

The file `store.csv` contains two years of weekly sales of products P1 and P2 of a company with stores worldwide. For each product the file has the number of transactions `sales`, the `price`, and if the product was sold during a week with `promotion`. Read the file and convert `storeID` to a factor. Use R in RStudio to answer the following questions.

1. (20 pts) Describe weekly sales of P2 (`p2sales`), by means of
  - Summary (min, median, mean, max sales)
  - Density histogram of weekly sales with a kernel density estimate overlapping the histogram
2. (20 pts) Compare the weekly sales of P1 (`p1sales`) to those of P2 by means of
  - Two Boxplots on same chart. Use `boxplot(list(df$p1sales,df$p2sales),horizontal=T,...)`
  - Two different-color overlapping histograms (absolute frequencies) with `breaks=30`. Use `hist(...,add=TRUE,...)` for the second histogram. Add a legend.
  - Two different-color overlapping Kernel density estimates of weekly sales Use `lines(density( ),...)` for the second kernel density. Add a legend.
3. (20 pts) Compare the sales of P1 (`p1sales`) for all stores using twenty horizontal boxplots on the same chart. Identify the store with the largest weekly sales of product P1.
4. (20 pts) Assess the normality of weekly sales of P1 by means of
  - Skewness, kurtosis and, a quantile plot.
  - Find the natural log of `p1sales` (call it `p1logsales`). Find Skewness, kurtosis and, draw quantile plot of `p1logsales`.
5. (20 pts) Summarize total `p1sales` by country as follows
  - Create a dataframe `p1sales_sum` using the `aggregate` function, to find `p1sales` by country.
  - Install packages `rworldmap` and `RColorBrewer` to display the total `p1sales` by country on a world map. Use the following script

```
# create map object
#
p1sales.map = joinCountryData2Map(p1sales_sum,
                                  joinCode = "ISO2",
                                  nameJoinColumn = "country")

# display the map
#
mapCountryData(p1sales.map, nameColumnToPlot="p1sales",
               mapTitle="Sales by Country",
               colourPalette=brewer.pal(7, "Reds"),
               catMethod="fixedWidth")
```

Submit your report (code and output) as a pdf file onto Blackboard (no screen captures). Late submissions are not allowed.