Crime statistics in Europe 2017

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```
library(readr)
library(knitr)#for kable
library(kableExtra)#for kable
# extracting data from csv...
EurostatCrime2017<-read.csv("EurostatCrime2017.csv",header=TRUE,row.names=1)
```

```
dim(EurostatCrime2017) # Display number of rows and columns
```

```
## [1] 41 11
```

```
str(EurostatCrime2017) # Display structure of dataframe
```

```
## 'data.frame':    41 obs. of  11 variables:
##  $ Intentional_homicide                                : num  1.7 1.34 0.62 1.06
0.89 2.2 0.86 0.72 0.66 1.41 ...
##  $ Attempted_intentional_homicide                      : num  8.47 0.44 0.72 3.6
9 2.18 1.22 0.27 1.39 1.76 3.77 ...
##  $ Assault                                             : num  611 39.6 45.1 33.1
166.1 ...
##  $ Kidnapping                                          : num  10.31 1.44 0.16 NA
5.6 ...
##  $ Sexual.violence                                     : num  63.22 9.19 13.37 8
3.41 42.19 ...
##  $ Robbery                                             : num  167 21.9 15 35.5 4
7.1 ...
##  $ Burglary                                            : num  NA 125 228 955 443
...
##  $ Burglary_of_private_residential_premises            : num  NA NA 68.4 702.6 1
41.2 ...
##  $ Theft                                               : num  NA 452 632 3721 14
01 ...
##  $ Theft_of_a_motorized_land_vehicle                   : num  NA 33.36 201.84 3.
79 65.58 ...
##  $ Unlawful_acts_involving_controlled_drugs_or_precursors: num  506.6 70.2 52.9 48
1.6 400.6 ...
```

```
#Subsituting 0 to column 7 to 10 where value is na
EurostatCrime2017[,7:10][is.na(EurostatCrime2017[,7:10])]<-0
#Creating a new column called All_Theft by summing columns 7 to 10 for each row
EurostatCrime2017$All_Theft <-rowSums(EurostatCrime2017[,7:10])
```

```
EurostatCrimExclude<-EurostatCrime2017[-c(7:10)] #Removing columns 7 to 10
```

```
#Displaying rows with NA values
row.names(EurostatCrimExclude[!complete.cases(EurostatCrimExclude),])
```

```
##  [1] "Denmark"                "France"
##  [3] "Croatia"                "Hungary"
##  [5] "Netherlands"            "Austria"
##  [7] "Poland"                 "Portugal"
##  [9] "Sweden"                 "England_and_Wales"
## [11] "Iceland"                "Liechtenstein"
## [13] "Norway"                 "North_Macedonia"
## [15] "Turkey"                 "Bosnia_and_Herzegovina"
```

```
#Creating a dataset without NA values
EurostatCrimeFinal<-(na.omit(EurostatCrimExclude))
```

```
#Providing the observations and variables in the new dataframe
dim(EurostatCrimeFinal)
```

```
## [1] 25  8
```

Analysis

below are offences along with their ranking and the 3 most common crimes in Ireland in 2017 are theft,Unlawful acts involving controlled drugs or precursors and assault

```
apply(-EurostatCrimeFinal[6,],1,rank)
```

```
##                                                    Ireland
## Intentional_homicide                                     7
## Attempted_intentional_homicide                           8
## Assault                                                  3
## Kidnapping                                               6
## Sexual.violence                                          4
## Robbery                                                  5
## Unlawful_acts_involving_controlled_drugs_or_precursors   2
## All_Theft                                                1
```

Country with highest overall record of offences.

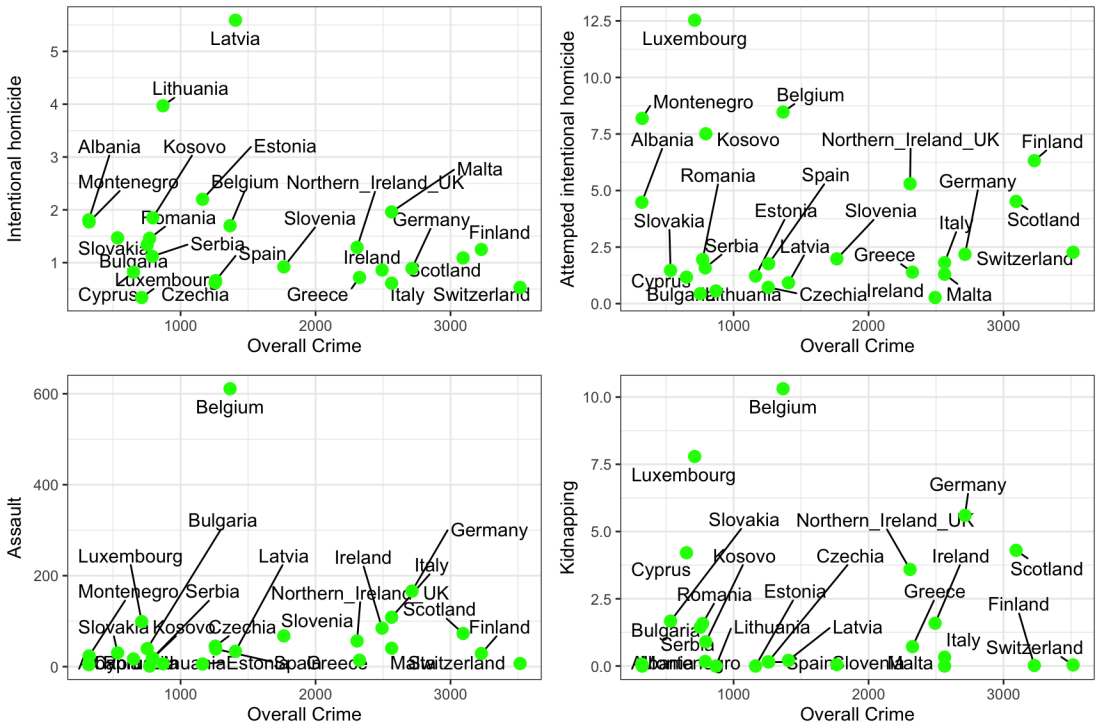
```
#Creating a new row to gather the sum of all the other rows.
EurostatCrimeFinal$Ovrall_Crime<-rowSums(EurostatCrimeFinal[,2:8])
#Displaying the country name  which has overall crime
row.names(subset(EurostatCrimeFinal,
EurostatCrimeFinal$Ovrall_Crime==max(EurostatCrimeFinal$Ovrall_Crime)))
```

```
## [1] "Switzerland"
```

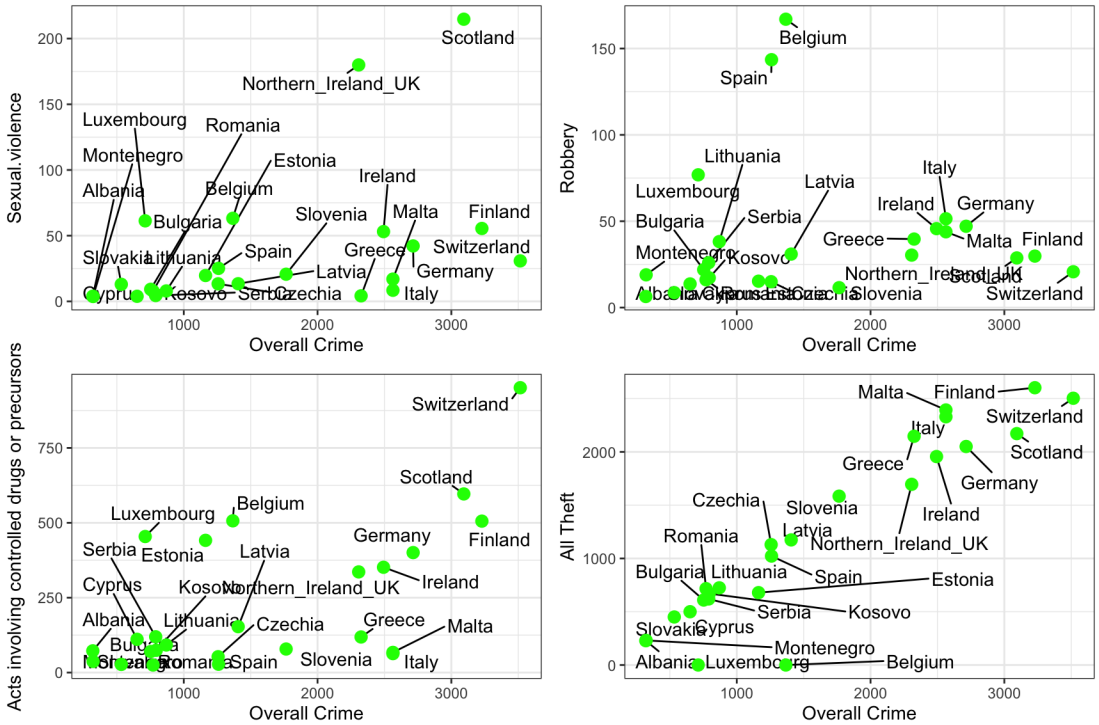
Below are some set of plots that map, count for each offense with the count of total offense for all the reported countries.

```
library(ggplot2)
library(ggrepel)
library(cowplot)
# Intentional_homicide

pl1 <- (ggplot(data = EurostatCrimeFinal, aes(x = EurostatCrimeFinal$Ovrall_Crime,y =
EurostatCrimeFinal$Intentional_homicide)) + theme_bw() +xlab("Overall Crime")+ylab("I
ntentional homicide")+
  geom_text_repel(aes(label = row.names(EurostatCrimeFinal)),
                  box.padding = unit(0.45, "lines")) +
  geom_point(colour = "green", size = 3))

# Attempted_intentional_homicide
pl2<- (ggplot(data = EurostatCrimeFinal, aes(x = EurostatCrimeFinal$Ovrall_Crime, y=
 EurostatCrimeFinal$Attempted_intentional_homicide)) + theme_bw() + xlab("Overall Cri
me")+ylab("Attempted intentional homicide") +
  geom_text_repel(aes(label = row.names(EurostatCrimeFinal)),
                  box.padding = unit(0.45, "lines")) +
  geom_point(colour = "green", size = 3))


# Assault
pl3<- (ggplot(data = EurostatCrimeFinal, aes(x = EurostatCrimeFinal$Ovrall_Crime, y=
 EurostatCrimeFinal$Assault)) + theme_bw() +
  xlab("Overall Crime")+ylab("Assault") + geom_text_repel(aes(label = row.names(Euros
tatCrimeFinal)),
                  box.padding = unit(0.45, "lines")) +
  geom_point(colour = "green", size = 3))

# Kidnapping
pl4<- (ggplot(data = EurostatCrimeFinal, aes(x = EurostatCrimeFinal$Ovrall_Crime, y=
 EurostatCrimeFinal$Kidnapping)) + theme_bw() + xlab("Overall Crime")+ylab("Kidnappin
g") +
  geom_text_repel(aes(label = row.names(EurostatCrimeFinal)),
                  box.padding = unit(0.45, "lines")) +
  geom_point(colour = "green", size = 3))

# grid.arrange(pl1, pl2,pl3, pl4,nrow=2 ,ncol=2)

# Sexual violence
pl5<- (ggplot(data = EurostatCrimeFinal, aes(x = EurostatCrimeFinal$Ovrall_Crime, y=
 EurostatCrimeFinal$Sexual.violence)) +  theme_bw() + xlab("Overall Crime")+ylab("Sex
ual.violence") +
  geom_text_repel(aes(label = row.names(EurostatCrimeFinal)),
                  box.padding = unit(0.45, "lines")) +
  geom_point(colour = "green", size = 3))

# Robbery
pl6<- (ggplot(data = EurostatCrimeFinal, aes(x = EurostatCrimeFinal$Ovrall_Crime, y=
 EurostatCrimeFinal$Robbery)) + theme_bw() +
 xlab("Overall Crime")+ylab("Robbery") + geom_text_repel(aes(label = row.names(Eurost
atCrimeFinal)),
                  box.padding = unit(0.45, "lines")) +
  geom_point(colour = "green", size = 3))

# Unlawful_acts_involving_controlled_drugs_or_precursors
pl7<- (ggplot(data = EurostatCrimeFinal, aes(x = EurostatCrimeFinal$Ovrall_Crime,y= E
```

```
urostatCrimeFinal$Unlawful_acts_involving_controlled_drugs_or_precursors)) +  theme_b
w() + xlab("Overall Crime")+ylab("Acts involving controlled drugs or precursors") +
  geom_text_repel(aes(label = row.names(EurostatCrimeFinal)),
                  box.padding = unit(0.45, "lines")) +
  geom_point(colour = "green", size = 3))

# All_Theft
pl8<- (ggplot(data = EurostatCrimeFinal, aes(x = EurostatCrimeFinal$Ovrall_Crime, y =
EurostatCrimeFinal$All_Theft )) +  theme_bw() + xlab("Overall Crime")+ylab("All Thef
t") +
  geom_text_repel(aes(label = row.names(EurostatCrimeFinal)),
                  box.padding = unit(0.45, "lines")) +
  geom_point(colour = "green", size = 3))

plot_grid(pl1, pl2,pl3,pl4,nrow=2,ncol=2,greedy = TRUE,align = 'hv',scale = 1)
```




```
plot_grid(pl5,pl6,pl7,pl8,nrow=2 ,ncol=2,greedy = TRUE,align = 'hv',scale = 1)
```



On analysing the given data based on each offence ie:Intentional_homicide, Attempted intentional homicide, Assault, Kidnapping, Sexual violence, Unlawful acts involving controlled drugs or precursors and theft for all the countries.

It is quiet evident that although Switzerland has the highest number of offences, it is among the nations that have very low Intentional homicide,Assault, Kidnaping and relatively moderate cases of Sexual violence, and Attempted intentional homicide . However the number of drug related and theft cases are so paramount that it superseds other nations that have significantly high other offences.