Assignment 3

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#Load the Dataset EurostatCrime2017

```
setwd("C:/Users/ADMIN")
getwd()
```

```
## [1] "C:/Users/ADMIN"
```

```
#df=choose.files() ###can Also use read.csv but to hid the location of file i am using choose.files
df=read.csv("EurostatCrime2017.csv",stringsAsFactors = FALSE)
df
```

```
##                ï..Country Intentional_homicide
## 1                 Belgium                 1.70
## 2                Bulgaria                 1.34
## 3                 Czechia                 0.62
## 4                 Denmark                 1.06
## 5                 Germany                 0.89
## 6                 Estonia                 2.20
## 7                 Ireland                 0.86
## 8                  Greece                 0.72
## 9                   Spain                 0.66
## 10                 France                 1.41
## 11                Croatia                 1.11
## 12                  Italy                 0.61
## 13                 Cyprus                 0.82
## 14                 Latvia                 5.59
## 15              Lithuania                 3.97
## 16             Luxembourg                 0.34
## 17                Hungary                 1.60
## 18                  Malta                 1.96
## 19            Netherlands                17.09
## 20                Austria                   NA
## 21                 Poland                 0.73
## 22               Portugal                 0.74
## 23                Romania                 1.46
## 24               Slovenia                 0.92
## 25               Slovakia                 1.47
## 26                Finland                 1.25
## 27                 Sweden                 1.13
## 28      England_and_Wales                 1.24
## 29               Scotland                 1.09
## 30    Northern_Ireland_UK                 1.29
## 31                Iceland                 0.89
## 32          Liechtenstein                   NA
## 33                 Norway                 0.53
## 34            Switzerland                 0.53
```

```
## 35             Montenegro                1.77
## 36        North_Macedonia                1.21
## 37                Albania                1.81
## 38                 Serbia                1.12
## 39                 Turkey                  NA
## 40 Bosnia_and_Herzegovina                  NA
## 41                 Kosovo                1.85
##    Attempted_intentional_homicide Assault Kidnapping Sexual.violence
## 1                            8.47  611.03      10.31           63.22
## 2                            0.44   39.58       1.44            9.19
## 3                            0.72   45.06       0.16           13.37
## 4                            3.69   33.12         NA           83.41
## 5                            2.18  166.09       5.60           42.19
## 6                            1.22    5.78       0.00           19.69
## 7                            0.27   84.59       1.59           53.11
## 8                            1.39   14.02       0.72            4.21
## 9                            1.76   38.88       0.15           25.13
## 10                           3.77      NA         NA           62.50
## 11                           3.01   19.21       0.00           11.46
## 12                           1.81  108.56       0.33            8.44
## 13                           1.17   16.85       4.21            3.86
## 14                           0.92   33.69       0.21           13.44
## 15                           0.56    6.25       0.00            7.94
## 16                          12.53   99.04       7.79           61.29
## 17                             NA      NA       0.03            6.00
## 18                           1.30   40.41       0.00           16.95
## 19                             NA   28.04       2.28           28.19
## 20                             NA      NA         NA              NA
## 21                           0.58   19.23         NA            8.48
## 22                             NA    5.66       2.83           24.62
## 23                           1.95    1.38       1.58            7.81
## 24                           1.98   67.67       0.05           20.67
## 25                           1.47   30.21       1.67           12.97
## 26                           6.32   28.73       0.02           55.49
## 27                           9.09   46.87         NA          188.83
## 28                             NA  875.35       7.76          229.31
## 29                           4.52   72.84       4.30          214.75
## 30                           5.30   56.41       3.59          179.95
## 31                           2.36   30.44         NA          140.68
## 32                             NA      NA         NA              NA
## 33                           0.93   40.16         NA          107.16
## 34                           2.27    6.96       0.04           30.82
## 35                           8.19   23.62       0.00            3.70
## 36                           2.70    7.14       0.34            4.92
## 37                           4.48    4.35       0.07            3.93
## 38                           1.58   18.24       0.17            4.45
## 39                             NA      NA         NA              NA
## 40                             NA      NA         NA              NA
## 41                           7.51   18.56       0.90            5.10
##    Robbery Burglary Burglary_of_private_residential_premises   Theft
## 1   166.97       NA                                      NA      NA
## 2    21.94   124.57                                      NA  451.99
## 3    14.98   228.07                                   68.37  631.51
## 4    35.52   955.37                                  702.60 3721.21
```

```
## 5    47.08   442.53                                141.22 1401.36
## 6    15.28       NA                                 73.35  580.18
## 7    45.71   399.24                                    NA 1454.59
## 8    39.66   606.86                                204.70 1019.05
## 9   143.53   376.79                                225.88  349.09
## 10  149.81       NA                                    NA      NA
## 11   20.80   289.18                                109.14  298.81
## 12   51.44       NA                                323.20 1765.74
## 13   13.69   169.40                                107.98  110.43
## 14   30.97   300.08                                 73.28  745.29
## 15   38.20       NA                                 90.94  598.33
## 16   76.86       NA                                    NA      NA
## 17    8.58       NA                                    NA  819.95
## 18   43.88   342.60                                185.32 1793.41
## 19   46.75   435.71                                291.51 1517.78
## 20      NA       NA                                    NA      NA
## 21   21.37   178.32                                 55.62  281.58
## 22  115.28   221.86                                119.31  759.36
## 23   16.10   138.35                                 73.70  489.47
## 24   11.52   423.64                                140.62  994.19
## 25    8.63   105.24                                 30.26  287.21
## 26   29.80   401.63                                 86.69 2003.22
## 27   86.53   845.61                                387.51 3524.83
## 28  131.63   747.03                                425.63 2685.07
## 29   28.74   279.42                                201.17 1598.29
## 30   30.38   365.52                                    NA 1254.61
## 31   14.48   313.29                                113.20 1129.60
## 32      NA       NA                                    NA      NA
## 33   14.85       NA                                    NA 1791.05
## 34   20.74   491.13                                286.01 1647.57
## 35   18.96   145.09                                    NA   80.82
## 36   20.11       NA                                    NA      NA
## 37    6.40       NA                                 39.80  176.98
## 38   25.98   239.01                                 63.82  295.00
## 39      NA       NA                                    NA      NA
## 40      NA       NA                                    NA      NA
## 41   17.21   320.60                                    NA  336.69
##    Theft_of_a_motorized_land_vehicle
## 1                                 NA
## 2                              33.36
## 3                             201.84
## 4                               3.79
## 5                              65.58
## 6                              25.77
## 7                             102.46
## 8                             315.99
## 9                              70.70
## 10                                NA
## 11                             20.56
## 12                            240.57
## 13                            112.31
## 14                             55.48
## 15                             35.08
## 16                                NA
```

```
## 17                                NA
## 18                             72.13
## 19                            148.99
## 20                                NA
## 21                             32.78
## 22                             99.46
## 23                             14.90
## 24                             26.09
## 25                             28.04
## 26                            110.84
## 27                            247.52
## 28                            191.25
## 29                             92.78
## 30                             75.59
## 31                            137.73
## 32                                NA
## 33                             77.15
## 34                             78.77
## 35                              4.98
## 36                                NA
## 37                             11.44
## 38                             22.31
## 39                                NA
## 40                                NA
## 41                             13.12
##    Unlawful_acts_involving_controlled_drugs_or_precursors
## 1                                                  506.65
## 2                                                   70.25
## 3                                                   52.93
## 4                                                  481.56
## 5                                                  400.60
## 6                                                  441.46
## 7                                                  351.58
## 8                                                  118.82
## 9                                                   27.85
## 10                                                 344.77
## 11                                                     NA
## 12                                                  63.28
## 13                                                 111.02
## 14                                                 153.27
## 15                                                  92.07
## 16                                                 454.23
## 17                                                  65.96
## 18                                                  67.35
## 19                                                  70.11
## 20                                                     NA
## 21                                                 170.26
## 22                                                  62.86
## 23                                                  25.24
## 24                                                  78.61
## 25                                                  27.23
## 26                                                 505.61
## 27                                                1027.08
## 28                                                  44.43
```

```
## 29                                                    596.43
## 30                                                    336.11
## 31                                                    641.05
## 32                                                        NA
## 33                                                    638.70
## 34                                                    951.05
## 35                                                     37.12
## 36                                                        NA
## 37                                                     72.55
## 38                                                    119.41
## 39                                                        NA
## 40                                                        NA
## 41                                                     74.46
```

```
nrow(df)
```

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

```
ncol(df)
```

```
## [1] 12
```

#Structure of Dataset EurostatCrime2017

```
str(df)
```

```
## 'data.frame':    41 obs. of  12 variables:
##  $ ï..Country                                          : chr  "Belgium" "Bulgaria" "Czechia" "Denma
##  $ Intentional_homicide                                : num  1.7 1.34 0.62 1.06 0.89 2.2 0.86 0.7
##  $ Attempted_intentional_homicide                      : num  8.47 0.44 0.72 3.69 2.18 1.22 0.27 1
##  $ 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 83.41 42.19 ...
##  $ Robbery                                             : num  167 21.9 15 35.5 47.1 ...
##  $ Burglary                                            : num  NA 125 228 955 443 ...
##  $ Burglary_of_private_residential_premises            : num  NA NA 68.4 702.6 141.2 ...
##  $ Theft                                               : num  NA 452 632 3721 1401 ...
##  $ 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 52.9 481.6 400.6 ...
```

#Summary of Dataset EurostatCrime2017

```
summary(df)
```

```
##   ï..Country        Intentional_homicide Attempted_intentional_homicide
##  Length:41          Min.   : 0.340       Min.   : 0.270
##  Class :character   1st Qu.: 0.820       1st Qu.: 1.220
##  Mode  :character   Median : 1.130       Median : 1.980
##                     Mean   : 1.772       Mean   : 3.225
##                     3rd Qu.: 1.600       3rd Qu.: 4.480
##                     Max.   :17.090       Max.   :12.530
```

```
##                     NA's   :4            NA's   :8
##     Assault         Kidnapping     Sexual.violence     Robbery
##  Min.   :  1.38   Min.   : 0.000   Min.   :  3.70   Min.   :  6.40
##  1st Qu.: 17.55   1st Qu.: 0.045   1st Qu.:  7.94   1st Qu.: 16.10
##  Median : 30.44   Median : 0.340   Median : 19.69   Median : 28.74
##  Mean   : 78.40   Mean   : 1.875   Mean   : 48.03   Mean   : 44.06
##  3rd Qu.: 51.64   3rd Qu.: 2.555   3rd Qu.: 61.29   3rd Qu.: 46.75
##  Max.   :875.35   Max.   :10.310   Max.   :229.31   Max.   :166.97
##  NA's   :6        NA's   :10       NA's   :4        NA's   :4
##     Burglary     Burglary_of_private_residential_premises
##  Min.   :105.2   Min.   : 30.26
##  1st Qu.:225.0   1st Qu.: 73.44
##  Median :320.6   Median :116.25
##  Mean   :366.2   Mean   :177.72
##  3rd Qu.:429.7   3rd Qu.:220.59
##  Max.   :955.4   Max.   :702.60
##  NA's   :14      NA's   :15
##      Theft         Theft_of_a_motorized_land_vehicle
##  Min.   :  80.82   Min.   :  3.79
##  1st Qu.: 349.09   1st Qu.: 26.01
##  Median : 819.95   Median : 71.42
##  Mean   :1108.92   Mean   : 86.54
##  3rd Qu.:1598.29   3rd Qu.:111.21
##  Max.   :3721.21   Max.   :315.99
##  NA's   :8         NA's   :9
##  Unlawful_acts_involving_controlled_drugs_or_precursors
##  Min.   :  25.24
##  1st Qu.:  66.66
##  Median : 118.82
##  Mean   : 265.20
##  3rd Qu.: 447.85
##  Max.   :1027.08
##  NA's   :6
```

#For some countries Theft includes also burglary, and theft of motorised land vehicle, in others they are recorded separately. Add a new column called All Theft which contains the sum of all the crimes that have a theft component: • Theft, • Theft of a motorized land vehicle, • Burglary, • Burglary of private residential premises Please consider NA values as 0 in this case. [Hint: you may want to use the function apply or rowSums, check their help files to see how to deal with missing values.

```
library(dplyr)
```

```
##
## Attaching package: 'dplyr'

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

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

```
library(tidyverse)
```

```
## -- Attaching packages ---------------------------- tidyverse 1.2.1 --

## v ggplot2 3.2.1     v readr   1.3.1
## v tibble  2.1.3     v purrr   0.3.2
## v tidyr   1.0.0     v stringr 1.4.0
## v ggplot2 3.2.1     v forcats 0.4.0

## -- Conflicts ------------------------------- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

The NA will be replace with 0

```
df[is.na(df)]<-0
```

The sum of all the crimes that have a theft component:

```
Ncol=c("Burglary", "Theft", "Theft_of_a_motorized_land_vehicle", "Burglary_of_private_residential_premis
df$Alltheft <-rowSums(df[ ,Ncol])
```

Glimpse of the dataset

```
glimpse(df)
```

```
## Observations: 41
## Variables: 13
## $ ï..Country                                          <chr> "Belgiu...
## $ Intentional_homicide                                <dbl> 1.70, 1...
## $ Attempted_intentional_homicide                      <dbl> 8.47, 0...
## $ Assault                                             <dbl> 611.03,...
## $ Kidnapping                                          <dbl> 10.31, ...
## $ Sexual.violence                                     <dbl> 63.22, ...
## $ Robbery                                             <dbl> 166.97,...
## $ Burglary                                            <dbl> 0.00, 1...
## $ Burglary_of_private_residential_premises            <dbl> 0.00, 0...
## $ Theft                                               <dbl> 0.00, 4...
## $ Theft_of_a_motorized_land_vehicle                   <dbl> 0.00, 3...
## $ Unlawful_acts_involving_controlled_drugs_or_precursors <dbl> 506.65,...
## $ Alltheft                                            <dbl> 0.00, 6...
```

Remove the columns: Theft, Theft of a motorized land vehicle, Burglary, and Burglary of private residential premises.

```
df2 <- df[c(1:7,12,13)]
df2
```

```
##                ï..Country Intentional_homicide
## 1                 Belgium                 1.70
## 2                Bulgaria                 1.34
## 3                 Czechia                 0.62
## 4                 Denmark                 1.06
## 5                 Germany                 0.89
## 6                 Estonia                 2.20
## 7                 Ireland                 0.86
## 8                  Greece                 0.72
## 9                   Spain                 0.66
## 10                 France                 1.41
## 11                Croatia                 1.11
## 12                  Italy                 0.61
## 13                 Cyprus                 0.82
## 14                 Latvia                 5.59
## 15              Lithuania                 3.97
## 16             Luxembourg                 0.34
## 17                Hungary                 1.60
## 18                  Malta                 1.96
## 19            Netherlands                17.09
## 20                Austria                 0.00
## 21                 Poland                 0.73
## 22               Portugal                 0.74
## 23                Romania                 1.46
## 24               Slovenia                 0.92
## 25               Slovakia                 1.47
## 26                Finland                 1.25
## 27                 Sweden                 1.13
## 28      England_and_Wales                 1.24
## 29               Scotland                 1.09
## 30    Northern_Ireland_UK                 1.29
## 31                Iceland                 0.89
## 32          Liechtenstein                 0.00
## 33                 Norway                 0.53
## 34            Switzerland                 0.53
## 35             Montenegro                 1.77
## 36        North_Macedonia                 1.21
## 37                Albania                 1.81
## 38                 Serbia                 1.12
## 39                 Turkey                 0.00
## 40 Bosnia_and_Herzegovina                 0.00
## 41                 Kosovo                 1.85
##    Attempted_intentional_homicide Assault Kidnapping Sexual.violence
## 1                            8.47  611.03      10.31           63.22
## 2                            0.44   39.58       1.44            9.19
## 3                            0.72   45.06       0.16           13.37
## 4                            3.69   33.12       0.00           83.41
## 5                            2.18  166.09       5.60           42.19
## 6                            1.22    5.78       0.00           19.69
## 7                            0.27   84.59       1.59           53.11
## 8                            1.39   14.02       0.72            4.21
## 9                            1.76   38.88       0.15           25.13
## 10                           3.77    0.00       0.00           62.50
## 11                           3.01   19.21       0.00           11.46
```

```
## 12                          1.81  108.56       0.33           8.44
## 13                          1.17   16.85       4.21           3.86
## 14                          0.92   33.69       0.21          13.44
## 15                          0.56    6.25       0.00           7.94
## 16                         12.53   99.04       7.79          61.29
## 17                          0.00    0.00       0.03           6.00
## 18                          1.30   40.41       0.00          16.95
## 19                          0.00   28.04       2.28          28.19
## 20                          0.00    0.00       0.00           0.00
## 21                          0.58   19.23       0.00           8.48
## 22                          0.00    5.66       2.83          24.62
## 23                          1.95    1.38       1.58           7.81
## 24                          1.98   67.67       0.05          20.67
## 25                          1.47   30.21       1.67          12.97
## 26                          6.32   28.73       0.02          55.49
## 27                          9.09   46.87       0.00         188.83
## 28                          0.00  875.35       7.76         229.31
## 29                          4.52   72.84       4.30         214.75
## 30                          5.30   56.41       3.59         179.95
## 31                          2.36   30.44       0.00         140.68
## 32                          0.00    0.00       0.00           0.00
## 33                          0.93   40.16       0.00         107.16
## 34                          2.27    6.96       0.04          30.82
## 35                          8.19   23.62       0.00           3.70
## 36                          2.70    7.14       0.34           4.92
## 37                          4.48    4.35       0.07           3.93
## 38                          1.58   18.24       0.17           4.45
## 39                          0.00    0.00       0.00           0.00
## 40                          0.00    0.00       0.00           0.00
## 41                          7.51   18.56       0.90           5.10
##    Robbery Unlawful_acts_involving_controlled_drugs_or_precursors Alltheft
## 1   166.97                                                 506.65     0.00
## 2    21.94                                                  70.25   609.92
## 3    14.98                                                  52.93  1129.79
## 4    35.52                                                 481.56  5382.97
## 5    47.08                                                 400.60  2050.69
## 6    15.28                                                 441.46   679.30
## 7    45.71                                                 351.58  1956.29
## 8    39.66                                                 118.82  2146.60
## 9   143.53                                                  27.85  1022.46
## 10  149.81                                                 344.77     0.00
## 11   20.80                                                   0.00   717.69
## 12   51.44                                                  63.28  2329.51
## 13   13.69                                                 111.02   500.12
## 14   30.97                                                 153.27  1174.13
## 15   38.20                                                  92.07   724.35
## 16   76.86                                                 454.23     0.00
## 17    8.58                                                  65.96   819.95
## 18   43.88                                                  67.35  2393.46
## 19   46.75                                                  70.11  2393.99
## 20    0.00                                                   0.00     0.00
## 21   21.37                                                 170.26   548.30
## 22  115.28                                                  62.86  1199.99
## 23   16.10                                                  25.24   716.42
```

```
## 24   11.52                                                  78.61  1584.54
## 25    8.63                                                  27.23   450.75
## 26   29.80                                                 505.61  2602.38
## 27   86.53                                                1027.08  5005.47
## 28  131.63                                                  44.43  4048.98
## 29   28.74                                                 596.43  2171.66
## 30   30.38                                                 336.11  1695.72
## 31   14.48                                                 641.05  1693.82
## 32    0.00                                                   0.00     0.00
## 33   14.85                                                 638.70  1868.20
## 34   20.74                                                 951.05  2503.48
## 35   18.96                                                  37.12   230.89
## 36   20.11                                                   0.00     0.00
## 37    6.40                                                  72.55   228.22
## 38   25.98                                                 119.41   620.14
## 39    0.00                                                   0.00     0.00
## 40    0.00                                                   0.00     0.00
## 41   17.21                                                  74.46   670.41
```

Work with the dataset you created in question 3ii, and list the countries that contain any missing data.

```
df3<-data.frame(lapply(df2,sort))
df3<-df3[c(1:4),]
df3
```

```
##               ï..Country Intentional_homicide
## 1                 Albania                    0
## 2                 Austria                    0
## 3                 Belgium                    0
## 4 Bosnia_and_Herzegovina                     0
##   Attempted_intentional_homicide Assault Kidnapping Sexual.violence
## 1                              0       0          0               0
## 2                              0       0          0               0
## 3                              0       0          0               0
## 4                              0       0          0               0
##   Robbery Unlawful_acts_involving_controlled_drugs_or_precursors Alltheft
## 1       0                                                     0        0
## 2       0                                                     0        0
## 3       0                                                     0        0
## 4       0                                                     0        0
```

Remove the countries with missing data from the dataframe.

```
library("dplyr")
df4<-df2[c(1:19,21:31,33:38,41),]
```

```
df4
```

```
##             ï..Country Intentional_homicide Attempted_intentional_homicide
## 1               Belgium                 1.70                            8.47
## 2              Bulgaria                 1.34                            0.44
## 3               Czechia                 0.62                            0.72
```

```
## 4              Denmark                1.06                          3.69
## 5              Germany                0.89                          2.18
## 6              Estonia                2.20                          1.22
## 7              Ireland                0.86                          0.27
## 8               Greece                0.72                          1.39
## 9                Spain                0.66                          1.76
## 10              France                1.41                          3.77
## 11             Croatia                1.11                          3.01
## 12               Italy                0.61                          1.81
## 13              Cyprus                0.82                          1.17
## 14              Latvia                5.59                          0.92
## 15           Lithuania                3.97                          0.56
## 16          Luxembourg                0.34                         12.53
## 17             Hungary                1.60                          0.00
## 18               Malta                1.96                          1.30
## 19         Netherlands               17.09                          0.00
## 21              Poland                0.73                          0.58
## 22            Portugal                0.74                          0.00
## 23             Romania                1.46                          1.95
## 24            Slovenia                0.92                          1.98
## 25            Slovakia                1.47                          1.47
## 26             Finland                1.25                          6.32
## 27              Sweden                1.13                          9.09
## 28   England_and_Wales                1.24                          0.00
## 29            Scotland                1.09                          4.52
## 30 Northern_Ireland_UK                1.29                          5.30
## 31             Iceland                0.89                          2.36
## 33              Norway                0.53                          0.93
## 34         Switzerland                0.53                          2.27
## 35          Montenegro                1.77                          8.19
## 36     North_Macedonia                1.21                          2.70
## 37             Albania                1.81                          4.48
## 38              Serbia                1.12                          1.58
## 41              Kosovo                1.85                          7.51
##    Assault Kidnapping Sexual.violence Robbery
## 1   611.03      10.31           63.22  166.97
## 2    39.58       1.44            9.19   21.94
## 3    45.06       0.16           13.37   14.98
## 4    33.12       0.00           83.41   35.52
## 5   166.09       5.60           42.19   47.08
## 6     5.78       0.00           19.69   15.28
## 7    84.59       1.59           53.11   45.71
## 8    14.02       0.72            4.21   39.66
## 9    38.88       0.15           25.13  143.53
## 10    0.00       0.00           62.50  149.81
## 11   19.21       0.00           11.46   20.80
## 12  108.56       0.33            8.44   51.44
## 13   16.85       4.21            3.86   13.69
## 14   33.69       0.21           13.44   30.97
## 15    6.25       0.00            7.94   38.20
## 16   99.04       7.79           61.29   76.86
## 17    0.00       0.03            6.00    8.58
## 18   40.41       0.00           16.95   43.88
## 19   28.04       2.28           28.19   46.75
```

```
## 21   19.23       0.00            8.48   21.37
## 22    5.66       2.83           24.62  115.28
## 23    1.38       1.58            7.81   16.10
## 24   67.67       0.05           20.67   11.52
## 25   30.21       1.67           12.97    8.63
## 26   28.73       0.02           55.49   29.80
## 27   46.87       0.00          188.83   86.53
## 28  875.35       7.76          229.31  131.63
## 29   72.84       4.30          214.75   28.74
## 30   56.41       3.59          179.95   30.38
## 31   30.44       0.00          140.68   14.48
## 33   40.16       0.00          107.16   14.85
## 34    6.96       0.04           30.82   20.74
## 35   23.62       0.00            3.70   18.96
## 36    7.14       0.34            4.92   20.11
## 37    4.35       0.07            3.93    6.40
## 38   18.24       0.17            4.45   25.98
## 41   18.56       0.90            5.10   17.21
##    Unlawful_acts_involving_controlled_drugs_or_precursors Alltheft
## 1                                                  506.65     0.00
## 2                                                   70.25   609.92
## 3                                                   52.93  1129.79
## 4                                                  481.56  5382.97
## 5                                                  400.60  2050.69
## 6                                                  441.46   679.30
## 7                                                  351.58  1956.29
## 8                                                  118.82  2146.60
## 9                                                   27.85  1022.46
## 10                                                 344.77     0.00
## 11                                                   0.00   717.69
## 12                                                  63.28  2329.51
## 13                                                 111.02   500.12
## 14                                                 153.27  1174.13
## 15                                                  92.07   724.35
## 16                                                 454.23     0.00
## 17                                                  65.96   819.95
## 18                                                  67.35  2393.46
## 19                                                  70.11  2393.99
## 21                                                 170.26   548.30
## 22                                                  62.86  1199.99
## 23                                                  25.24   716.42
## 24                                                  78.61  1584.54
## 25                                                  27.23   450.75
## 26                                                 505.61  2602.38
## 27                                                1027.08  5005.47
## 28                                                  44.43  4048.98
## 29                                                 596.43  2171.66
## 30                                                 336.11  1695.72
## 31                                                 641.05  1693.82
## 33                                                 638.70  1868.20
## 34                                                 951.05  2503.48
## 35                                                  37.12   230.89
## 36                                                   0.00     0.00
## 37                                                  72.55   228.22
```

```
## 38                                                    119.41   620.14
## 41                                                     74.46   670.41
```

Work with the dataset you created in question 3ii, and list the countries that contain any missing data & Dimension of dataset

How many observations and variables are in this new dataframe?

```
dim(df4)
```

```
## [1] 37  9
```

```
#Rename the column countryname
colnames(df4)[colnames(df4)=="ï..Country"] <- "Countryname"
#convert countryname to factor
df4$Countryname <- as.factor(df4$Countryname)
colnames(df4)
```

```
## [1] "Countryname"
## [2] "Intentional_homicide"
## [3] "Attempted_intentional_homicide"
## [4] "Assault"
## [5] "Kidnapping"
## [6] "Sexual.violence"
## [7] "Robbery"
## [8] "Unlawful_acts_involving_controlled_drugs_or_precursors"
## [9] "Alltheft"
```

Task 2: Analysis Work with the dataset produced in question 6. Produce appropriate commands to answer the following questions: 1. According to these data what were the 3 most common crimes in Ireland in 2017? [1]

```
df3 <-df2[7,]
df3 <- rev(sort(df3))
df3<- df3[1:4]
df3
```

```
##   ï..Country Assault Sexual.violence Robbery
## 7    Ireland   84.59           53.11   45.71
```

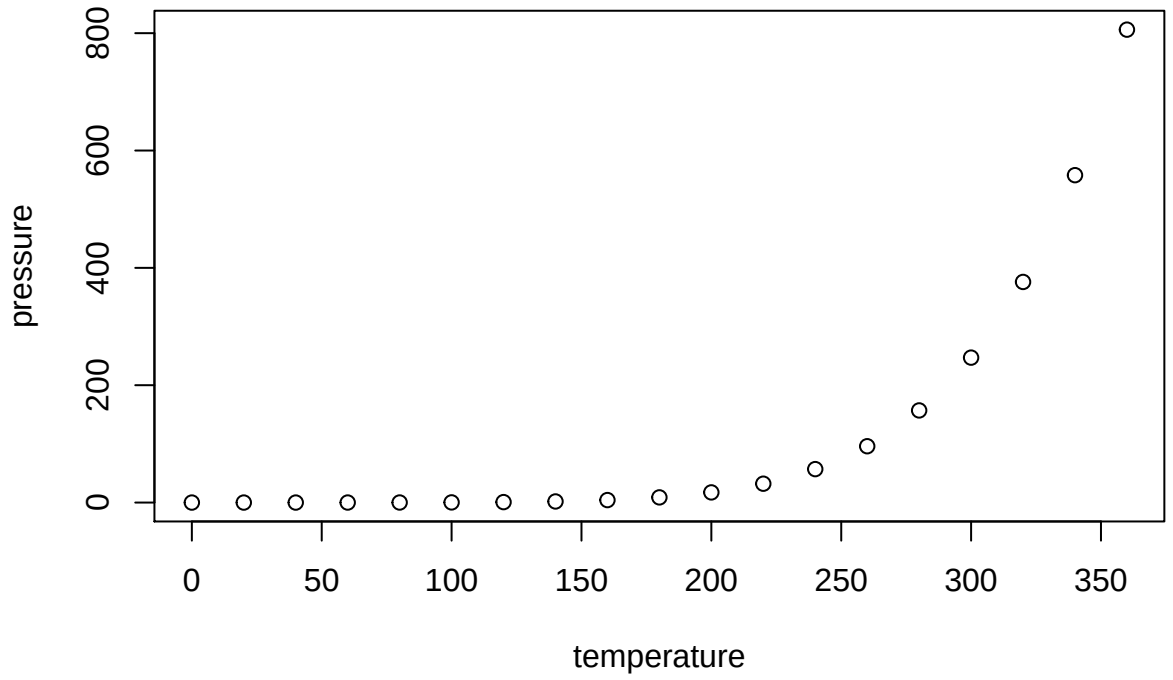
2. Which country has the highest overall record of offences (per hundred thousand inhabitants)?

```
df5<-data.frame(lapply(df2,sort))
df5<- df5[41,-40]
df5
```

```
##    ï..Country Intentional_homicide Attempted_intentional_homicide Assault
## 41     Turkey                17.09                           12.53  875.35
##    Kidnapping Sexual.violence Robbery
## 41      10.31          229.31  166.97
##    Unlawful_acts_involving_controlled_drugs_or_precursors Alltheft
## 41                                                1027.08  5382.97
```

Including Plots

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.