R and Python Living in Harmony

Philippe De Brouwer

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## Simply mix text and R-code

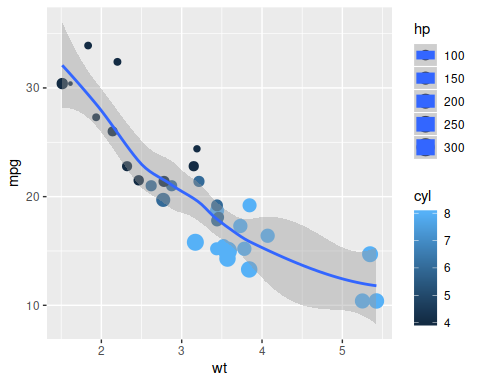
The data-frame mtcars has the following columns: mpg, cyl, disp, hp, drat, wt, qsec, vs, am, gear, carb.

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)

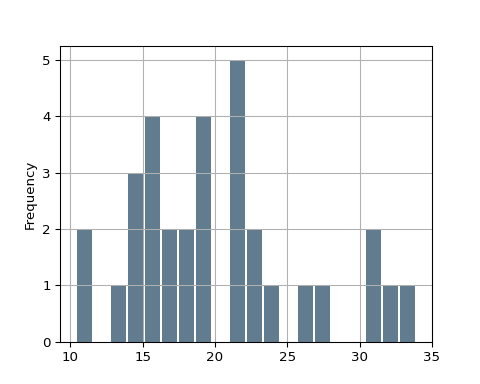
## Mazda RX4 21.0  
## Mazda RX4 Wag 21.0  
## Datsun 710 22.8  
## Hornet 4 Drive 21.4  
## Hornet Sportabout 18.7  
## Valiant 18.1  
## Duster 360 14.3  
## Merc 240D 24.4  
## Merc 230 22.8  
## Merc 280 19.2  
## Merc 280C 17.8  
## Merc 450SE 16.4  
## Merc 450SL 17.3  
## Merc 450SLC 15.2  
## 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")

