Simple Linear Regression

Coding in Julia and Plotting in R

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The reason to use 2 languages

I wrote the code in Julia and plotted in R since I'd like to not only run code fast, but also to speed up plotting. I'm going to write details about how to connect Julia and R.

Calculate Simple Linear Regression in Julia

```
A = readcsv("data.csv", header=true)
# header=true: distinguish header from values

X = A[1][:,2]
Y = A[1][:,3]

function beta1(X,Y)
  n = 10
  b = (n*sum(X.*Y) - (sum(X)*sum(Y)))/(n*sum(X.^2) - sum(X)^2)
  return b
end

function beta0(X,Y)
  n = 10
  b0 = (sum(Y) - beta1(X,Y)*sum(X))/n
  return b0
end

hatY = beta0(X,Y) + beta1(X,Y)*X

B = hcat(A[1], hatY)

writecsv("slr.csv", B)
```

To calculate and sent to R, read and yeild data using built-in function("readcsv", "writecsv").

Plot SLR with original data

```
library("ggplot2")

READ <- read.csv("slr.csv", header = F)

X <- READ["V2"]
```

```
6 Y <- READ["V3"]
7 hatY <- READ["V4"]
8
9 ggplot(READ)+ geom_line(aes(V2, V4, color="reg")) + geom_point(aes(V2,
     V3, color="data")) + labs(x = "X", y = "Y")
```

To use read.csv in R, the workplace have to be in same space with data file.