R and Python Living in Harmony

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## Simply mix text and R-code

The data-frame mtcars has the following columns: mpg, cyl, disp, hp, drat, wt, qsec, vs, am, gear, carb.

Here are the first rows and columns:

## mpg cyl disp hp drat wt
## Mazda RX4 21.0 6 160 110 3.90 2.620
## Mazda RX4 Wag 21.0 6 160 110 3.90 2.875
## Datsun 710 22.8 4 108 93 3.85 2.320
## Hornet 4 Drive 21.4 6 258 110 3.08 3.215

And here is a plot:

ggplot(mtcars, aes(x = wt, y = mpg, colour = cyl, size = hp)) +
 geom\_point() +
 geom\_smooth()



A plot generated by R on R-data.

## Run Python in R and use the R-objects

print("This is printed by Python.")

## This is printed by Python.

Note that we can access all R-variables in the object ‘r’. The following code fragments uses the object df from R:

mpg\_py = r.df['mpg']
print(mpg\_py)

## Mazda RX4 21.0
## Mazda RX4 Wag 21.0
## Datsun 710 22.8
## Hornet 4 Drive 21.4
## Hornet Sportabout 18.7
## Valiant 18.1
## Duster 360 14.3
## Merc 240D 24.4
## Merc 230 22.8
## Merc 280 19.2
## Merc 280C 17.8
## Merc 450SE 16.4
## Merc 450SL 17.3
## Merc 450SLC 15.2
## Cadillac Fleetwood 10.4
## Lincoln Continental 10.4
## Chrysler Imperial 14.7
## Fiat 128 32.4
## Honda Civic 30.4
## Toyota Corolla 33.9
## Toyota Corona 21.5
## Dodge Challenger 15.5
## AMC Javelin 15.2
## Camaro Z28 13.3
## Pontiac Firebird 19.2
## Fiat X1-9 27.3
## Porsche 914-2 26.0
## Lotus Europa 30.4
## Ford Pantera L 15.8
## Ferrari Dino 19.7
## Maserati Bora 15.0
## Volvo 142E 21.4
## Name: mpg, dtype: float64

def averageOfList(num):
 sumOfNumbers = 0
 for t in num:
 sumOfNumbers = sumOfNumbers + t

 avg = sumOfNumbers / len(num)
 avg = round(avg, 2)
 return avg

print("The average of MPG is:", averageOfList(mpg\_py))

## The average of MPG is: 20.09

### Print something in Python

mpg\_py.plot.hist(grid=True, bins=20, rwidth=0.9,
 color='#607c8e')



## Use the Python objects in R

library(ggplot2)
library(tidyverse)
tbl <- tibble(mpg = py$mpg\_py)

ggplot(tbl, aes(y = mpg)) + geom\_boxplot(fill="khaki3")

