Exploratory data analysis - violence in the world and woman grand master likelihood.

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In this project we are going to analyze to different set of data, and see what they tell us about the likelihood of a woman grandmaster chess appearing and how it relates to violence against women in said country, this will imply a huge amount of data cleaning and interpretation before arriving to a relevant correlation. We expect in advance and acknowledge that other variables such as economic variables per country may correlate more strongly to both violence and women grandmaster players.

We may also use the term grandmaster interchangeably with just the women top player, this is both a practicality and an intentional way to recognize women in countries were grandmasters are less likely to appear but still have top ranked players.

The next block is the setup script to load data, and setup this notebook utilities.

```
chooseCRANmirror(ind = 52)
# EDA & Kaggle auth packages
install.packages(c("summarytools", "explore", "dataMaid", "devtools", "configr", "rsconnect", "dplyr"))
```

```
##
## The downloaded binary packages are in
##  /var/folders/f3/2p9snhhj759g5l1f2ztjbwdw0000gn/T//Rtmpjf0tRQ/downloaded_packages
```

```
devtools::install_github("ldurazo/kaggler")
```

```
## Skipping install of 'kaggler' from a github remote, the SHA1 (bfb8fb69) has not changed since last in
##   Use `force = TRUE` to force installation
```

```
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
```

```r
library(summarytools)
```

```
## Registered S3 method overwritten by 'pryr':
##   method      from
##   print.bytes Rcpp

## For best results, restart R session and update pander using devtools:: or remotes::install_github('ra
```

```r
library(explore)
library(dataMaid)
```

```
##
## Attaching package: 'dataMaid'

## The following object is masked from 'package:dplyr':
##
##     summarize
```

```r
library(configr)
library(readr)
library(rsconnect)
library(kaggler)

# files downloading
kgl_auth(creds_file = 'kaggle.json')
```

```
## <request>
## Options:
## * httpauth: 1
## * userpwd: ldurazo:48ce1a6f4b7269d4b6f8ce2d3b854199
```

```r
response_violence <- kgl_datasets_download_all(owner_dataset = "andrewmvd/violence-against-women-and-gi
download.file(response_violence[["url"]], "data/violence_temp.zip", mode = "wb")
unzipResult <- unzip("data/violence_temp.zip", exdir = "data/", overwrite = TRUE)
```

```
## Warning in unzip("data/violence_temp.zip", exdir = "data/", overwrite = TRUE):
## error -1 al extraer del archivo zip
```

```r
violence_data <- read_csv("data/makeovermonday-2020w10/violence_data.csv")
```

```
##
## -- Column specification --------------------------------------------------------
## cols(
##   RecordID = col_double(),
##   Country = col_character(),
##   Gender = col_character(),
##   `Demographics Question` = col_character(),
##   `Demographics Response` = col_character(),
##   Question = col_character(),
##   `Survey Year` = col_character(),
##   Value = col_double()
## )
```

```
## Warning: 1 parsing failure.
##   row col  expected    actual                                            file
## 11354  -- 8 columns 6 columns 'data/makeovermonday-2020w10/violence_data.csv'
```

```
response_chessplayers <- kgl_datasets_download_all(owner_dataset = "vikasojha98/top-women-chess-players
download.file(response_chessplayers[["url"]], "data/chess_temp.zip", mode = "wb")
unzipResult <- unzip("data/chess_temp.zip", exdir = "data/", overwrite = TRUE)
```

```
## Warning in unzip("data/chess_temp.zip", exdir = "data/", overwrite = TRUE):
## error -1 al extraer del archivo zip
```

```
chess_data <- read_csv("data/top_women_chess_players_aug_2020.csv")
```

```
##
## -- Column specification --------------------------------------------------------
## cols(
##   `Fide id` = col_double(),
##   Name = col_character(),
##   Federation = col_character(),
##   Gender = col_logical(),
##   Year_of_birth = col_double(),
##   Title = col_character(),
##   Standard_Rating = col_double(),
##   Rapid_rating = col_double(),
##   Blitz_rating = col_double(),
##   Inactive_flag = col_character()
## )
```

With these two files we can now see a summary of the data. Note that these two are html generated files available if you run this notebook. Alternatively, the explore package returns interesting results in a shiny app, turn the following statements on if you want to see the data.

```
#dfSummary(violence_data, file = "data/violence_data_summary.html")
#dfSummary(chess_data, file = "data/violence_data_summary.html")

#explore(chess_data)
#explore(violence_data)
```

We will need a file that maps the ISO-3166 country alpha 3 on the chess data, to the country name in violence data.

```
download.file("https://raw.githubusercontent.com/lukes/ISO-3166-Countries-with-Regional-Codes/master/al
countries_mapping <- read_csv("data/iso-3166")
```

```
##
## -- Column specification --------------------------------------------------------
## cols(
##   name = col_character(),
##   `alpha-2` = col_character(),
##   `alpha-3` = col_character(),
##   `country-code` = col_character(),
```

```
##   ‘iso_3166-2‘ = col_character(),
##   region = col_character(),
##   ‘sub-region‘ = col_character(),
##   ‘intermediate-region‘ = col_character(),
##   ‘region-code‘ = col_character(),
##   ‘sub-region-code‘ = col_character(),
##   ‘intermediate-region-code‘ = col_character()
## )
```

```
countries_mapping <- setNames(select(countries_mapping, "name", "alpha-3"), c("name", "code"))
print(countries_mapping)
```

```
## # A tibble: 249 x 2
##    name                code
##    <chr>               <chr>
##  1 Afghanistan         AFG
##  2 Åland Islands       ALA
##  3 Albania             ALB
##  4 Algeria             DZA
##  5 American Samoa      ASM
##  6 Andorra             AND
##  7 Angola              AGO
##  8 Anguilla            AIA
##  9 Antarctica          ATA
## 10 Antigua and Barbuda ATG
## # ... with 239 more rows
```

Let’s clean up our data by removing the NA values and transforming the percentage to a number.

```
violence_data <- na.omit(violence_data, "Value")
violence_data$Value <- as.numeric(sub("%", "", violence_data$Value))
```

Now I want to create an aggregate of the data of my first data set of violence against women, and generate a weighted mean out of the results between men and women answering, so that I can effectively create a “violence score” per country, in a very subjective way. There are a number of better techniques to do such a process, but only for the sake of the excercise we will use this score formula.

```
violence_data$WeightedValue <- ifelse(violence_data$Gender == "F", violence_data$Value * 0.7, violence_d
violence_data_slim <- select(violence_data, "Country", "WeightedValue")
violence_data_slim_grouped <- setNames(aggregate(violence_data_slim$WeightedValue, by = list(violence_da

print(violence_data_slim_grouped)
```

```
##                     Country      Score
## 1               Afghanistan 22.5288095
## 2                   Albania  2.4524444
## 3                    Angola  7.0797778
## 4                   Armenia  4.0113095
## 5                Azerbaijan 16.7045833
## 6                Bangladesh 10.3033333
## 7                     Benin  7.8707778
## 8                   Bolivia  5.3954444
```

```
## 9                Burkina Faso 10.8768889
## 10                    Burundi 15.9398889
## 11                   Cambodia 11.2942222
## 12                   Cameroon 11.9049444
## 13                       Chad 23.4807778
## 14                   Colombia  1.1404444
## 15                    Comoros  9.5546111
## 16                      Congo 19.1671667
## 17 Congo Democratic Republic 22.1008333
## 18              Cote d'Ivoire 13.1191111
## 19         Dominican Republic  0.7340476
## 20                      Egypt 15.1758333
## 21                    Eritrea 32.3306667
## 22                   Eswatini  5.8334444
## 23                   Ethiopia 16.6565556
## 24                      Gabon 12.3352778
## 25                     Gambia 14.8097222
## 26                      Ghana  7.0600000
## 27                  Guatemala  2.3038333
## 28                     Guinea 21.2895000
## 29                     Guyana  4.2798889
## 30                      Haiti  3.5145000
## 31                   Honduras  3.0452778
## 32                      India 12.5360556
## 33                  Indonesia  7.5503571
## 34                     Jordan  5.6417778
## 35                      Kenya 11.3071111
## 36            Kyrgyz Republic 10.6180247
## 37                    Lesotho  8.9674444
## 38                    Liberia 10.6376111
## 39                 Madagascar  8.1401667
## 40                     Malawi  3.6356111
## 41                   Maldives  6.1069167
## 42                       Mali 22.4886667
## 43                    Moldova  5.4929012
## 44                    Morocco 31.6493333
## 45                 Mozambique  3.5043333
## 46                    Myanmar 11.9392222
## 47                    Namibia  7.3674444
## 48                      Nepal  6.4663889
## 49                  Nicaragua  4.6332222
## 50                      Niger 17.0797778
## 51                    Nigeria 10.1447778
## 52                   Pakistan 13.1031548
## 53                       Peru  1.2701111
## 54                Philippines  3.5443333
## 55                     Rwanda  9.1943889
## 56      Sao Tome and Principe  5.3686782
## 57                    Senegal 13.2816667
## 58               Sierra Leone 16.9027778
## 59               South Africa  1.6648851
## 60                 Tajikistan 31.0131111
## 61                   Tanzania 16.2912222
## 62                Timor-Leste 24.9147778
```

```
## 63                       Togo  7.3982222
## 64                     Turkey  4.2592308
```

With the score per country done, we need to do similar work with the chess players data frame.

```
chess_data <- na.omit(chess_data, "Standard_Rating", "Rapid_rating", "Blitz_rating")
chess_data_slim <- select(chess_data, "Federation", "Standard_Rating", "Rapid_rating", "Blitz_rating")
chess_data_slim_grouped <- chess_data_slim %>%
  group_by(chess_data_slim$Federation) %>%
  summarise(across(ends_with("rating"), list(mean = mean, n = length, max = max, min = min)))
```

```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
print(chess_data_slim_grouped)
```

```
## # A tibble: 81 x 13
##    `chess_data_sli~ Standard_Rating~ Standard_Rating~ Standard_Rating~
##    <chr>                       <dbl>            <int>            <dbl>
##  1 ALB                         1971                 1             1971
##  2 ALG                         1900                 1             1900
##  3 ARG                         1930.                2             1940
##  4 ARM                         2285                 1             2285
##  5 AUS                         1926.                4             2062
##  6 AUT                         1975                 1             1975
##  7 AZE                         2103.                8             2279
##  8 BAN                         2049                 2             2114
##  9 BEL                         2136                 2             2258
## 10 BIH                         2025                 1             2025
## # ... with 71 more rows, and 9 more variables: Standard_Rating_min <dbl>,
## #   Rapid_rating_mean <dbl>, Rapid_rating_n <int>, Rapid_rating_max <dbl>,
## #   Rapid_rating_min <dbl>, Blitz_rating_mean <dbl>, Blitz_rating_n <int>,
## #   Blitz_rating_max <dbl>, Blitz_rating_min <dbl>
```

Now, we need to join the tables with the countries table in order to finally obtain a single dataset.

```
violence_df <- left_join(violence_data_slim_grouped, countries_mapping, by = c("Country" = "name"))
print(violence_df)
```

```
##                      Country      Score code
## 1                Afghanistan 22.5288095  AFG
## 2                    Albania  2.4524444  ALB
## 3                     Angola  7.0797778  AGO
## 4                    Armenia  4.0113095  ARM
## 5                 Azerbaijan 16.7045833  AZE
## 6                 Bangladesh 10.3033333  BGD
## 7                      Benin  7.8707778  BEN
## 8                    Bolivia  5.3954444 <NA>
## 9               Burkina Faso 10.8768889  BFA
## 10                   Burundi 15.9398889  BDI
## 11                  Cambodia 11.2942222  KHM
## 12                  Cameroon 11.9049444  CMR
```

```
## 13                        Chad 23.4807778  TCD
## 14                    Colombia  1.1404444  COL
## 15                     Comoros  9.5546111  COM
## 16                       Congo 19.1671667  COG
## 17 Congo Democratic Republic 22.1008333 <NA>
## 18               Cote d'Ivoire 13.1191111 <NA>
## 19          Dominican Republic  0.7340476  DOM
## 20                       Egypt 15.1758333  EGY
## 21                     Eritrea 32.3306667  ERI
## 22                    Eswatini  5.8334444  SWZ
## 23                    Ethiopia 16.6565556  ETH
## 24                       Gabon 12.3352778  GAB
## 25                      Gambia 14.8097222  GMB
## 26                       Ghana  7.0600000  GHA
## 27                   Guatemala  2.3038333  GTM
## 28                      Guinea 21.2895000  GIN
## 29                      Guyana  4.2798889  GUY
## 30                       Haiti  3.5145000  HTI
## 31                    Honduras  3.0452778  HND
## 32                       India 12.5360556  IND
## 33                   Indonesia  7.5503571  IDN
## 34                      Jordan  5.6417778  JOR
## 35                       Kenya 11.3071111  KEN
## 36             Kyrgyz Republic 10.6180247 <NA>
## 37                     Lesotho  8.9674444  LSO
## 38                     Liberia 10.6376111  LBR
## 39                  Madagascar  8.1401667  MDG
## 40                      Malawi  3.6356111  MWI
## 41                    Maldives  6.1069167  MDV
## 42                        Mali 22.4886667  MLI
## 43                     Moldova  5.4929012 <NA>
## 44                     Morocco 31.6493333  MAR
## 45                  Mozambique  3.5043333  MOZ
## 46                     Myanmar 11.9392222  MMR
## 47                     Namibia  7.3674444  NAM
## 48                       Nepal  6.4663889  NPL
## 49                   Nicaragua  4.6332222  NIC
## 50                       Niger 17.0797778  NER
## 51                     Nigeria 10.1447778  NGA
## 52                    Pakistan 13.1031548  PAK
## 53                        Peru  1.2701111  PER
## 54                 Philippines  3.5443333  PHL
## 55                      Rwanda  9.1943889  RWA
## 56       Sao Tome and Principe  5.3686782  STP
## 57                     Senegal 13.2816667  SEN
## 58                Sierra Leone 16.9027778  SLE
## 59                South Africa  1.6648851  ZAF
## 60                  Tajikistan 31.0131111  TJK
## 61                    Tanzania 16.2912222 <NA>
## 62                 Timor-Leste 24.9147778  TLS
## 63                        Togo  7.3982222  TGO
## 64                      Turkey  4.2592308  TUR
```

Notice that we have a few exemptions where the mapping did not occur correctly, in this instance we will fix them by hand. - Bolivia - Congo Democratic Republic - Cote d'Ivoire - Kyrgyz Republic - Moldova - Tanzania

```
violence_df <- within(violence_df, code[Country == "Bolivia"] <- "BOL")
violence_df <- within(violence_df, code[Country == "Congo Democratic Republic"] <- "COD")
violence_df <- within(violence_df, code[Country == "Cote d'Ivoire"] <- "CIV")
violence_df <- within(violence_df, code[Country == "Kyrgyz Republic"] <- "KGZ")
violence_df <- within(violence_df, code[Country == "Moldova"] <- "MDA")
violence_df <- within(violence_df, code[Country == "Tanzania"] <- "TZA")
violence_df %>% arrange(!is.na(violence_df$code))
```

```
##                      Country      Score code
## 1                Afghanistan 22.5288095  AFG
## 2                    Albania  2.4524444  ALB
## 3                     Angola  7.0797778  AGO
## 4                    Armenia  4.0113095  ARM
## 5                 Azerbaijan 16.7045833  AZE
## 6                 Bangladesh 10.3033333  BGD
## 7                      Benin  7.8707778  BEN
## 8                    Bolivia  5.3954444  BOL
## 9               Burkina Faso 10.8768889  BFA
## 10                   Burundi 15.9398889  BDI
## 11                  Cambodia 11.2942222  KHM
## 12                  Cameroon 11.9049444  CMR
## 13                      Chad 23.4807778  TCD
## 14                  Colombia  1.1404444  COL
## 15                   Comoros  9.5546111  COM
## 16                     Congo 19.1671667  COG
## 17 Congo Democratic Republic 22.1008333  COD
## 18             Cote d'Ivoire 13.1191111  CIV
## 19        Dominican Republic  0.7340476  DOM
## 20                     Egypt 15.1758333  EGY
## 21                   Eritrea 32.3306667  ERI
## 22                  Eswatini  5.8334444  SWZ
## 23                  Ethiopia 16.6565556  ETH
## 24                     Gabon 12.3352778  GAB
## 25                    Gambia 14.8097222  GMB
## 26                     Ghana  7.0600000  GHA
## 27                 Guatemala  2.3038333  GTM
## 28                    Guinea 21.2895000  GIN
## 29                    Guyana  4.2798889  GUY
## 30                     Haiti  3.5145000  HTI
## 31                  Honduras  3.0452778  HND
## 32                     India 12.5360556  IND
## 33                 Indonesia  7.5503571  IDN
## 34                    Jordan  5.6417778  JOR
## 35                     Kenya 11.3071111  KEN
## 36           Kyrgyz Republic 10.6180247  KGZ
## 37                   Lesotho  8.9674444  LSO
## 38                   Liberia 10.6376111  LBR
## 39                Madagascar  8.1401667  MDG
## 40                    Malawi  3.6356111  MWI
## 41                  Maldives  6.1069167  MDV
## 42                      Mali 22.4886667  MLI
```

```
## 43                  Moldova  5.4929012  MDA
## 44                  Morocco 31.6493333  MAR
## 45               Mozambique  3.5043333  MOZ
## 46                  Myanmar 11.9392222  MMR
## 47                  Namibia  7.3674444  NAM
## 48                    Nepal  6.4663889  NPL
## 49                Nicaragua  4.6332222  NIC
## 50                    Niger 17.0797778  NER
## 51                  Nigeria 10.1447778  NGA
## 52                 Pakistan 13.1031548  PAK
## 53                     Peru  1.2701111  PER
## 54              Philippines  3.5443333  PHL
## 55                   Rwanda  9.1943889  RWA
## 56    Sao Tome and Principe  5.3686782  STP
## 57                  Senegal 13.2816667  SEN
## 58             Sierra Leone 16.9027778  SLE
## 59             South Africa  1.6648851  ZAF
## 60               Tajikistan 31.0131111  TJK
## 61                 Tanzania 16.2912222  TZA
## 62              Timor-Leste 24.9147778  TLS
## 63                     Togo  7.3982222  TGO
## 64                   Turkey  4.2592308  TUR
```

```
print(violence_df)
```

```
##                      Country      Score code
## 1                Afghanistan 22.5288095  AFG
## 2                    Albania  2.4524444  ALB
## 3                     Angola  7.0797778  AGO
## 4                    Armenia  4.0113095  ARM
## 5                 Azerbaijan 16.7045833  AZE
## 6                 Bangladesh 10.3033333  BGD
## 7                      Benin  7.8707778  BEN
## 8                    Bolivia  5.3954444  BOL
## 9               Burkina Faso 10.8768889  BFA
## 10                   Burundi 15.9398889  BDI
## 11                  Cambodia 11.2942222  KHM
## 12                  Cameroon 11.9049444  CMR
## 13                      Chad 23.4807778  TCD
## 14                  Colombia  1.1404444  COL
## 15                   Comoros  9.5546111  COM
## 16                     Congo 19.1671667  COG
## 17 Congo Democratic Republic 22.1008333  COD
## 18             Cote d'Ivoire 13.1191111  CIV
## 19        Dominican Republic  0.7340476  DOM
## 20                     Egypt 15.1758333  EGY
## 21                   Eritrea 32.3306667  ERI
## 22                  Eswatini  5.8334444  SWZ
## 23                  Ethiopia 16.6565556  ETH
## 24                     Gabon 12.3352778  GAB
## 25                    Gambia 14.8097222  GMB
## 26                     Ghana  7.0600000  GHA
## 27                 Guatemala  2.3038333  GTM
## 28                    Guinea 21.2895000  GIN
```

```
## 29                   Guyana  4.2798889  GUY
## 30                    Haiti  3.5145000  HTI
## 31                 Honduras  3.0452778  HND
## 32                    India 12.5360556  IND
## 33                Indonesia  7.5503571  IDN
## 34                   Jordan  5.6417778  JOR
## 35                    Kenya 11.3071111  KEN
## 36          Kyrgyz Republic 10.6180247  KGZ
## 37                  Lesotho  8.9674444  LSO
## 38                  Liberia 10.6376111  LBR
## 39               Madagascar  8.1401667  MDG
## 40                   Malawi  3.6356111  MWI
## 41                 Maldives  6.1069167  MDV
## 42                     Mali 22.4886667  MLI
## 43                  Moldova  5.4929012  MDA
## 44                  Morocco 31.6493333  MAR
## 45               Mozambique  3.5043333  MOZ
## 46                  Myanmar 11.9392222  MMR
## 47                  Namibia  7.3674444  NAM
## 48                    Nepal  6.4663889  NPL
## 49                Nicaragua  4.6332222  NIC
## 50                    Niger 17.0797778  NER
## 51                  Nigeria 10.1447778  NGA
## 52                 Pakistan 13.1031548  PAK
## 53                     Peru  1.2701111  PER
## 54              Philippines  3.5443333  PHL
## 55                   Rwanda  9.1943889  RWA
## 56    Sao Tome and Principe  5.3686782  STP
## 57                  Senegal 13.2816667  SEN
## 58             Sierra Leone 16.9027778  SLE
## 59             South Africa  1.6648851  ZAF
## 60               Tajikistan 31.0131111  TJK
## 61                 Tanzania 16.2912222  TZA
## 62              Timor-Leste 24.9147778  TLS
## 63                     Togo  7.3982222  TGO
## 64                   Turkey  4.2592308  TUR
```

Now, assuming the FIDE and ISO-3166 codes are the same, let's see how the joined data looks like. Because the countries that have women chess players may not intersect with the countries visited for questionnaire in the violence dataset, I expect plenty of this missed intersections to have NA values. For this analysis we will pay closer attention to the violence score aggregation, and see which countries have top chess players rather than joining all countries in the FIDE and ignore violence score for countries that do not have chess players.

```
merged_df <- left_join(violence_df, chess_data_slim_grouped, by = c("code" = "chess_data_slim$Federatio
print(merged_df)
```

```
##                     Country      Score code Standard_Rating_mean
## 1               Afghanistan 22.5288095  AFG                   NA
## 2                   Albania  2.4524444  ALB             1971.000
## 3                    Angola  7.0797778  AGO                   NA
## 4                   Armenia  4.0113095  ARM             2285.000
## 5                Azerbaijan 16.7045833  AZE             2103.375
```

```
## 6                Bangladesh 10.3033333  BGD              NA
## 7                     Benin  7.8707778  BEN              NA
## 8                   Bolivia  5.3954444  BOL        1888.000
## 9              Burkina Faso 10.8768889  BFA              NA
## 10                  Burundi 15.9398889  BDI              NA
## 11                 Cambodia 11.2942222  KHM              NA
## 12                 Cameroon 11.9049444  CMR              NA
## 13                     Chad 23.4807778  TCD              NA
## 14                 Colombia  1.1404444  COL        2001.875
## 15                  Comoros  9.5546111  COM              NA
## 16                    Congo 19.1671667  COG              NA
## 17 Congo Democratic Republic 22.1008333  COD              NA
## 18            Cote d'Ivoire 13.1191111  CIV              NA
## 19       Dominican Republic  0.7340476  DOM              NA
## 20                    Egypt 15.1758333  EGY        1995.000
## 21                  Eritrea 32.3306667  ERI              NA
## 22                 Eswatini  5.8334444  SWZ              NA
## 23                 Ethiopia 16.6565556  ETH              NA
## 24                    Gabon 12.3352778  GAB              NA
## 25                   Gambia 14.8097222  GMB              NA
## 26                    Ghana  7.0600000  GHA              NA
## 27                Guatemala  2.3038333  GTM              NA
## 28                   Guinea 21.2895000  GIN              NA
## 29                   Guyana  4.2798889  GUY              NA
## 30                    Haiti  3.5145000  HTI              NA
## 31                 Honduras  3.0452778  HND              NA
## 32                    India 12.5360556  IND        2086.143
## 33                Indonesia  7.5503571  IDN              NA
## 34                   Jordan  5.6417778  JOR        1964.000
## 35                    Kenya 11.3071111  KEN              NA
## 36          Kyrgyz Republic 10.6180247  KGZ              NA
## 37                  Lesotho  8.9674444  LSO              NA
## 38                  Liberia 10.6376111  LBR              NA
## 39               Madagascar  8.1401667  MDG              NA
## 40                   Malawi  3.6356111  MWI              NA
## 41                 Maldives  6.1069167  MDV              NA
## 42                     Mali 22.4886667  MLI              NA
## 43                  Moldova  5.4929012  MDA        2161.000
## 44                  Morocco 31.6493333  MAR        1853.000
## 45               Mozambique  3.5043333  MOZ              NA
## 46                  Myanmar 11.9392222  MMR              NA
## 47                  Namibia  7.3674444  NAM              NA
## 48                    Nepal  6.4663889  NPL              NA
## 49                Nicaragua  4.6332222  NIC              NA
## 50                    Niger 17.0797778  NER              NA
## 51                  Nigeria 10.1447778  NGA              NA
## 52                 Pakistan 13.1031548  PAK              NA
## 53                     Peru  1.2701111  PER        2158.500
## 54              Philippines  3.5443333  PHL              NA
## 55                   Rwanda  9.1943889  RWA              NA
## 56    Sao Tome and Principe  5.3686782  STP              NA
## 57                  Senegal 13.2816667  SEN              NA
## 58             Sierra Leone 16.9027778  SLE              NA
## 59             South Africa  1.6648851  ZAF              NA
```

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## 60           Tajikistan 31.0131111  TJK                   NA
## 61             Tanzania 16.2912222  TZA                   NA
## 62          Timor-Leste 24.9147778  TLS                   NA
## 63                 Togo  7.3982222  TGO                   NA
## 64               Turkey  4.2592308  TUR             1940.667
##    Standard_Rating_n Standard_Rating_max Standard_Rating_min Rapid_rating_mean
## 1                 NA                  NA                  NA                NA
## 2                  1                1971                1971          1788.000
## 3                 NA                  NA                  NA                NA
## 4                  1                2285                2285          2282.000
## 5                  8                2279                1871          1950.000
## 6                 NA                  NA                  NA                NA
## 7                 NA                  NA                  NA                NA
## 8                  1                1888                1888          1931.000
## 9                 NA                  NA                  NA                NA
## 10                NA                  NA                  NA                NA
## 11                NA                  NA                  NA                NA
## 12                NA                  NA                  NA                NA
## 13                NA                  NA                  NA                NA
## 14                 8                2257                1817          2031.000
## 15                NA                  NA                  NA                NA
## 16                NA                  NA                  NA                NA
## 17                NA                  NA                  NA                NA
## 18                NA                  NA                  NA                NA
## 19                NA                  NA                  NA                NA
## 20                 4                2182                1832          1895.250
## 21                NA                  NA                  NA                NA
## 22                NA                  NA                  NA                NA
## 23                NA                  NA                  NA                NA
## 24                NA                  NA                  NA                NA
## 25                NA                  NA                  NA                NA
## 26                NA                  NA                  NA                NA
## 27                NA                  NA                  NA                NA
## 28                NA                  NA                  NA                NA
## 29                NA                  NA                  NA                NA
## 30                NA                  NA                  NA                NA
## 31                NA                  NA                  NA                NA
## 32                 7                2202                1888          1878.714
## 33                NA                  NA                  NA                NA
## 34                 1                1964                1964          1941.000
## 35                NA                  NA                  NA                NA
## 36                NA                  NA                  NA                NA
## 37                NA                  NA                  NA                NA
## 38                NA                  NA                  NA                NA
## 39                NA                  NA                  NA                NA
## 40                NA                  NA                  NA                NA
## 41                NA                  NA                  NA                NA
## 42                NA                  NA                  NA                NA
## 43                 1                2161                2161          2121.000
## 44                 1                1853                1853          1788.000
## 45                NA                  NA                  NA                NA
## 46                NA                  NA                  NA                NA
## 47                NA                  NA                  NA                NA
## 48                NA                  NA                  NA                NA
```

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## 49              NA                NA                NA                NA
## 50              NA                NA                NA                NA
## 51              NA                NA                NA                NA
## 52              NA                NA                NA                NA
## 53               2              2244              2073          2126.500
## 54              NA                NA                NA                NA
## 55              NA                NA                NA                NA
## 56              NA                NA                NA                NA
## 57              NA                NA                NA                NA
## 58              NA                NA                NA                NA
## 59              NA                NA                NA                NA
## 60              NA                NA                NA                NA
## 61              NA                NA                NA                NA
## 62              NA                NA                NA                NA
## 63              NA                NA                NA                NA
## 64               3              2033              1839          1931.333
##    Rapid_rating_n Rapid_rating_max Rapid_rating_min Blitz_rating_mean
## 1              NA               NA               NA                NA
## 2               1             1788             1788          1886.000
## 3              NA               NA               NA                NA
## 4               1             2282             2282          2275.000
## 5               8             2144             1623          1953.750
## 6              NA               NA               NA                NA
## 7              NA               NA               NA                NA
## 8               1             1931             1931          2020.000
## 9              NA               NA               NA                NA
## 10             NA               NA               NA                NA
## 11             NA               NA               NA                NA
## 12             NA               NA               NA                NA
## 13             NA               NA               NA                NA
## 14              8             2312             1784          2003.250
## 15             NA               NA               NA                NA
## 16             NA               NA               NA                NA
## 17             NA               NA               NA                NA
## 18             NA               NA               NA                NA
## 19             NA               NA               NA                NA
## 20              4             2139             1664          1883.000
## 21             NA               NA               NA                NA
## 22             NA               NA               NA                NA
## 23             NA               NA               NA                NA
## 24             NA               NA               NA                NA
## 25             NA               NA               NA                NA
## 26             NA               NA               NA                NA
## 27             NA               NA               NA                NA
## 28             NA               NA               NA                NA
## 29             NA               NA               NA                NA
## 30             NA               NA               NA                NA
## 31             NA               NA               NA                NA
## 32              7             2075             1569          1907.286
## 33             NA               NA               NA                NA
## 34              1             1941             1941          1857.000
## 35             NA               NA               NA                NA
## 36             NA               NA               NA                NA
## 37             NA               NA               NA                NA
```

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## 38              NA                NA                NA                 NA
## 39              NA                NA                NA                 NA
## 40              NA                NA                NA                 NA
## 41              NA                NA                NA                 NA
## 42              NA                NA                NA                 NA
## 43               1              2121              2121           2123.000
## 44               1              1788              1788           1769.000
## 45              NA                NA                NA                 NA
## 46              NA                NA                NA                 NA
## 47              NA                NA                NA                 NA
## 48              NA                NA                NA                 NA
## 49              NA                NA                NA                 NA
## 50              NA                NA                NA                 NA
## 51              NA                NA                NA                 NA
## 52              NA                NA                NA                 NA
## 53               2              2204              2049           2108.000
## 54              NA                NA                NA                 NA
## 55              NA                NA                NA                 NA
## 56              NA                NA                NA                 NA
## 57              NA                NA                NA                 NA
## 58              NA                NA                NA                 NA
## 59              NA                NA                NA                 NA
## 60              NA                NA                NA                 NA
## 61              NA                NA                NA                 NA
## 62              NA                NA                NA                 NA
## 63              NA                NA                NA                 NA
## 64               3              2016              1802           1987.333
##    Blitz_rating_n Blitz_rating_max Blitz_rating_min
## 1              NA                NA                NA
## 2               1              1886              1886
## 3              NA                NA                NA
## 4               1              2275              2275
## 5               8              2109              1656
## 6              NA                NA                NA
## 7              NA                NA                NA
## 8               1              2020              2020
## 9              NA                NA                NA
## 10             NA                NA                NA
## 11             NA                NA                NA
## 12             NA                NA                NA
## 13             NA                NA                NA
## 14              8              2240              1791
## 15             NA                NA                NA
## 16             NA                NA                NA
## 17             NA                NA                NA
## 18             NA                NA                NA
## 19             NA                NA                NA
## 20              4              2072              1698
## 21             NA                NA                NA
## 22             NA                NA                NA
## 23             NA                NA                NA
## 24             NA                NA                NA
## 25             NA                NA                NA
## 26             NA                NA                NA
```

```
## 27            NA            NA            NA
## 28            NA            NA            NA
## 29            NA            NA            NA
## 30            NA            NA            NA
## 31            NA            NA            NA
## 32             7          2076          1619
## 33            NA            NA            NA
## 34             1          1857          1857
## 35            NA            NA            NA
## 36            NA            NA            NA
## 37            NA            NA            NA
## 38            NA            NA            NA
## 39            NA            NA            NA
## 40            NA            NA            NA
## 41            NA            NA            NA
## 42            NA            NA            NA
## 43             1          2123          2123
## 44             1          1769          1769
## 45            NA            NA            NA
## 46            NA            NA            NA
## 47            NA            NA            NA
## 48            NA            NA            NA
## 49            NA            NA            NA
## 50            NA            NA            NA
## 51            NA            NA            NA
## 52            NA            NA            NA
## 53             2          2168          2048
## 54            NA            NA            NA
## 55            NA            NA            NA
## 56            NA            NA            NA
## 57            NA            NA            NA
## 58            NA            NA            NA
## 59            NA            NA            NA
## 60            NA            NA            NA
## 61            NA            NA            NA
## 62            NA            NA            NA
## 63            NA            NA            NA
## 64             3          2026          1933
```