

Course Project 1

Gustavo Sánchez

3/6/2020

R Markdown

- This is the Homework (Course Project 1) by Data_analisis course.
- The PNG files was create by separate R code file (plot1.R, plot2.R, etc.)

The four plots constructed are shown below.

Plot 1

R code

```
Data <- read.csv('C:/Users/GUSTAVO/Desktop/Data analisis/Taller 1/data1.csv', header=TRUE, se=";", colClasses = c("character", "character", "numeric", "numeric", "numeric", "numeric", "numeric", "numeric"))
```

```
head(Data)
```

```
##      Date      Time Global_active_power Global_reactive_power Voltage
## 1 1/02/2007 0:00:00           0.326           0.128 243.15
## 2 1/02/2007 0:01:00           0.326           0.130 243.32
## 3 1/02/2007 0:02:00           0.324           0.132 243.51
## 4 1/02/2007 0:03:00           0.324           0.134 243.90
## 5 1/02/2007 0:04:00           0.322           0.130 243.16
## 6 1/02/2007 0:05:00           0.320           0.126 242.29
## Global_intensity Sub_metering_1 Sub_metering_2 Sub_metering_3
## 1              1.4              0              0              0
## 2              1.4              0              0              0
## 3              1.4              0              0              0
## 4              1.4              0              0              0
## 5              1.4              0              0              0
## 6              1.4              0              0              0
```

```
str(Data)
```

```
## 'data.frame':   2880 obs. of  9 variables:
##  $ Date          : chr  "1/02/2007" "1/02/2007" "1/02/2007" "1/02/2007" ...
##  $ Time          : chr  "0:00:00" "0:01:00" "0:02:00" "0:03:00" ...
##  $ Global_active_power : num  0.326 0.326 0.324 0.324 0.322 0.32 0.32 0.32 0.32 0.236 ...
```

```
## $ Global_reactive_power: num 0.128 0.13 0.132 0.134 0.13 0.126 0.126
0.126 0.128 0 ...
## $ Voltage : num 243 243 244 244 243 ...
## $ Global_intensity : num 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1 .
..
## $ Sub_metering_1 : num 0 0 0 0 0 0 0 0 0 0 ...
## $ Sub_metering_2 : num 0 0 0 0 0 0 0 0 0 0 ...
## $ Sub_metering_3 : num 0 0 0 0 0 0 0 0 0 0 ...

date <- paste(Data[,1],Data[,2],sep=" "); head(date)

## [1] "1/02/2007 0:00:00" "1/02/2007 0:01:00" "1/02/2007 0:02:00"
## [4] "1/02/2007 0:03:00" "1/02/2007 0:04:00" "1/02/2007 0:05:00"

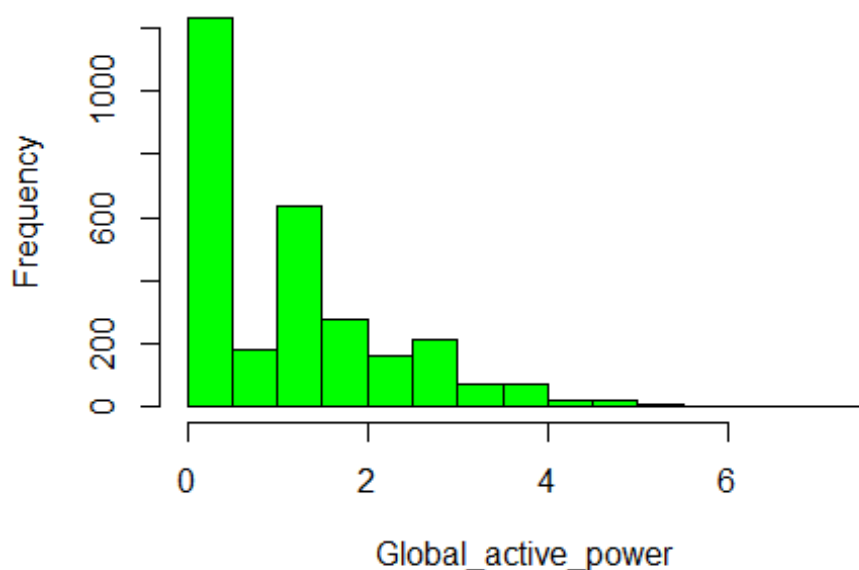
d<- cbind(date,Data[,-c(1,2)]); head(d)

##           date Global_active_power Global_reactive_power Voltage
## 1 1/02/2007 0:00:00           0.326           0.128    243.15
## 2 1/02/2007 0:01:00           0.326           0.130    243.32
## 3 1/02/2007 0:02:00           0.324           0.132    243.51
## 4 1/02/2007 0:03:00           0.324           0.134    243.90
## 5 1/02/2007 0:04:00           0.322           0.130    243.16
## 6 1/02/2007 0:05:00           0.320           0.126    242.29
## Global_intensity Sub_metering_1 Sub_metering_2 Sub_metering_3
## 1           1.4           0           0           0
## 2           1.4           0           0           0
## 3           1.4           0           0           0
## 4           1.4           0           0           0
## 5           1.4           0           0           0
## 6           1.4           0           0           0

d$date <- as.POSIXct(strptime(d$date,
                             format="%d/%m/%Y %H:%M:%S"))
library(datasets)

p<- hist(d$Global_active_power, col="green", xlab=expression("Global_acti
ve_power"))
```

Histogram of d\$Global_active_power



```
png(file = "Plot1", height = 480, width = 480, ) # Una figura de 5x10 cm
```

```
p
```

```
## $breaks
```

```
## [1] 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5
```

```
##
```

```
## $counts
```

```
## [1] 1234 181 633 276 160 212 69 69 20 16 6 2 0
```

```
1 1
```

```
##
```

```
## $density
```

```
## [1] 0.8569444444 0.1256944444 0.4395833333 0.1916666667 0.1111111111
```

```
## [6] 0.1472222222 0.0479166667 0.0479166667 0.0138888889 0.0111111111
```

```
## [11] 0.0041666667 0.0013888889 0.0000000000 0.0006944444 0.0006944444
```

```
##
```

```
## $mids
```

```
## [1] 0.25 0.75 1.25 1.75 2.25 2.75 3.25 3.75 4.25 4.75 5.25 5.75 6.25
```

```
6.75 7.25
```

```
##
```

```
## $xname
```

```
## [1] "d$Global_active_power"
```

```
##
```

```
## $equidist
```

```
## [1] TRUE
```

```
##
```

```
## attr("class")
## [1] "histogram"
```

```
dev.off()
```

```
## png
## 2
```

```
` ## Plot2
```

```
Data <- read.csv('C:/Users/GUSTAVO/Desktop/Data analisys/Taller 1/data1.csv', header=TRUE, se=";", colClasses = c("character", "character", "numeric", "numeric", "numeric", "numeric", "numeric", "numeric", "numeric"))
```

```
date <- paste(Data[,1],Data[,2],sep=" "); head(date)
```

```
## [1] "1/02/2007 0:00:00" "1/02/2007 0:01:00" "1/02/2007 0:02:00"
## [4] "1/02/2007 0:03:00" "1/02/2007 0:04:00" "1/02/2007 0:05:00"
```

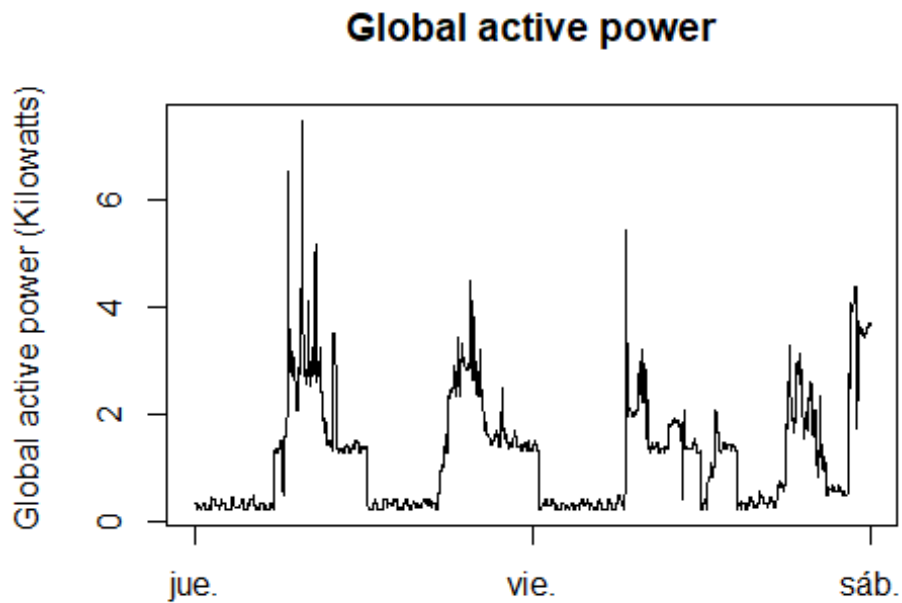
```
d<- cbind(date,Data[,-c(1,2)]); head(d)
```

```
##           date Global_active_power Global_reactive_power Voltage
## 1 1/02/2007 0:00:00           0.326           0.128  243.15
## 2 1/02/2007 0:01:00           0.326           0.130  243.32
## 3 1/02/2007 0:02:00           0.324           0.132  243.51
## 4 1/02/2007 0:03:00           0.324           0.134  243.90
## 5 1/02/2007 0:04:00           0.322           0.130  243.16
## 6 1/02/2007 0:05:00           0.320           0.126  242.29
## Global_intensity Sub_metering_1 Sub_metering_2 Sub_metering_3
## 1           1.4           0           0           0
## 2           1.4           0           0           0
## 3           1.4           0           0           0
## 4           1.4           0           0           0
## 5           1.4           0           0           0
## 6           1.4           0           0           0
```

```
d$date <- as.POSIXct(strptime(d$date,
                              format="%d/%m/%Y %H:%M:%S"))
```

```
library(datasets)
```

```
p<-plot(d[,1],d[,2],type="l",ylab=expression("Global active power (Kilowatts)"),xlab=" ", main="Global active power")
```



```
png(file = "Plot2", height = 480, width = 480, ) # Una figura
```

```
p
```

```
## NULL
```

```
dev.off()
```

```
## png
```

```
## 2
```

Plot3

```
Data <- read.csv('C:/Users/GUSTAVO/Desktop/Data analisis/Taller 1/data1.csv', header=TRUE, se=";", colClasses = c("character", "character", "numeric", "numeric", "numeric", "numeric", "numeric", "numeric"))
```

```
date <- paste(Data[,1],Data[,2],sep=" "); head(date)
```

```
## [1] "1/02/2007 0:00:00" "1/02/2007 0:01:00" "1/02/2007 0:02:00"
```

```
## [4] "1/02/2007 0:03:00" "1/02/2007 0:04:00" "1/02/2007 0:05:00"
```

```
d<- cbind(date,Data[, -c(1,2)]); head(d)
```

```
##           date Global_active_power Global_reactive_power Voltage
## 1 1/02/2007 0:00:00           0.326           0.128    243.15
## 2 1/02/2007 0:01:00           0.326           0.130    243.32
## 3 1/02/2007 0:02:00           0.324           0.132    243.51
## 4 1/02/2007 0:03:00           0.324           0.134    243.90
## 5 1/02/2007 0:04:00           0.322           0.130    243.16
```

```
## 6 1/02/2007 0:05:00          0.320          0.126  242.29
##   Global_intensity Sub_metering_1 Sub_metering_2 Sub_metering_3
## 1          1.4          0          0          0
## 2          1.4          0          0          0
## 3          1.4          0          0          0
## 4          1.4          0          0          0
## 5          1.4          0          0          0
## 6          1.4          0          0          0
```

```
d$date <- as.POSIXct(strptime(d$date,
                             format="%d/%m/%Y %H:%M:%S"))
```

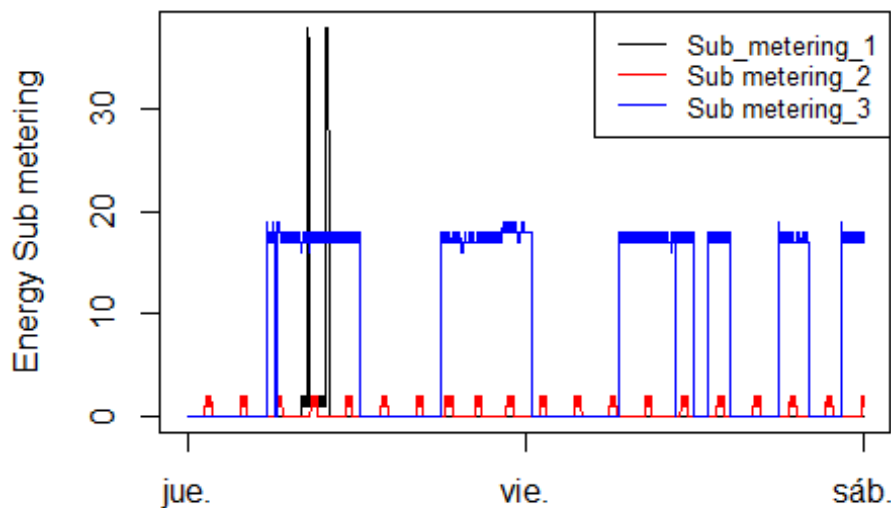
```
library(datasets)
```

```
y1<- d[,6]
```

```
y2<- d[,7]
```

```
y3<- d[,8]
```

```
plot(d[,1],y1, type = "l",ylab="Energy Sub metering",xlab=" ", main="")
lines(d[,1],y2,type="l",col="red")
lines(d[,1],y3,type="l",col="blue", ylab="Energy Sub metering", xlab=" ",
main="")
legend("topright",      c("Sub_metering_1","Sub metering_2","Sub meterin
g_3"), col= c("black","red","blue") , lty=1, cex=0.8)
```



Plot4

```
Data <- read.csv('C:/Users/GUSTAVO/Desktop/Data analisys/Taller 1/data1.csv', header=TRUE, se=";", colClasses = c("character", "character", "numeric", "numeric", "numeric", "numeric", "numeric", "numeric"))
date <- paste(Data[,1],Data[,2],sep=" "); head(date)

## [1] "1/02/2007 0:00:00" "1/02/2007 0:01:00" "1/02/2007 0:02:00"
## [4] "1/02/2007 0:03:00" "1/02/2007 0:04:00" "1/02/2007 0:05:00"

d<- cbind(date,Data[,-c(1,2)]); head(d)

##           date Global_active_power Global_reactive_power Voltage
## 1 1/02/2007 0:00:00           0.326           0.128    243.15
## 2 1/02/2007 0:01:00           0.326           0.130    243.32
## 3 1/02/2007 0:02:00           0.324           0.132    243.51
## 4 1/02/2007 0:03:00           0.324           0.134    243.90
## 5 1/02/2007 0:04:00           0.322           0.130    243.16
## 6 1/02/2007 0:05:00           0.320           0.126    242.29
## Global_intensity Sub_metering_1 Sub_metering_2 Sub_metering_3
## 1           1.4           0           0           0
## 2           1.4           0           0           0
## 3           1.4           0           0           0
## 4           1.4           0           0           0
## 5           1.4           0           0           0
## 6           1.4           0           0           0

d$date <- as.POSIXct(strptime(d$date,
                              format="%d/%m/%Y %H:%M:%S"))

library(datasets)
y1<- d[,6]
y2<- d[,7]
y3<- d[,8]
y4<- d[,4]
y5<- d[,3]
par(mfrow=c(2,2), mar=c(5,4,2,1))

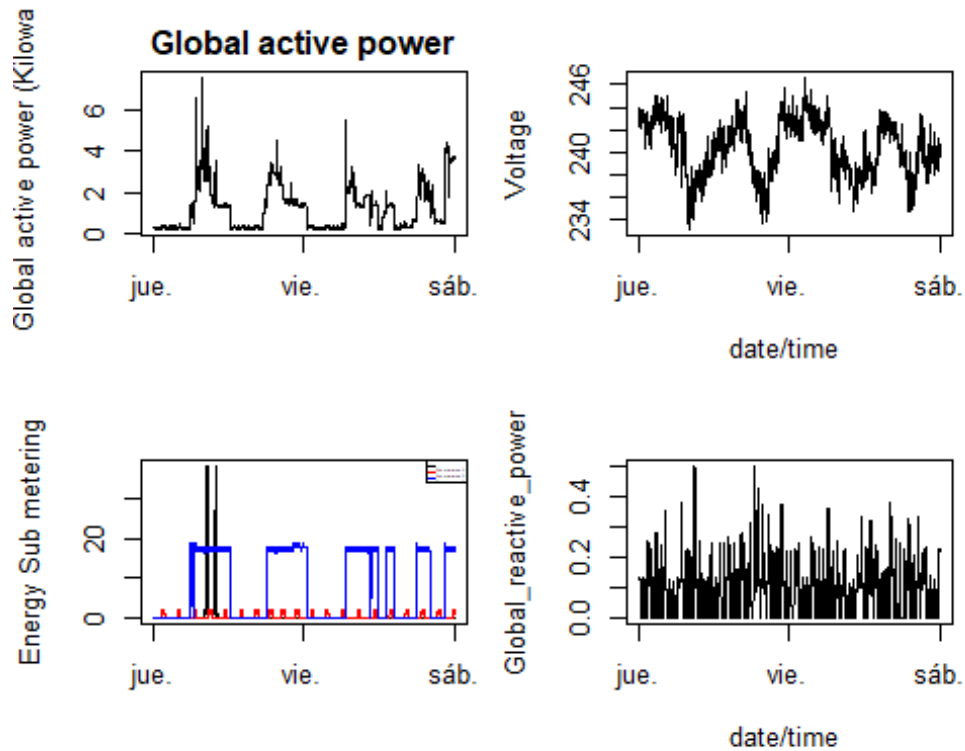
#Plot1
plot(d[,1],d[,2],type="l",ylab=expression("Global active power (Kilowatts)"),xlab=" ", main="Global active power")
#plot2
plot(d[,1],y4, type = "l",ylab="Voltage",xlab="date/time ", main="")
#Plot3

plot(d[,1],y1, type = "l",ylab="Energy Sub metering",xlab=" ", main="")
lines(d[,1],y2,type="l",col="red")
lines(d[,1],y3,type="l",col="blue", ylab="Energy Sub metering", xlab=" ",
main="")
legend("topright", c("Sub_metering_1","Sub metering_2","Sub meterin
```

```
g_3"), col= c("black","red","blue") , lty=1, cex=0.1)
```

```
#plot#4
```

```
plot(d[,1],y5, type = "l" ,ylab="Global_reactive_power",xlab="date/time "
, main="")
```



```
use_github()
```