | l <- list(a = 1:10, b = 11:20) |
|  | # the mean of the values in each element |
|  | lapply(l, mean) |
|  | # $a |
|  | # [1] 5.5 |
|  | # |
|  | # $b |
|  | # [1] 15.5 |
|  |  |
|  | # the sum of the values in each element |
|  | lapply(l, sum) |
|  | # $a |
|  | # [1] 55 |
|  | # |
|  | # $b |
|  | # [1] 155 |
|  |  |
|  | # answer is: sapply(split(mtcars$mpg, mtcars$cyl), mean) |
|  |  |
|  | # also: with(mtcars, tapply(mpg, cyl, mean)) |
|  |  |
|  | # Q4 |
|  | # the absolute difference between |
|  | # the average horsepower of 4-cylinder cars and |
|  | # the average horsepower of 8-cylinder cars |
|  |  |
|  | abs(mean(split(mtcars, mtcars$cyl)$'4'$hp) - mean(split(mtcars, mtcars$cyl)$'8'$hp)) |
|  | # 126.5779 ~ 127 |
|  | > abs(mean(mtcars$hp[mtcars$cyl==4])-mean(mtcars$hp[mtcars$cyl==8])) |
|  |  |
|  |  |
|  |  |
|  | # Q5 |
|  | debug(ls) |
|  | ls() |
|  | # You will be prompted to specify at which line of the function |
|  | # you would like to suspend execution and enter the browser. |
|  | debugonce() |
|  | # when you need to quit the status debug |
|  | # type help at the Browse[]> |
|  | # Answer: Execution of 'ls' will suspend at the beginning of the function and you will be in the browser. |