WHO data

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Contents

Libraries Used

```r
library(tidyverse)
```

```
## -- Attaching packages ----------------------------------------------------------

## v ggplot2 3.3.0     v purrr   0.3.3
## v tibble  3.0.0     v dplyr   0.8.5
## v tidyr   1.0.2     v stringr 1.4.0
## v readr   1.3.1     v forcats 0.5.0

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

```r
library(lubridate)
```

```
##
## Attaching package: 'lubridate'

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

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

Developed Functions

```r
readWHO <- function(path = "./data/WHO/",
                    file = "report 1.csv",
                    date = NULL,
                    reportNumber = 1){
    rawData <- NULL
    require(tidyverse)
    require(lubridate)
    toRead <- paste(path,
                    file,
                    sep = "")
    rawData <- read_csv(file = toRead)
    rawData$report <- reportNumber
    rawData$date <- date
    rawData$New[is.na(rawData$New)] <- FALSE
    return(rawData)
}

WHOClean <- function(dataSet = WHO){
    dataSet$`Country Territory area`[which(dataSet$`Country Territory area` == "Federal Democratic Repu
        "Napal"
    dataSet$`Country Territory area`[which(dataSet$`Country Territory area` == "Republic of Singapore")
        "Singapore"
    dataSet$`Country Territory area`[which(dataSet$`Country Territory area` == "the United Kingdom")] <
        "United Kingdom"
    dataSet$`Country Territory area`[which(dataSet$`Country Territory area` == "The United Kingdom")] <
        "United Kingdom"
    dataSet$`Country Territory area`[which(dataSet$`Country Territory area` == "the United States")] <-
        "United States of America"
    dataSet$`Country Territory area`[which(dataSet$`Country Territory area` == "Saint Barthlemy")] <-
        "Saint Barthelemy"
    dataSet$`Country Territory area`[which(dataSet$`Country Territory area` == "occupied Palestinian te
        "Occupied Palestinian Territory"
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        "Occupied Palestinian Territory"
    dataSet$`Country Territory area`[which(dataSet$`Country Territory area` == "Cote d?Ivoire")] <-
        "Cote d Ivoire"
    dataSet$`Country Territory area`[which(dataSet$`Country Territory area` == "Kosovo[1]")] <-
        "Kosovo"
    dataSet$`Country Territory area`[which(dataSet$`Country Territory area` == "Lao People?s Democratic
        "Lao People's Democratic Republic"
    dataSet$`Country Territory area`[which(dataSet$`Country Territory area` == "Dominican")] <-
        "Dominican Republic"
    dataSet <- dataSet %>%
      filter(Region != "Other")
    return(dataSet)
}
```

Read data in

Set varibles

```r
endReport <- 78  # 77
WHO <- NULL
startDay <- as.Date("21-Jan-2020", format = "%d-%b-%Y")
```

Get the data

```r
for (i in 1:endReport) {
    reportDate <- startDay + days(i - 1)
    fileName <- paste("report ",
                      i,
                      ".csv",
                      sep = "")
    temp <- readWHO(file = fileName,
                    date = reportDate,
                    reportNumber = i)
    WHO <- rbind(WHO,
                 temp)
    rm(temp)
}
```

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## Parsed with column specification:
## cols(
##   Region = col_character(),
##   `Country Territory area` = col_character(),
##   `total Confirmed Cases` = col_double(),
##   `Confirmed new cases` = col_double(),
##   `total deaths` = col_double(),
##   `total new deaths` = col_double(),
##   New = col_logical()
## )
## Parsed with column specification:
## cols(
##   Region = col_character(),
##   `Country Territory area` = col_character(),
##   `total Confirmed Cases` = col_double(),
##   `Confirmed new cases` = col_double(),
##   `total deaths` = col_double(),
##   `total new deaths` = col_double(),
##   New = col_logical()
## )
## Parsed with column specification:
## cols(
##   Region = col_character(),
##   `Country Territory area` = col_character(),
##   `total Confirmed Cases` = col_double(),
##   `Confirmed new cases` = col_double(),
##   `total deaths` = col_double(),
##   `total new deaths` = col_double(),
##   New = col_logical()
## )
## Parsed with column specification:
## cols(
##   Region = col_character(),
##   `Country Territory area` = col_character(),
##   `total Confirmed Cases` = col_double(),
##   `Confirmed new cases` = col_double(),
##   `total deaths` = col_double(),
##   `total new deaths` = col_double(),
##   New = col_logical()
## )
## Parsed with column specification:
## cols(
##   Region = col_character(),
##   `Country Territory area` = col_character(),
##   `total Confirmed Cases` = col_double(),
##   `Confirmed new cases` = col_double(),
##   `total deaths` = col_double(),
##   `total new deaths` = col_double(),
```

```
##   New = col_logical()
## )
## Parsed with column specification:
## cols(
##   Region = col_character(),
##   `Country Territory area` = col_character(),
##   `total Confirmed Cases` = col_double(),
##   `Confirmed new cases` = col_double(),
##   `total deaths` = col_double(),
##   `total new deaths` = col_double(),
##   New = col_logical()
## )
## Parsed with column specification:
## cols(
##   Region = col_character(),
##   `Country Territory area` = col_character(),
##   `total Confirmed Cases` = col_double(),
##   `Confirmed new cases` = col_double(),
##   `total deaths` = col_double(),
##   `total new deaths` = col_double(),
##   New = col_logical()
## )
## Parsed with column specification:
## cols(
##   Region = col_character(),
##   `Country Territory area` = col_character(),
##   `total Confirmed Cases` = col_double(),
##   `Confirmed new cases` = col_double(),
##   `total deaths` = col_double(),
##   `total new deaths` = col_double(),
##   New = col_logical()
## )
## Parsed with column specification:
## cols(
##   Region = col_character(),
##   `Country Territory area` = col_character(),
##   `total Confirmed Cases` = col_double(),
##   `Confirmed new cases` = col_double(),
##   `total deaths` = col_double(),
##   `total new deaths` = col_double(),
##   New = col_logical()
## )
## Parsed with column specification:
## cols(
##   Region = col_character(),
##   `Country Territory area` = col_character(),
##   `total Confirmed Cases` = col_double(),
##   `Confirmed new cases` = col_double(),
##   `total deaths` = col_double(),
##   `total new deaths` = col_double(),
##   New = col_logical()
## )
## Parsed with column specification:
## cols(
```

```
##    Region = col_character(),
##    `Country Territory area` = col_character(),
##    `total Confirmed Cases` = col_double(),
##    `Confirmed new cases` = col_double(),
##    `total deaths` = col_double(),
##    `total new deaths` = col_double(),
##    New = col_logical()
## )
## Parsed with column specification:
## cols(
##    Region = col_character(),
##    `Country Territory area` = col_character(),
##    `total Confirmed Cases` = col_double(),
##    `Confirmed new cases` = col_double(),
##    `total deaths` = col_double(),
##    `total new deaths` = col_double(),
##    New = col_logical()
## )
## Parsed with column specification:
## cols(
##    Region = col_character(),
##    `Country Territory area` = col_character(),
##    `total Confirmed Cases` = col_double(),
##    `Confirmed new cases` = col_double(),
##    `total deaths` = col_double(),
##    `total new deaths` = col_double(),
##    New = col_logical()
## )
## Parsed with column specification:
## cols(
##    Region = col_character(),
##    `Country Territory area` = col_character(),
##    `total Confirmed Cases` = col_double(),
##    `Confirmed new cases` = col_double(),
##    `total deaths` = col_double(),
##    `total new deaths` = col_double(),
##    New = col_logical()
## )
## Parsed with column specification:
## cols(
##    Region = col_character(),
##    `Country Territory area` = col_character(),
##    `total Confirmed Cases` = col_double(),
##    `Confirmed new cases` = col_double(),
##    `total deaths` = col_double(),
##    `total new deaths` = col_double(),
##    New = col_logical()
## )
```

Post process/clean the data

```
WHO <- WHOClean(dataSet = WHO)
```

data check

```r
temp <- table(WHO$`Country Territory area`,
      useNA = "ifany")
temp[order(temp,
          decreasing = TRUE)]
```

```
##
##                             China
##                                78
##                             Japan
##                                78
##                 Republic of Korea
##                                78
##                          Thailand
##                                78
##          United States of America
##                                77
##                         Singapore
##                                75
##                          Viet Nam
##                                75
##                         Australia
##                                74
##                            Canada
##                                73
##                            France
##                                73
##                          Malaysia
##                                73
##                          Cambodia
##                                71
##                           Germany
##                                71
##                         Sri Lanka
##                                71
##              United Arab Emirates
##                                70
##                           Finland
##                                69
##                             India
##                                69
##                       Philippines
##                                69
##                             Italy
##                                67
##                Russian Federation
##                                67
##                             Spain
##                                67
##                            Sweden
##                                67
##                    United Kingdom
##                                67
```

```
##                                                           Belgium
##                                                                63
##                                                             Egypt
##                                                                53
##                                                           Lebanon
##                                                                46
##                                                            Kuwait
##                                                                44
##                                                           Bahrain
##                                                                43
##                                                              Iraq
##                                                                43
##                                                              Oman
##                                                                43
##                                                           Algeria
##                                                                42
##                                                           Austria
##                                                                42
##                                                            Brazil
##                                                                42
##                                                           Croatia
##                                                                42
##                                                       Switzerland
##                                                                42
##                                                           Denmark
##                                                                41
##                                                           Estonia
##                                                                41
##                                                           Georgia
##                                                                41
##                                                            Greece
##                                                                41
##                                                    North Macedonia
##                                                                41
##                                                            Norway
##                                                                41
##                                                          Pakistan
##                                                                41
##                                                           Romania
##                                                                41
##                                                           Belarus
##                                                                40
##                                                         Lithuania
##                                                                40
##                                                       Netherlands
##                                                                40
##                                                       New Zealand
##                                                                40
##                                                           Nigeria
##                                                                40
##                                                        San Marino
##                                                                39
##                                                        Azerbaijan
##                                                                38
```

```
##                                          Ecuador
##                                               38
##                                          Ireland
##                                               38
##                                           Monaco
##                                               38
##                                            Napal
##                                               38
##                                            Qatar
##                                               38
##                                          Armenia
##                                               37
##                                          Czechia
##                                               37
##                               Dominican Republic
##                                               37
##                                          Iceland
##                                               37
##                                        Indonesia
##                                               37
##                                       Luxembourg
##                                               37
##                                      Afghanistan
##                                               36
##                                          Andorra
##                                               36
##                        Iran (Islamic Republic of)
##                                               36
##                                           Israel
##                                               36
##                                           Jordan
##                                               36
##                                           Latvia
##                                               36
##                                           Mexico
##                                               36
##                                          Morocco
##                                               36
##                                            Nepal
##                                               36
##                                         Portugal
##                                               36
##                                     Saudi Arabia
##                                               36
##                                          Senegal
##                                               36
##                                          Tunisia
##                                               36
##                                        Argentina
##                                               35
##                                            Chile
##                                               35
##                                           Poland
##                                               35
```

```
##                                          Ukraine
##                                               35
##                         Bosnia and Herzegovina
##                                               34
##                                        Gibraltar
##                                               34
##                                          Hungary
##                                               34
##                                     Liechtenstein
##                                               34
##                    Occupied Palestinian Territory
##                                               34
##                                  Saint Barthelemy
##                                               34
##                                      Saint Martin
##                                               34
##                                          Slovenia
##                                               34
##                                            Bhutan
##                                               33
##                                          Cameroon
##                                               33
##                                            Serbia
##                                               33
##                                      South Africa
##                                               33
##                                          Colombia
##                                               32
##                                          Holy See
##                                               32
##                                              Peru
##                                               32
##                                          Slovakia
##                                               32
##                                          Bulgaria
##                                               31
##                                        Costa Rica
##                                               31
##                                     Faroe Islands
##                                               31
##                                     French Guiana
##                                               31
##                                          Maldives
##                                               31
##                                             Malta
##                                               31
##                                        Martinique
##                                               31
##                              Republic of Moldova
##                                               31
##                                              Togo
##                                               31
##                                           Albania
##                                               30
```

```
##                                    Bangladesh
##                                            30
##                                      Paraguay
##                                            30
##                              Brunei Darussalam
##                                            29
##                                        Cyprus
##                                            29
##                                      Guernsey
##                                            29
##                                      Mongolia
##                                            29
##                                        Panama
##                                            29
##                 Bolivia (Plurinational State of)
##                                            28
##                                   Burkina Faso
##                                            28
##                Democratic Republic of the Congo
##                                            28
##                                       Jamaica
##                                            28
##                                 Cote d Ivoire
##                                            27
##                              French Polynesia
##                                            27
##                                      Honduras
##                                            27
##                                        Turkey
##                                            27
##                                          Cuba
##                                            26
##                                        Guyana
##                                            26
##                                        Jersey
##                                            26
##                                       Reunion
##                                            26
##                 Saint Vincent and the Grenadines
##                                            26
##                           Antigua and Barbuda
##                                            25
##                                Cayman Islands
##                                            25
##                                      Ethiopia
##                                            25
##                                         Gabon
##                                            25
##                                         Ghana
##                                            25
##                                    Guadeloupe
##                                            25
##                                        Guinea
##                                            25
```

22

```
##                                           Kenya
##                                              25
##                                     Puerto Rico
##                                              25
##                                           Sudan
##                                              25
##                             Trinidad and Tobago
##                                              25
##                  Venezuela (Bolivarian Republic of)
##                                              25
##                        Central African Republic
##                                              24
##                                           Congo
##                                              24
##                                         Curacao
##                                              24
##                               Equatorial Guinea
##                                              24
##                                        Eswatini
##                                              24
##                                      Kazakhstan
##                                              24
##                                      Mauritania
##                                              24
##                                         Mayotte
##                                              24
##                                         Namibia
##                                              24
##                                       Guatemala
##                                              23
##                                          Rwanda
##                                              23
##                                     Saint Lucia
##                                              23
##                                      Seychelles
##                                              23
##                                        Suriname
##                                              23
##                                         Uruguay
##                                              23
##                                      Uzbekistan
##                                              23
##                                           Aruba
##                                              22
##                                         Bahamas
##                                              22
##                                           Benin
##                                              22
##                                            Guam
##                                              22
##                                         Liberia
##                                              22
##                                         Somalia
##                                              22
```

23

```
##                    United Republic of Tanzania
##                                             22
##                    United States Virgin Islands
##                                             22
##                                     Montenegro
##                                             21
##                                       Barbados
##                                             20
##                                       Djibouti
##                                             20
##                                         Gambia
##                                             20
##                                      Greenland
##                                             20
##                                     Kyrgyzstan
##                                             20
##                                      Mauritius
##                                             20
##                                     Montserrat
##                                             20
##                                         Zambia
##                                             20
##                                        Bermuda
##                                             19
##                                           Chad
##                                             19
##                                    El Salvador
##                                             19
##                                           Fiji
##                                             19
##                                  New Caledonia
##                                             19
##                                      Nicaragua
##                                             19
##                                          Niger
##                                             19
##                                   Sint Maarten
##                                             19
##                                     Cabo Verde
##                                             18
##                                          Haiti
##                                             18
##                                    Isle of Man
##                                             18
##                               Papua New Guinea
##                                             18
##                                    Timor-Leste
##                                             18
##                                       Zimbabwe
##                                             18
##                                         Angola
##                                             17
##                                        Eritrea
##                                             17
```

```
##                          Madagascar
##                                  17
##                              Uganda
##                                  17
##                             Grenada
##                                  16
##                              Kosovo
##                                  16
##                          Mozambique
##                                  16
##                 Syrian Arab Republic
##                                  16
##                              Belize
##                                  15
##                            Dominica
##                                  15
##                             Myanmar
##                                  15
##            Turks and Caicos Islands
##                                  15
##      Lao People's Democratic Republic
##                                  14
##                               Libya
##                                  14
##                       Guinea-Bissau
##                                  13
##                                Mali
##                                  13
##               Saint Kitts and Nevis
##                                  13
##                            Anguilla
##                                  12
##               British Virgin Islands
##                                  12
##                                Iran
##                                  10
##                              Isreal
##                                  10
## Northern Mariana Islands (Commonwealth of the)
##                                  10
##                          Afganistan
##                                   7
##                            Botswana
##                                   7
##                             Burundi
##                                   7
##                        Sierra Leone
##                                   7
##                              Malawi
##                                   5
##         Bonaire, Sint Eustatius and Saba
##                                   4
##             Falkland Islands (Malvinas)
##                                   3
```

```
##                                                      Mexio
##                                                          3
##                                                       Irab
##                                                          2
##                                                South Sudan
##                                                          2
##                                      Sao Tome and Principe
##                                                          1
```

```
temp[temp == 1]
```

```
## Sao Tome and Principe
##                     1
```

```
length(temp)
```

```
## [1] 216
```

```
table(WHO$date,
      useNA = "ifany")
```

```
##
## 2020-01-21 2020-01-22 2020-01-23 2020-01-24 2020-01-25 2020-01-26 2020-01-27
##          4          4          5          7          9         11         12
## 2020-01-28 2020-01-29 2020-01-30 2020-01-31 2020-02-01 2020-02-02 2020-02-03
##         15         16         19         19         24         24         24
## 2020-02-04 2020-02-05 2020-02-06 2020-02-07 2020-02-08 2020-02-09 2020-02-10
##         24         25         25         25         25         25         25
## 2020-02-11 2020-02-12 2020-02-13 2020-02-14 2020-02-15 2020-02-16 2020-02-17
##         25         25         25         25         26         26         26
## 2020-02-18 2020-02-19 2020-02-20 2020-02-21 2020-02-22 2020-02-23 2020-02-24
##         26         26         27         27         29         29         30
## 2020-02-25 2020-02-26 2020-02-27 2020-02-28 2020-02-29 2020-03-01 2020-03-02
##         34         38         47         55         54         59         65
## 2020-03-03 2020-03-04 2020-03-05 2020-03-06 2020-03-07 2020-03-08 2020-03-09
##         73         77         85         89         94        102        105
## 2020-03-10 2020-03-11 2020-03-12 2020-03-13 2020-03-14 2020-03-15 2020-03-16
##        110        114        118        123        135        144        150
## 2020-03-17 2020-03-18 2020-03-19 2020-03-20 2020-03-21 2020-03-22 2020-03-23
##        159        160        168        176        182        186        190
## 2020-03-24 2020-03-25 2020-03-26 2020-03-27 2020-03-28 2020-03-29 2020-03-30
##        194        196        199        201        201        202        202
## 2020-03-31 2020-04-01 2020-04-02 2020-04-03 2020-04-04 2020-04-05 2020-04-06
##        202        205        205        206        207        208        209
## 2020-04-07
##        210
```

```
length(table(WHO$date,
             useNA = "ifany"))
```

```
## [1] 78
```

```
table(WHO$report,
      useNA = "ifany")
```

```
##
##   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20
##   4   4   5   7   9  11  12  15  16  19  19  24  24  24  24  25  25  25  25  25
```

```
## 21  22  23  24  25  26  27  28  29  30  31  32  33  34  35  36  37  38  39  40
## 25  25  25  25  25  26  26  26  26  26  27  27  29  29  30  34  38  47  55  54
## 41  42  43  44  45  46  47  48  49  50  51  52  53  54  55  56  57  58  59  60
## 59  65  73  77  85  89  94 102 105 110 114 118 123 135 144 150 159 160 168 176
## 61  62  63  64  65  66  67  68  69  70  71  72  73  74  75  76  77  78
## 182 186 190 194 196 199 201 201 202 202 202 205 205 206 207 208 209 210
```

```r
length(table(WHO$report,
             useNA = "ifany"))
```

```
## [1] 78
```

```r
temp <- table(WHO$Region,
      useNA = "ifany")
temp[order(temp,
           decreasing = TRUE)]
```

```
##
##                                European          Region of the Americas
##                                    2167                            1021
##                                 African           Eastern Mediterranean
##                                     952                             753
##                Western Pacific Region of the Americas Territories
##                                     469                             371
##                  Western Pacific Region               South-East Asia
##                                     345                             307
##                    European Territories         South-East Asia Region
##                                     176                             155
##             Western Pacific Territories            African Territories
##                                      78                              50
##   Eastern Mediterranean Territories
##                                      34
```

```r
rm (temp)
```

```r
tail(WHO)
```

```
## # A tibble: 6 x 9
##   Region `Country Territ~ `total Confirme~ `Confirmed new ~ `total deaths`
##   <chr>  <chr>                       <dbl>            <dbl>          <dbl>
## 1 Afric~ Malawi                          4                0              0
## 2 Afric~ Sao Tome and Pr~                4                4              0
## 3 Afric~ Burundi                         3                0              0
## 4 Afric~ South Sudan                     1                0              0
## 5 Afric~ Reunion                       349                5              0
## 6 Afric~ Mayotte                       164               17              2
## # ... with 4 more variables: `total new deaths` <dbl>, New <lgl>, report <int>,
## #   date <date>
```