ggplots-nCoV

Daniel Vogel

2/25/2020

Plotting Global nCoV Cases

Perform a fuller exploratory analysis on your dataset for your project. You should aggregate the data in some way with dplyr (if your dataset doesn't have any categorical variables, then make some) and make four distinct figures using ggplot2. Make sure you include:

- A plot with continuous variables
- A plot with discrete variables
- A plot where you use color or size to represent a quantity
- A faceted plot

Include text between your plots to tell a story about the data. What insights do these plots give us into your data?

Assumptions:

Note:The original data had multiple observations for some dates, seen here. In these cases, we will only consider the latest observation for that date. This is valid since these are always increasing quantities.

```
##  [1] "1/21/20 22:00"  "1/22/20 12:00"  "1/23/20 12:00"  "1/24/20 0:00"
##  [5] "1/24/20 12:00"  "1/25/20 0:00"   "1/25/20 12:00"  "1/25/20 22:00"
##  [9] "1/26/20 11:00"  "1/26/20 23:00"  "1/27/20 9:00"   "1/27/20 19:00"
## [13] "1/27/20 20:30"  "1/28/20 13:00"  "1/28/20 18:00"  "1/28/20 23:00"
## [17] "1/29/20 13:30"  "1/29/20 14:30"  "1/29/20 21:00"  "1/30/20 11:00"
## [21] "1/31/20 14:00"  "02/01/20 10:00" "02/02/20 21:00" "02/03/20 21:00"
## [25] "02/04/20 9:40"  "02/04/20 22:00" "02/05/20 9:00"  "02/05/20 23:00"
## [29] "02/06/20 9:00"  "02/06/20 14:20" "02/07/20 20:13" "02/07/20 22:50"
## [33] "02/08/20 22:04" "02/08/20 23:04" "02/09/20 10:30" "02/09/20 23:20"
```

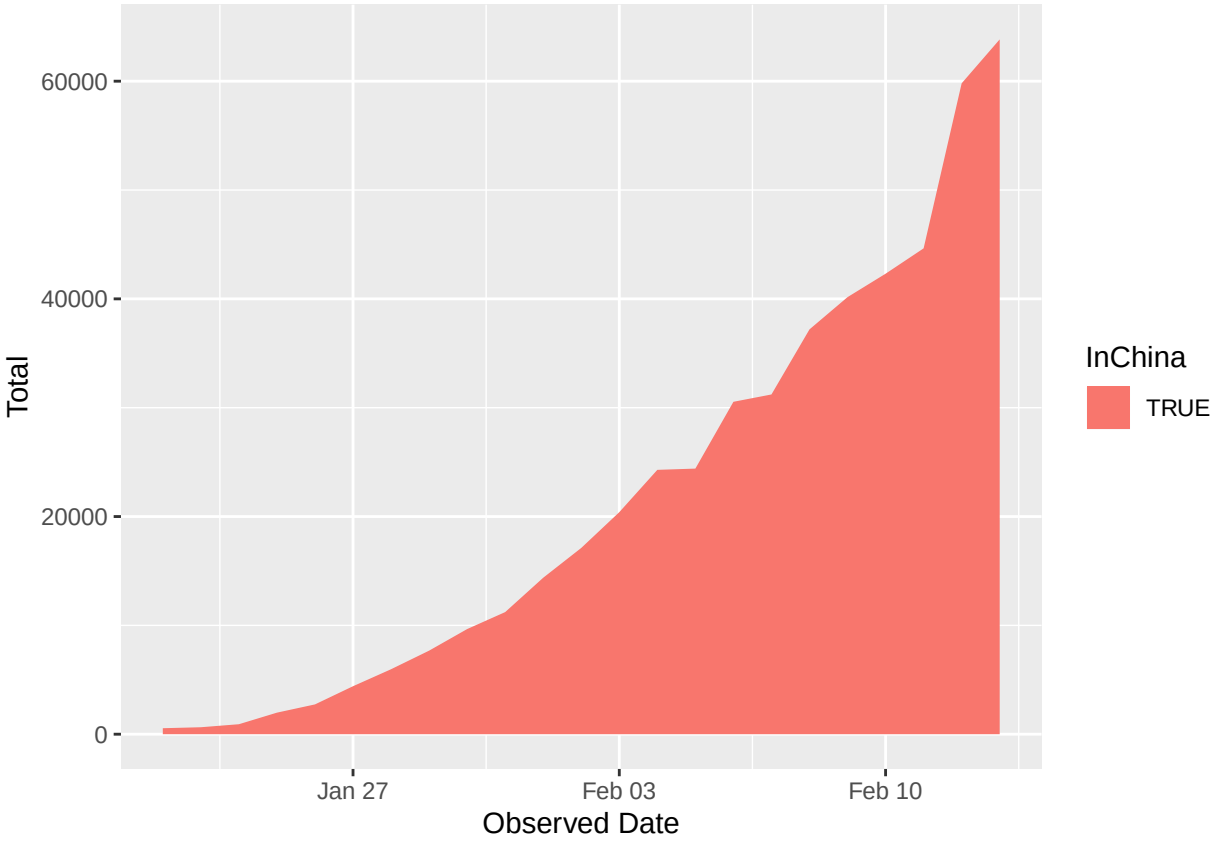
```
## [1] "Summary"
```

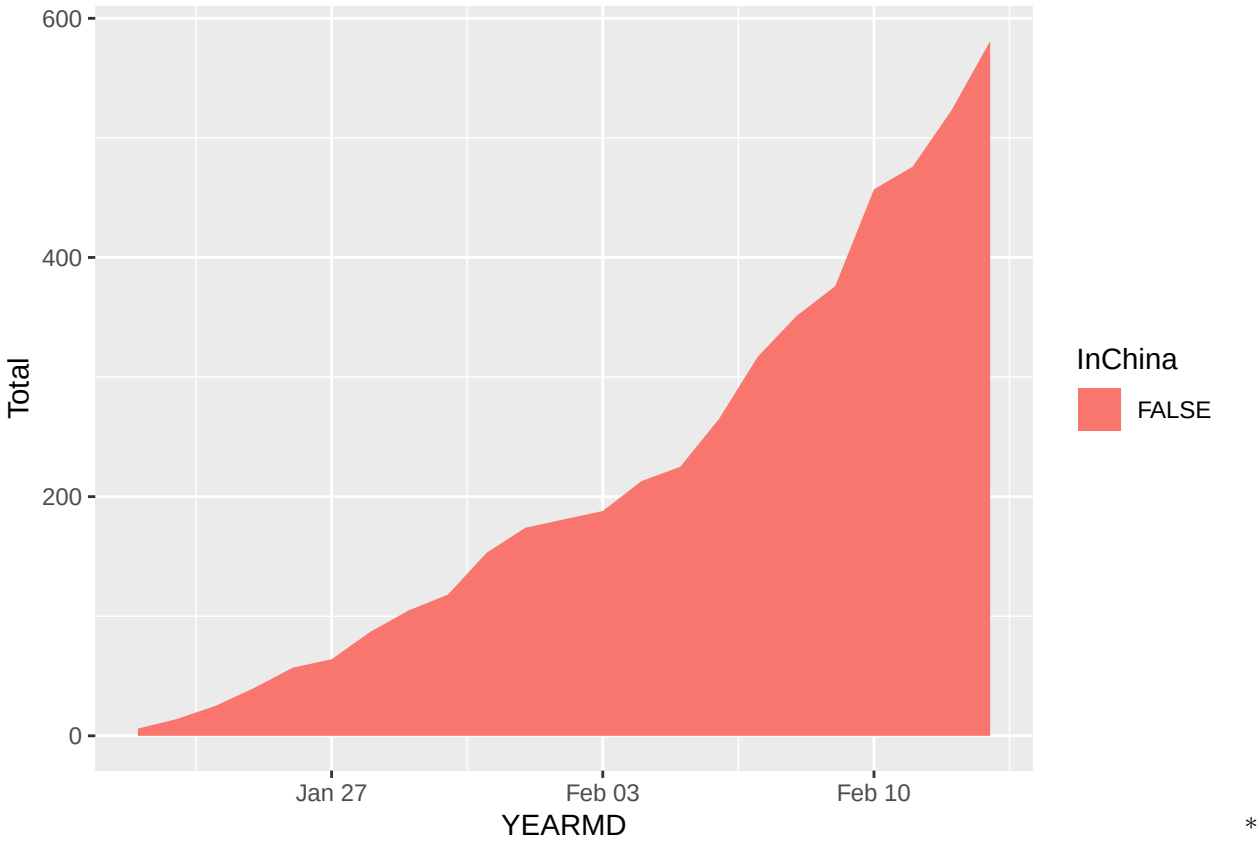
```
## # A tibble: 46 x 3
## # Groups:   YEARMD [23]
##    YEARMD     InChina Total
##    <date>     <lgl>   <dbl>
##  1 2020-01-22 FALSE       6
##  2 2020-01-22 TRUE      549
##  3 2020-01-23 FALSE      14
##  4 2020-01-23 TRUE      639
##  5 2020-01-24 FALSE      25
##  6 2020-01-24 TRUE      916
##  7 2020-01-25 FALSE      40
##  8 2020-01-25 TRUE     1979
```

```
##  9 2020-01-26 FALSE      57
## 10 2020-01-26 TRUE     2737
## # ... with 36 more rows
```

Plots

- Cases observed over the period. Plots with contiuous variables

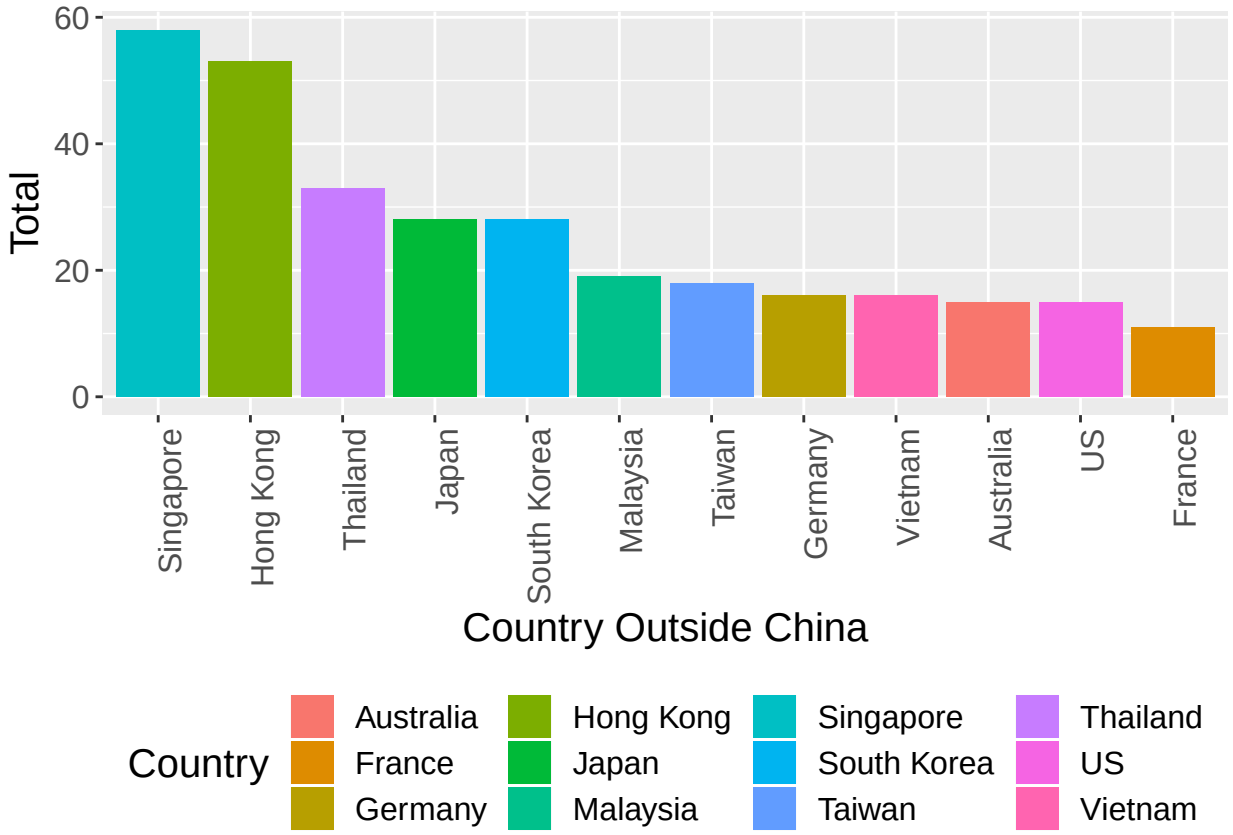




*

Plot with Discrete Variables Note: We have removed "Other" and "China" from this plot to show countries in the same scale. "Other" referred to patients on cruise ships who came from multiple countries. "China" Totals are too high to plot on the same scale as other countries.

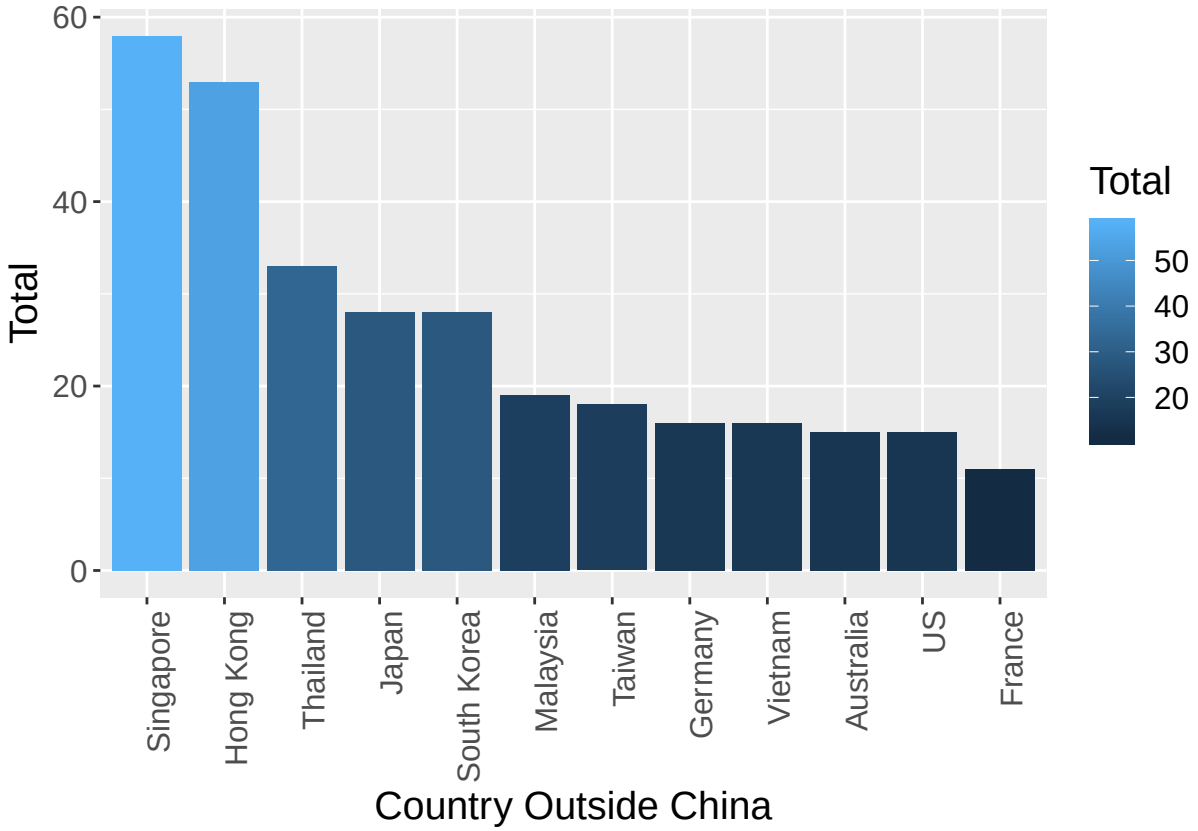
We can see that the spread of nCoV follows the same curve inside and outside of China. This also show that the curve is increasing slope during this period of spread. A typical virus will spread increasingly and then slow down before fading away. We can see that cases in China are starting to decrease in slope but outside are still on the rise.




```
## # A tibble: 12 x 2
##    Country     Total
##    <chr>       <dbl>
##  1 Singapore      58
##  2 Hong Kong      53
##  3 Thailand       33
##  4 Japan          28
##  5 South Korea    28
##  6 Malaysia       19
##  7 Taiwan         18
##  8 Germany        16
##  9 Vietnam        16
## 10 Australia      15
## 11 US             15
## 12 France         11
```

This graph shows that countries geographicaly close to China have the most cases so far. This is to be expected since travel volumes are high between Wuhan and Hong Kong, Singaporte, and other neighbor countries.

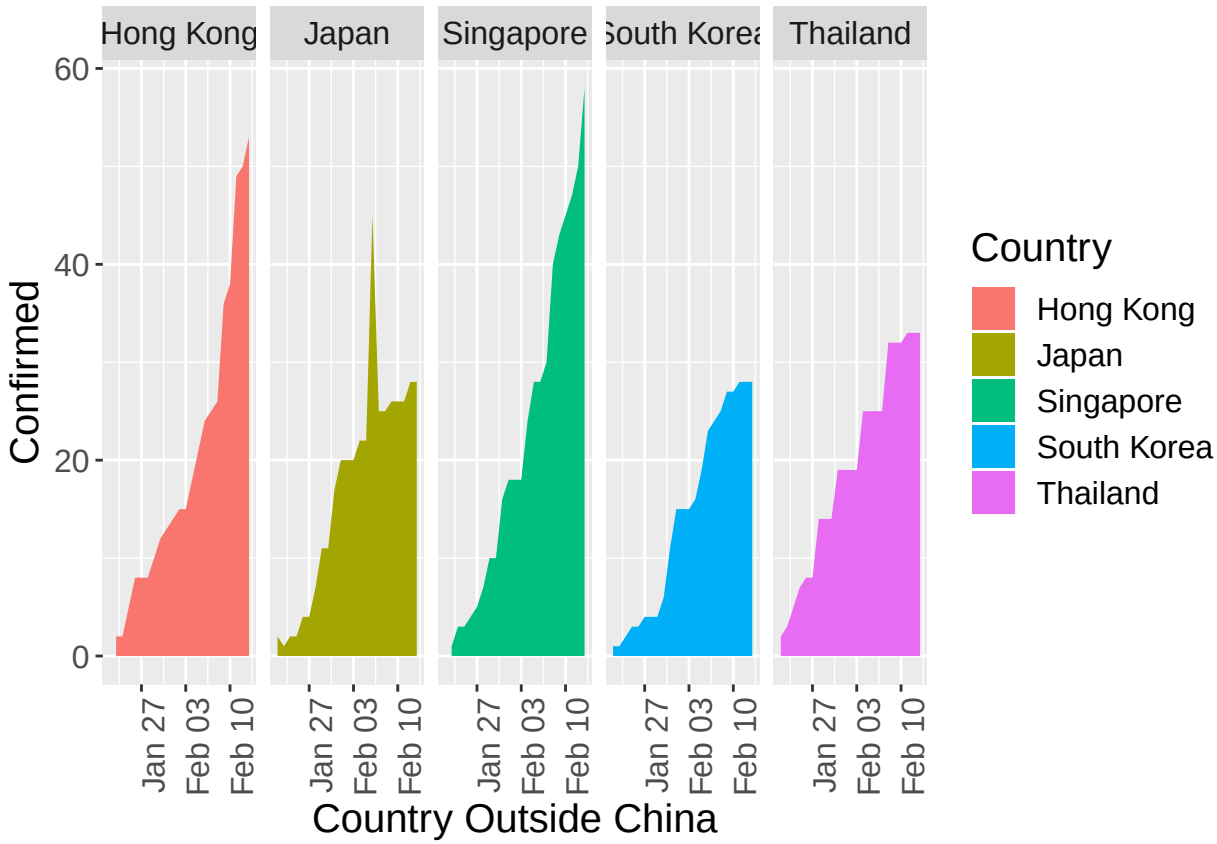
- A plot where you use color or size to represent a quantity This show also shows the high number of cases in Singapore and Hong Kong but is colored so it is visually clear.




```
## # A tibble: 12 x 2
##    Country     Total
##    <chr>       <dbl>
##  1 Singapore      58
##  2 Hong Kong      53
##  3 Thailand       33
##  4 Japan          28
##  5 South Korea    28
##  6 Malaysia       19
##  7 Taiwan         18
##  8 Germany        16
##  9 Vietnam        16
## 10 Australia      15
## 11 US             15
## 12 France         11
```

- A faceted plot

This plot shows that the increase in each of these countries is following the same pattern during this early stage of the virus spread.


Hong Kong
Japan
Singapore
South Korea
Thailand
Confirmed
60
40
20
0
Jan 27
Feb 03
Feb 10
Country Outside China
Country
Hong Kong
Japan
Singapore
South Korea
Thailand