Engagement\_import\_and\_clean.R

joost

Wed Jan 11 11:29:15 2017

#Engagement analysis  
  
#Load packages  
library(readxl)  
library(data.table)  
library(dplyr)

## -------------------------------------------------------------------------

## data.table + dplyr code now lives in dtplyr.  
## Please library(dtplyr)!

## -------------------------------------------------------------------------

##   
## Attaching package: 'dplyr'

## The following objects are masked from 'package:data.table':  
##   
## between, first, last

## The following objects are masked from 'package:stats':  
##   
## filter, lag

## The following objects are masked from 'package:base':  
##   
## intersect, setdiff, setequal, union

library(ggplot2)  
  
  
# Import Excel File  
engag16 <- read\_excel("/Users/joost/Documents/Data and Revenue/Daily analysis/Daily revenue GhanaWeb PartII.xlsx", sheet=3, col\_names = F, na = '0', skip = 2)

## Warning in read\_xlsx\_(path, sheet, col\_names = col\_names, col\_types =  
## col\_types, : [401, 2]: expecting numeric: got 'mean'

## Warning in read\_xlsx\_(path, sheet, col\_names = col\_names, col\_types =  
## col\_types, : [402, 2]: expecting numeric: got 'average'

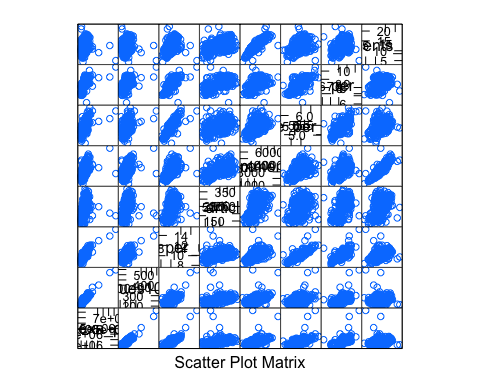
## Warning in read\_xlsx\_(path, sheet, col\_names = col\_names, col\_types =  
## col\_types, : [403, 2]: expecting numeric: got 'st.dev.'

## Warning in read\_xlsx\_(path, sheet, col\_names = col\_names, col\_types =  
## col\_types, : [404, 2]: expecting numeric: got '-0x1.0082fp-36 0x1.ffb4p-135  
## 0x1.6e93ap+46 0x1.fffcp-135riation'

## Warning in read\_xlsx\_(path, sheet, col\_names = col\_names, col\_types =  
## col\_types, : [406, 2]: expecting numeric: got 'max'

## Warning in read\_xlsx\_(path, sheet, col\_names = col\_names, col\_types =  
## col\_types, : [407, 2]: expecting numeric: got 'min'

# Clean Data  
#colselect2 <- c(1, 2, 4, 5)  
colnames2 <- c('date', 'alexa\_pv', 'uniques1000x', 'pages\_per\_unique', 'nr\_articles', 'comments', 'page\_per\_visit', 'time\_per\_visit', 'comments\_visitor', 'comments\_article', 'visits\_per\_visitor')  
  
colnames(engag16) <- colnames2  
engag16 <- engag16[1:366,]  
engag16 <- as.data.table(engag16)  
  
#add column for weekdays and weekends  
  
engage16v2 <- engag16 %>% mutate(wday = weekdays(date, abbreviate = TRUE), weekend = ifelse(wday %in% c('Sat', 'Sun'), 'yes', 'no'))  
  
##!!!remove outliers (method just copied). Select 1 of 2 lines. Top = filter, bottom is NO FILTER  
engage16or <- engage16v2  
#engage16or <- engage16v2 %>% group\_by(ad\_slot\_id) %>% filter(!(abs(count - median(count)) > 3\*sd(count)))  
#engage16or[ , c("alexa\_pv", "uniques1000x", "pages\_per\_unique", "comments\_article")] <- lapply(engage16or[ , c("alexa\_pv", "uniques1000x", "pages\_per\_unique", "comments\_article")], function(x) {ifelse((abs(x-mean(x)) > 3 \* sd(x)), 'NA', x)})  
  
engage16or[ , c("alexa\_pv", "uniques1000x", "pages\_per\_unique", "comments\_article")] <- lapply(engage16or[ , c("alexa\_pv", "uniques1000x", "pages\_per\_unique", "comments\_article")], function(x) {ifelse((abs(x-mean(x)) > 3 \* sd(x)), NA, x)})  
  
   
 # group\_by(element) %>%  
 # filter(!(abs(value - median(value)) > 2\*sd(value))) %>%  
 # summarise\_each(funs(mean), value)  
  
  
### Multiple pairwise comparison Plots  
library(lattice)  
splom(~engage16v2[2:9])



# ggcorplot(  
# data = engage16v2[2:6],  
# var\_text\_size = 5,  
# cor\_text\_limits = c(5,10))  
  
library(GGally)

##   
## Attaching package: 'GGally'

## The following object is masked from 'package:dplyr':  
##   
## nasa

ggpairs(engage16or, columns=c('alexa\_pv', 'uniques1000x', 'pages\_per\_unique', 'nr\_articles'),  
 diag=list(continuous="density", discrete="bar"), axisLabels="show")

## Warning in check\_and\_set\_ggpairs\_defaults("diag", diag, continuous =  
## "densityDiag", : Changing diag$continuous from 'density' to 'densityDiag'

## Warning in check\_and\_set\_ggpairs\_defaults("diag", diag, continuous =  
## "densityDiag", : Changing diag$discrete from 'bar' to 'barDiag'

## Warning: Removed 3 rows containing non-finite values (stat\_density).

## Warning in (function (data, mapping, alignPercent = 0.6, method =  
## "pearson", : Removed 4 rows containing missing values

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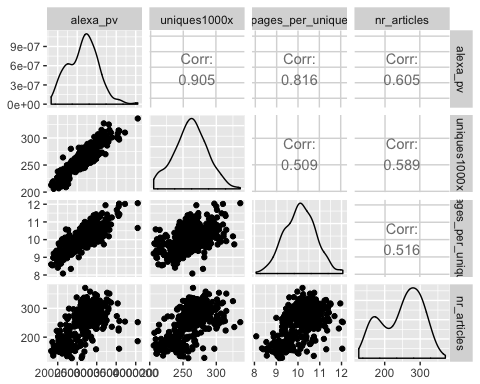
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library(PerformanceAnalytics)

## Loading required package: xts

## Loading required package: zoo

##   
## Attaching package: 'zoo'

## The following objects are masked from 'package:base':  
##   
## as.Date, as.Date.numeric

##   
## Attaching package: 'xts'

## The following objects are masked from 'package:dplyr':  
##   
## first, last

## The following objects are masked from 'package:data.table':  
##   
## first, last

##   
## Attaching package: 'PerformanceAnalytics'

## The following object is masked from 'package:graphics':  
##   
## legend

chart.Correlation(engage16or[2:10],   
 method="spearman",  
 histogram=TRUE,  
 pch=16)

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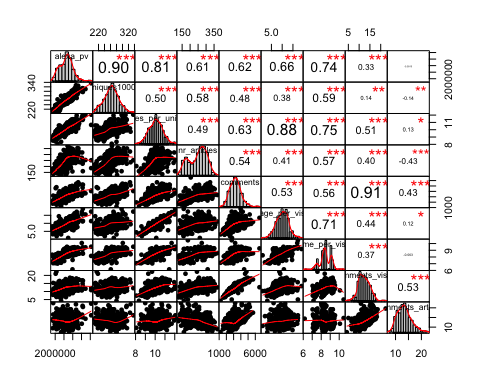
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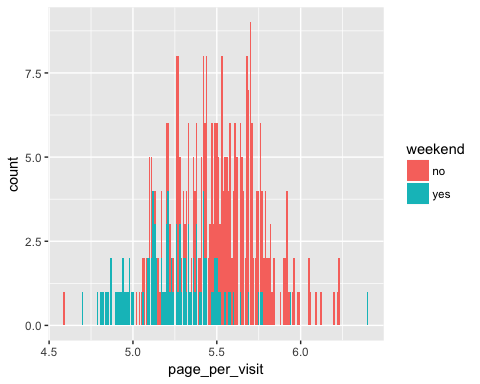
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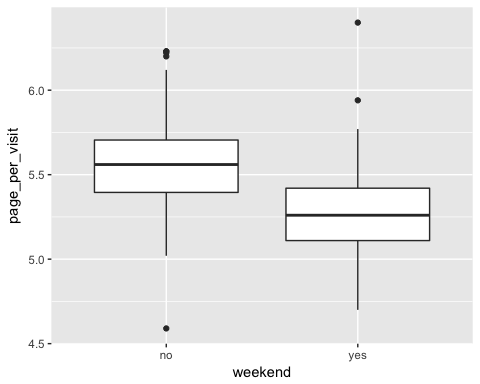
# Compare Weekend versus Weekdays  
ggplot(engage16or, aes(page\_per\_visit, fill = weekend)) + geom\_bar()

## Warning: Removed 2 rows containing non-finite values (stat\_count).



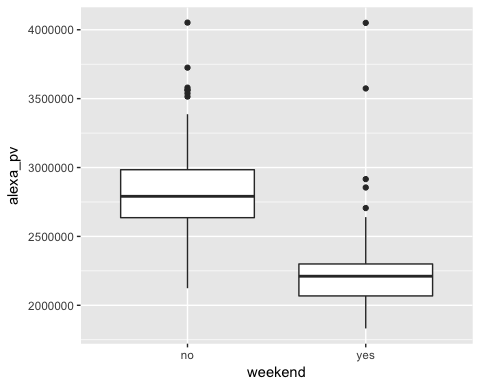
ggplot(engage16or, aes(weekend, page\_per\_visit)) + geom\_boxplot()

## Warning: Removed 2 rows containing non-finite values (stat\_boxplot).

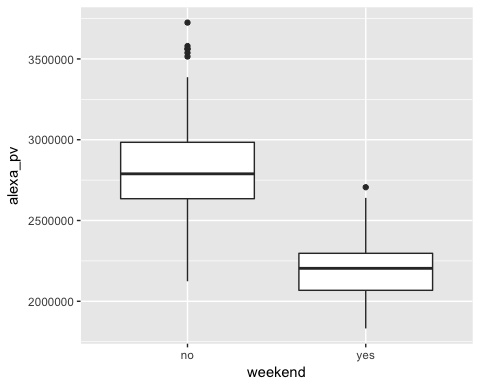


ggplot(engage16or, aes(weekend, alexa\_pv)) + geom\_boxplot()

## Warning: Removed 3 rows containing non-finite values (stat\_boxplot).

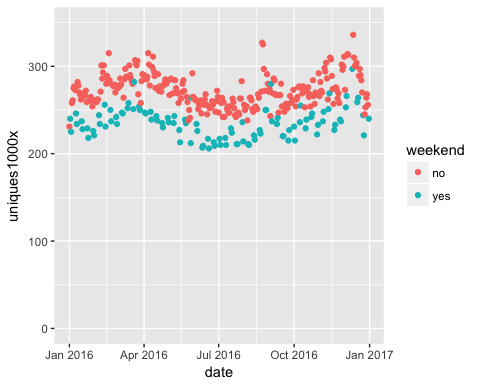


#weekend boxplot for one variable with outliers removed  
alexaWeekendor <- engage16v2 %>% select(c(2, 13)) %>%   
 group\_by(weekend) %>%   
 filter(!abs(alexa\_pv - median(alexa\_pv)) > 2\*sd(alexa\_pv)) %>% ungroup() %>%   
 ggplot(aes(weekend, alexa\_pv)) + geom\_boxplot()  
alexaWeekendor

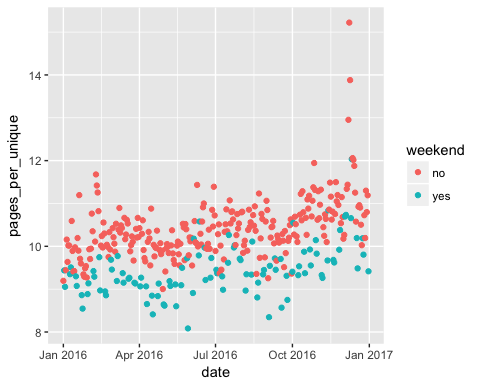


#Data per day  
ggplot(engage16v2, aes(date, uniques1000x, col = weekend)) + geom\_point() + ylim(0, 350)

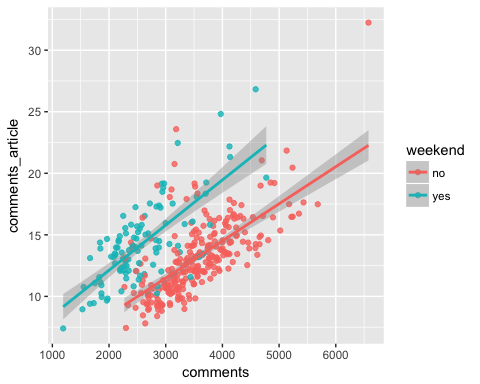
## Warning: Removed 4 rows containing missing values (geom\_point).



ggplot(engage16v2, aes(date, pages\_per\_unique, col = weekend)) + geom\_point()



# Various analysis not based on dates  
ggplot(engage16v2, aes(comments, comments\_article, col= weekend)) +   
 geom\_point(alpha = 0.8) + stat\_smooth(method = "lm")



ggplot(engage16v2, aes(comments, nr\_articles, col= weekend)) +   
 geom\_point(alpha = 0.8) + stat\_smooth(method = "lm")

