A dark green background featuring several glowing green COVID-19 virus particles. Some are large, spherical with prominent spikes, while others are smaller and more isolated. A large bracket shape is positioned on the right side of the slide.

# COVID-19

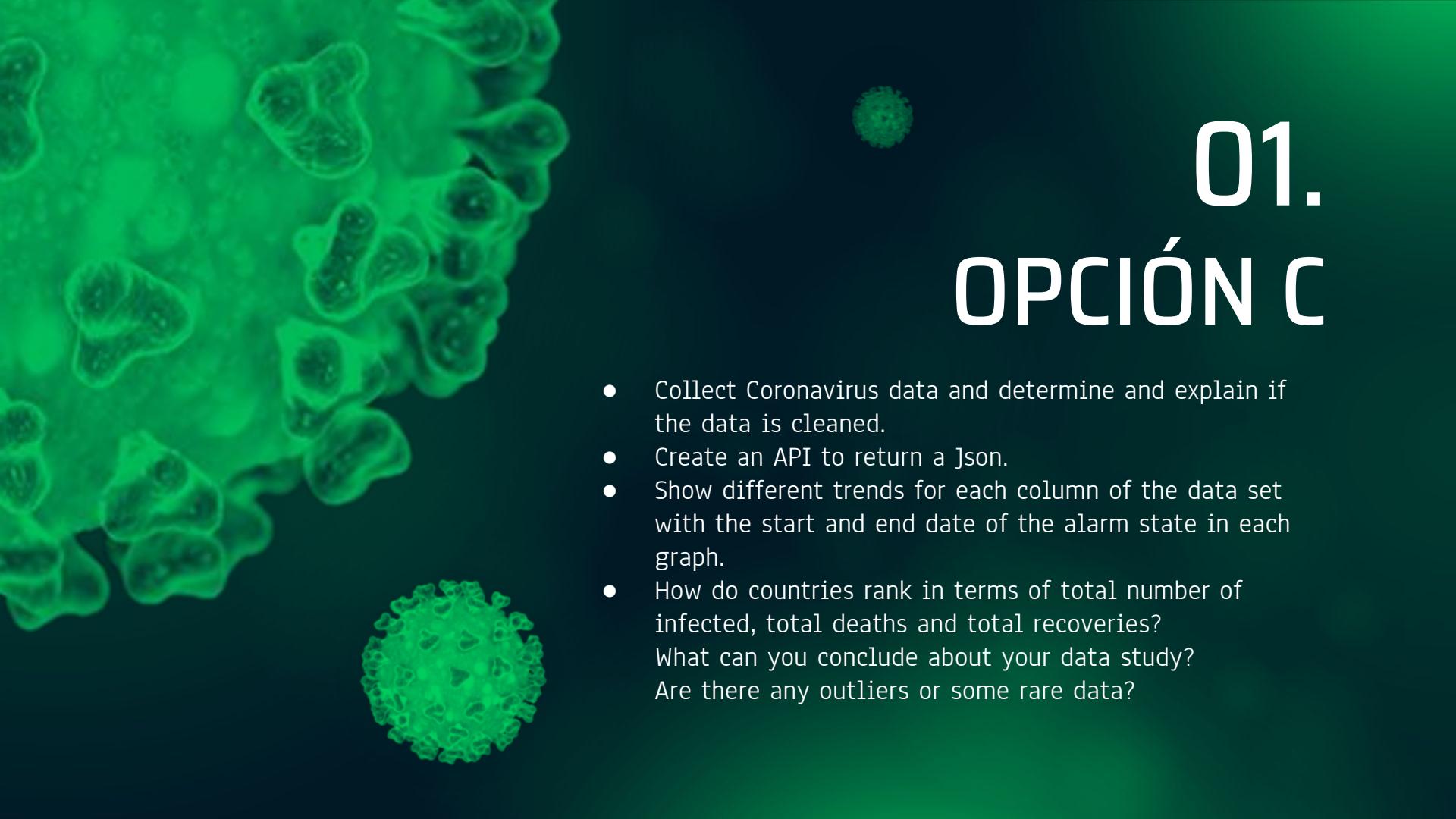
## GROUP 'A':

Natalio Altube  
Tomás Lizarazo  
Rosario Marianeschi  
Elsa Toribio

August 2020 - The Bridge

INSTRUCTOR: Gabriel Vázquez Torres  
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# 01. OPCIÓN C

- Collect Coronavirus data and determine and explain if the data is cleaned.
- Create an API to return a Json.
- Show different trends for each column of the data set with the start and end date of the alarm state in each graph.
- How do countries rank in terms of total number of infected, total deaths and total recoveries?  
What can you conclude about your data study?  
Are there any outliers or some rare data?

# API INSTRUCTIONS

Information in real time from:

<https://ourworldindata.org/coronavirus-source-data>

Obtaining the url:

<https://covid.ourworldindata.org/data/owid-covid-data.csv>

We generate the dataframe:

We cleaned the data, to obtain the average of the new cases of Covid 19 for the following countries:

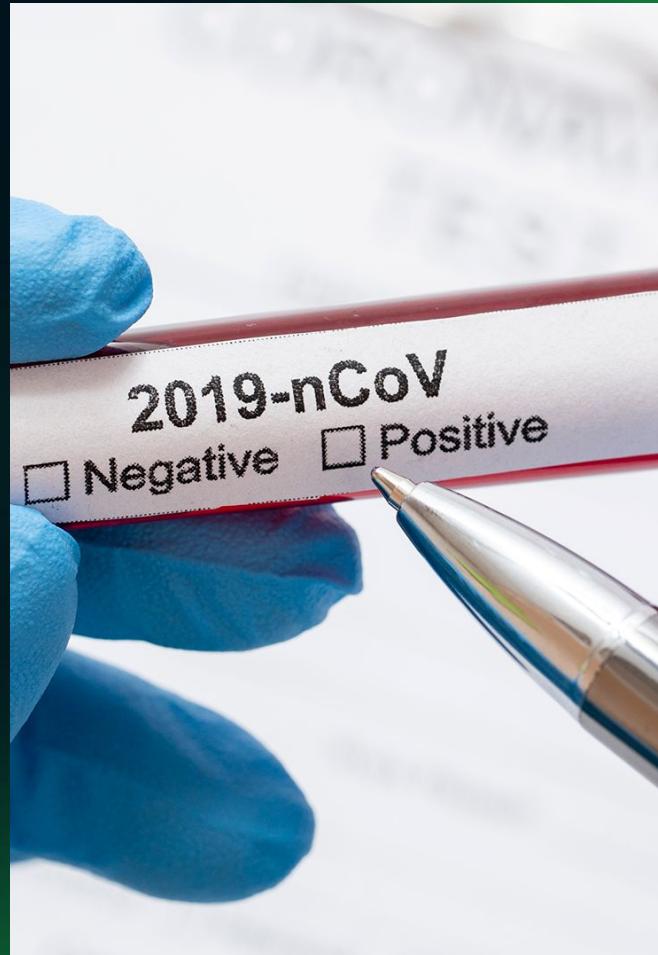
- Spain
- Russia
- Colombia
- Argentina
- Chile

# WE CREATED THE API

We used [“GET”] methodology to define 2 functions:

- ❑ 1st: Accessing with the group ID, you can obtain the token id.  
EndPoint of this function: `=/get_token/`

[http://192.168.0.116:6060/get\\_token/?id=A137](http://192.168.0.116:6060/get_token/?id=A137)



YOU'LL SEE ON THE SCREEN THE  
FOLLOWING TOKEN:

```
{ "token": "A2491921306645144496740293228" }
```



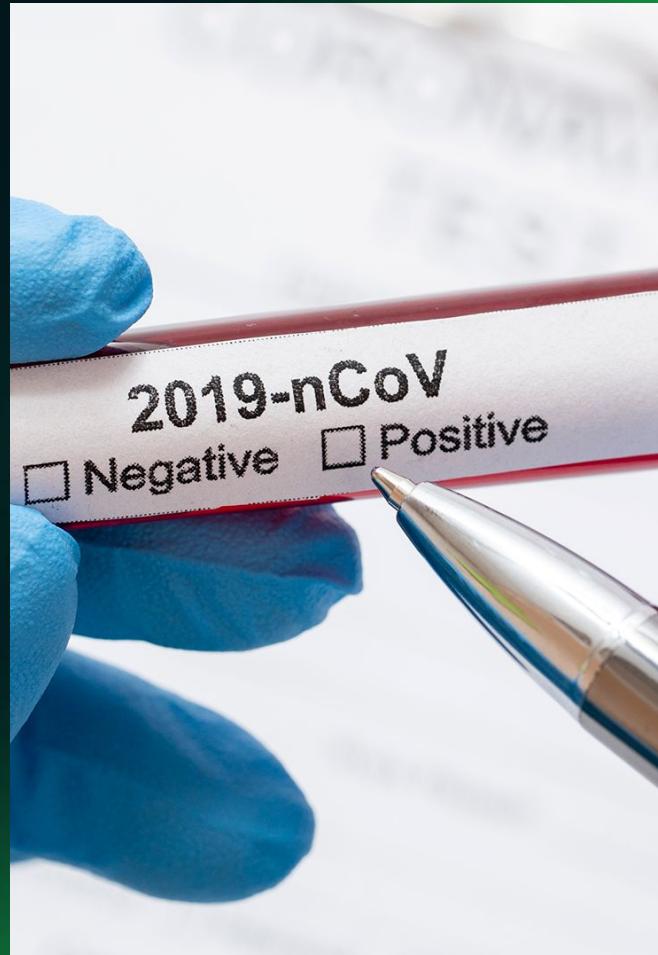
# WE CREATED THE API

- ❑ 2nd: With that token id, you can access the .json file on the screen.

[http://192.168.0.116:6060/get\\_token/?id=A137](http://192.168.0.116:6060/get_token/?id=A137)

These are the particular IP addresses from the A Team members':

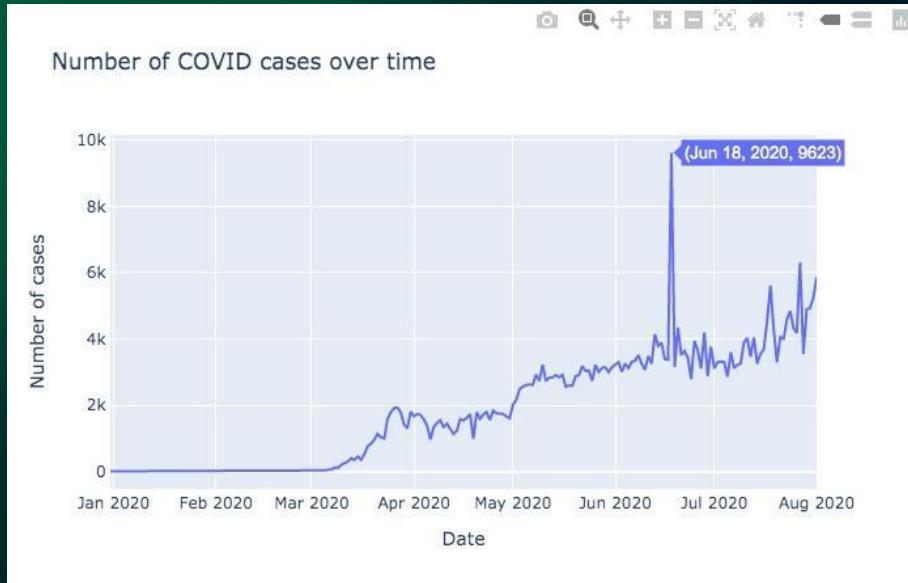
192.168.0.116:6060/ (Rosario)  
192.168.0.72:6060/ (Elsa)  
192.168.0.80:6060/ (Tomás)  
192.168.0.45:6060/ (Natatio)



YOU'LL SEE ON THE SCREEN THE FOLLOWING .json:

```
{"c_averages": {"2019-12-31": 0.0, "2020-01-01": 0.0, "2020-01-02": 0.0, "2020-01-03": 0.0, "2020-01-04": 0.0, "2020-01-05": 0.0, "2020-01-06": 0.0, "2020-01-07": 0.0, "2020-01-08": 0.0, "2020-01-09": 0.0, "2020-01-10": 0.0, "2020-01-11": 0.0, "2020-01-12": 0.0, "2020-01-13": 0.0, "2020-01-14": 0.0, "2020-01-15": 0.0, "2020-01-16": 0.0, "2020-01-17": 0.0, "2020-01-18": 0.0, "2020-01-19": 0.0, "2020-01-20": 0.0, "2020-01-21": 0.0, "2020-01-22": 0.0, "2020-01-23": 0.0, "2020-01-24": 0.0, "2020-01-25": 0.0, "2020-01-26": 0.0, "2020-01-27": 0.0, "2020-01-28": 0.0, "2020-01-29": 0.0, "2020-01-30": 0.0, "2020-01-31": 0.0, "2020-02-01": 1.5, "2020-02-02": 0.0, "2020-02-03": 0.0, "2020-02-04": 0.0, "2020-02-05": 0.0, "2020-02-06": 0.0, "2020-02-07": 0.0, "2020-02-08": 0.0, "2020-02-09": 0.0, "2020-02-10": 0.5, "2020-02-11": 0.0, "2020-02-12": 0.0, "2020-02-13": 0.0, "2020-02-14": 0.0, "2020-02-15": 0.0, "2020-02-16": 0.0, "2020-02-17": 0.0, "2020-02-18": 0.0, "2020-02-19": 0.0, "2020-02-20": 0.0, "2020-02-21": 0.0, "2020-02-22": 0.0, "2020-02-23": 0.0, "2020-02-24": 0.0, "2020-02-25": 0.5, "2020-02-26": 3.0, "2020-02-27": 4.0, "2020-02-28": 9.0, "2020-02-29": 9.5, "2020-03-01": 14.0, "2020-03-02": 27.0, "2020-03-03": 28.5, "2020-03-04": 19.5, "2020-03-05": 27.67, "2020-03-06": 46.25, "2020-03-07": 49.4, "2020-03-08": 110.33, "2020-03-09": 110.25, "2020-03-10": 194.25, "2020-03-11": 246.5, "2020-03-12": 295.0, "2020-03-13": 389.5, "2020-03-14": 343.6, "2020-03-15": 441.0, "2020-03-16": 349.2, "2020-03-17": 527.0, "2020-03-18": 756.4, "2020-03-19": 834.4, "2020-03-20": 956.4, "2020-03-21": 1130.4, "2020-03-22": 1028.2, "2020-03-23": 987.8, "2020-03-24": 1582.2, "2020-03-25": 1788.8, "2020-03-26": 1908.8, "2020-03-27": 1927.0, "2020-03-28": 1778.6, "2020-03-29": 1415.0, "2020-03-30": 1296.4, "2020-03-31": 1799.8, "2020-04-01": 1662.2, "2020-04-02": 1728.4, "2020-04-03": 1702.4, "2020-04-04": 1567.0, "2020-04-05": 1372.8, "2020-04-06": 963.4, "2020-04-07": 1335.0, "2020-04-08": 1465.2, "2020-04-09": 1540.8, "2020-04-10": 1338.0, "2020-04-11": 1439.2, "2020-04-12": 1278.0, "2020-04-13": 1127.0, "2020-04-14": 1226.2, "2020-04-15": 1575.4, "2020-04-16": 1538.0, "2020-04-17": 1611.2, "2020-04-18": 1731.0, "2020-04-19": 980.4, "2020-04-20": 1781.8, "2020-04-21": 1582.6, "2020-04-22": 1712.6, "2020-04-23": 1793.4, "2020-04-24": 1551.2, "2020-04-25": 1833.8, "2020-04-26": 1752.8, "2020-04-27": 1746.2, "2020-04-28": 1729.2, "2020-04-29": 1657.2, "2020-04-30": 1604.4, "2020-05-01": 1212.6, "2020-05-02": 2151.0, "2020-05-03": 2482.6, "2020-05-04": 2562.4, "2020-05-05": 2601.8, "2020-05-06": 2625.6, "2020-05-07": 2609.2, "2020-05-08": 2919.4, "2020-05-09": 2733.6, "2020-05-10": 3217.8, "2020-05-11": 2726.6, "2020-05-12": 2826.0, "2020-05-13": 2836.8, "2020-05-14": 2902.2, "2020-05-15": 2842.2, "2020-05-16": 2913.2, "2020-05-17": 2557.4, "2020-05-18": 2590.6, "2020-05-19": 2584.4, "2020-05-20": 2875.8, "2020-05-21": 2902.0, "2020-05-22": 3178.2, "2020-05-23": 3031.0, "2020-05-24": 3040.4, "2020-05-25": 2731.4, "2020-05-26": 3211.6, "2020-05-27": 3002.2, "2020-05-28": 3121.8, "2020-05-29": 3142.8, "2020-05-30": 2994.0, "2020-05-31": 3143.2, "2020-06-01": 3218.2, "2020-06-02": 3294.8, "2020-06-03": 3005.6, "2020-06-04": 3256.4, "2020-06-05": 3115.8, "2020-06-06": 3309.8, "2020-06-07": 3343.2, "2020-06-08": 3507.8, "2020-06-09": 3247.8, "2020-06-10": 3064.4, "2020-06-11": 3482.2, "2020-06-12": 3250.0, "2020-06-13": 4140.8, "2020-06-14": 3791.4, "2020-06-15": 3885.8, "2020-06-16": 3388.0, "2020-06-17": 3371.6, "2020-06-18": 9623.0, "2020-06-19": 3148.6, "2020-06-20": 4340.4, "2020-06-21": 3513.8, "2020-06-22": 3633.4, "2020-06-23": 3426.6, "2020-06-24": 2790.4, "2020-06-25": 3937.2, "2020-06-26": 3654.4, "2020-06-27": 3100.6, "2020-06-28": 4199.0, "2020-06-29": 2877.0, "2020-06-30": 3767.0, "2020-07-01": 3108.0, "2020-07-02": 3296.0, "2020-07-03": 3309.0, "2020-07-04": 3301.2, "2020-07-05": 2854.8, "2020-07-06": 3595.2, "2020-07-07": 3117.4, "2020-07-08": 3211.6, "2020-07-09": 3258.4, "2020-07-10": 3886.6, "2020-07-11": 4031.8, "2020-07-12": 3463.8, "2020-07-13": 4040.8, "2020-07-14": 3251.6, "2020-07-15": 3545.8, "2020-07-16": 3682.2, "2020-07-17": 4521.6, "2020-07-18": 5607.6, "2020-07-19": 3837.4, "2020-07-20": 3754.6, "2020-07-21": 4071.0, "2020-07-22": 3981.0, "2020-07-23": 4586.0, "2020-07-24": 4837.4, "2020-07-25": 4330.2, "2020-07-26": 4181.2, "2020-07-27": 6302.2, "2020-07-28": 3544.2, "2020-07-29": 4895.4, "2020-07-30": 5464.75}}}
```

# OUR API



Our countries:

- Argentina
- Chile
- Colombia
- Russia
- Spain

We got the .json file from Group D. They represented "t\_d\_averages", which is the mean of the "total\_deaths" of all of their countries.

Of course it shows different trends for each column compared to our dataset...

-Because they have information from different countries. Their group of 5 countries only has 1 country in common.

-They calculated the mean of total deaths due to COIVD19, whereas we calculated the mean of New Cases detected.

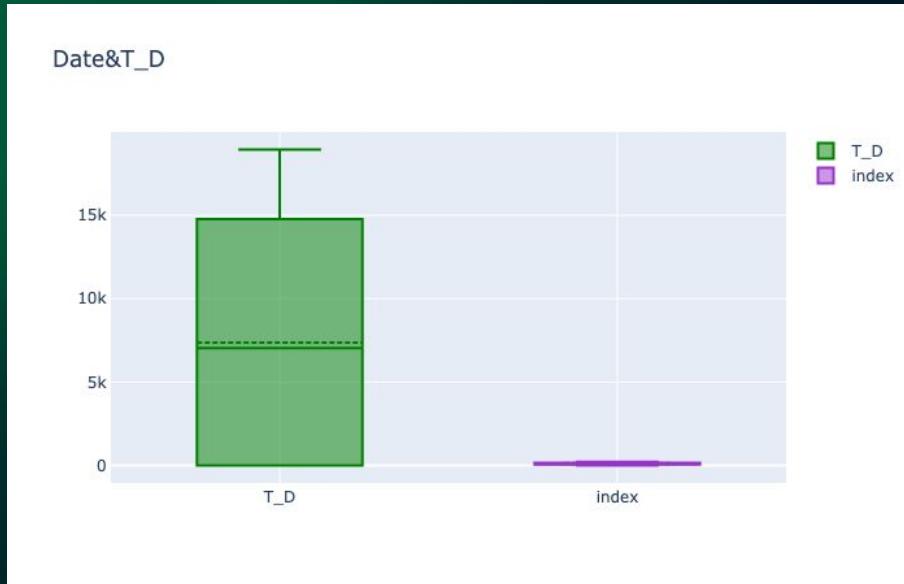
# API GROUP D



Group D's countries:

- Portugal
- Spain
- Turkey
- UK
- Venezuela

# GRÁFICA GRUPO D



It's very important to highlight that the date that is considered an outlier for our data, is the same date that as the other countries' deaths outlier.

Countries are not the same, but we can observe that the more cases detected, the more deaths reported.

# OPTION C QUESTIONS TO BE ANSWERED



answer to question  
7.a.

How do your countries rank  
in terms of the number of  
total infections, total  
deaths and total recoveries?

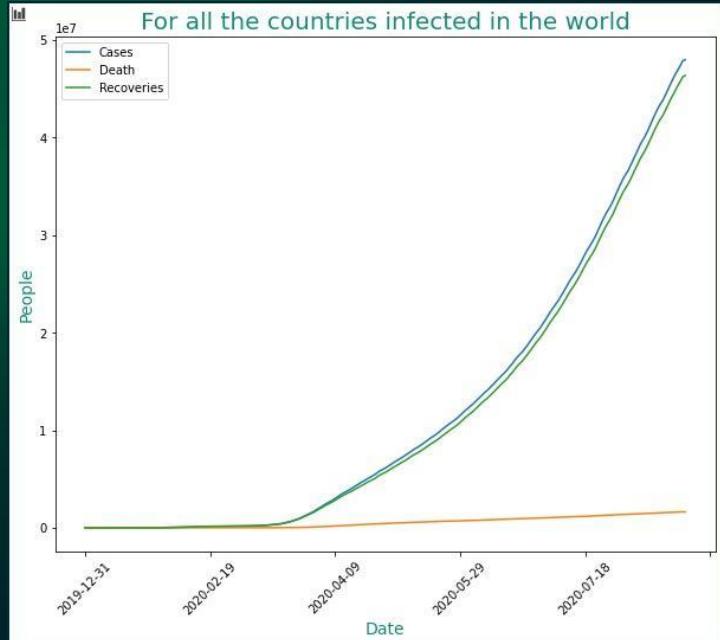
answer to question  
7.b.

What can you conclude  
about your data study?

answer to question  
7.c.

Are there any outliers or  
some rare data?

# ALL THE COUNTRIES INFECTED IN THE WORLD

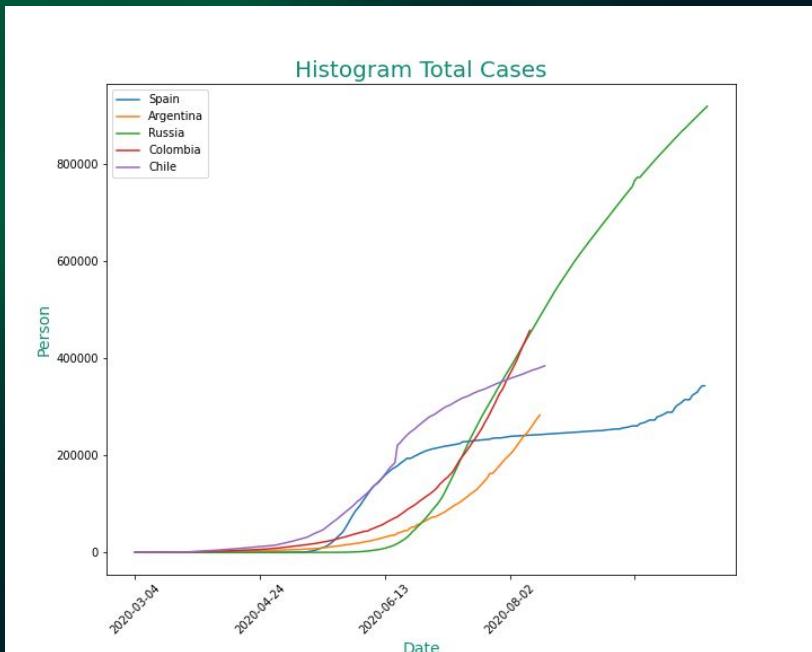


The graph shows the following numbers for all the countries:

- Total infected
- Total deaths
- Total recoveries

This graph shows the low mortality index.

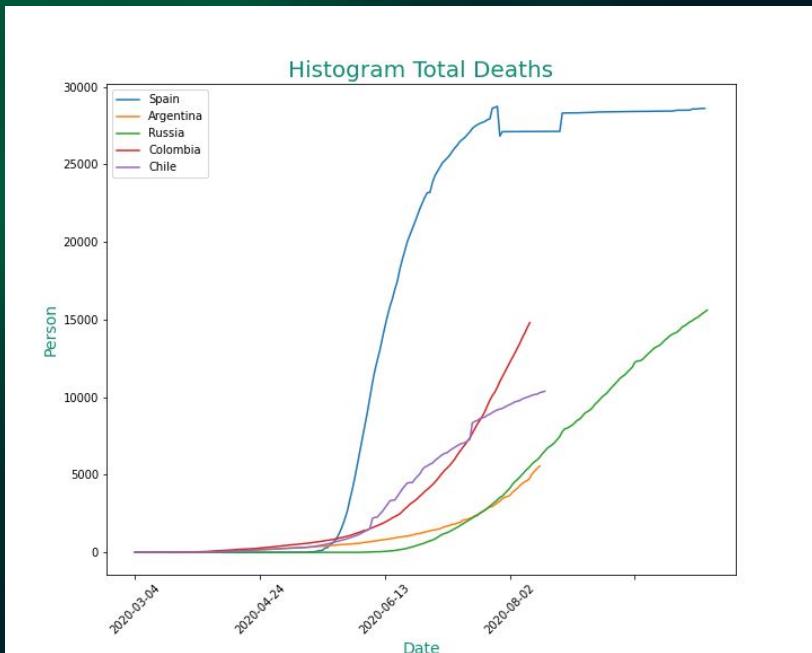
# 7.a Position of countries in terms of total number of infected



## TOTAL CASES

In our graph you can see how Russia is the country with the most cases, taking into account that it has the largest population.

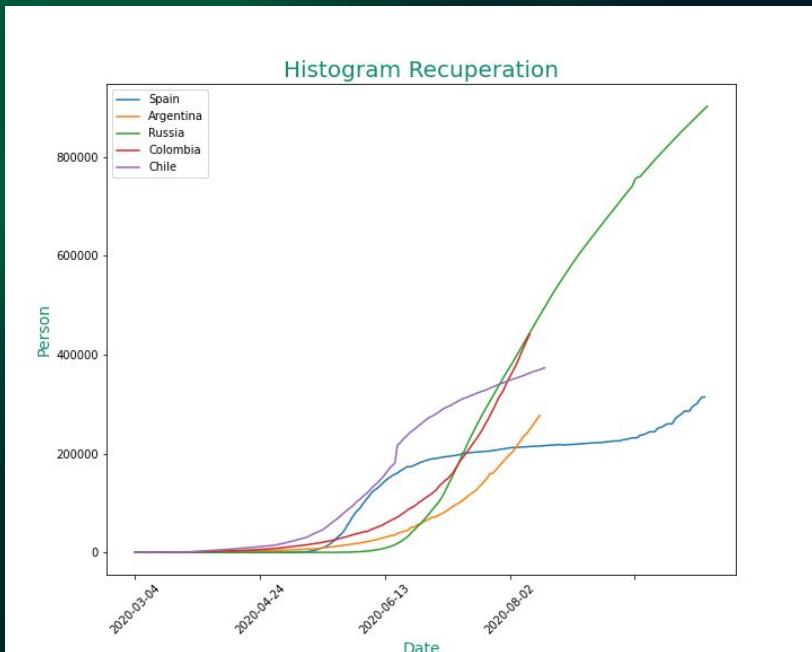
## 7.a. Position of countries in terms of total number of total deaths



### TOTAL DEATHS

In this case, Spain is the country with the most deaths, even doubling Russia

## 7.a. Position of countries in terms of total number of total recoveries



### TOTAL RECOVERIES

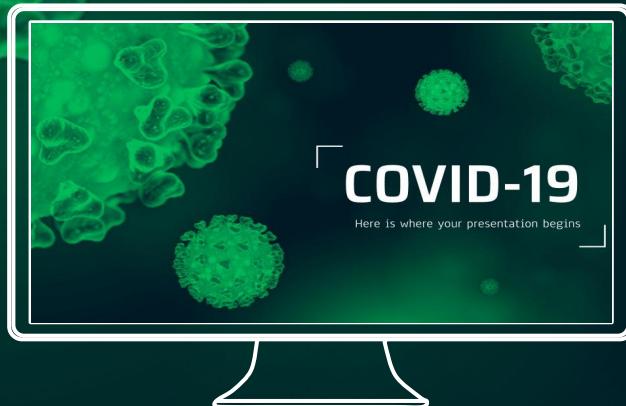
Comparing the five countries, it is Russia that has recovered the most. This is logical since it is the country with the most registered cases but not the highest number of deaths.

## Countries from our Group A

	TOTAL NEW CASES	TOTAL DEATHS
Argentina	370175	7839
Chile	402365	10990
Colombia	572270	18184
Spain	419849	28971
Russia	970865	16683

# STATS FOR THE 5 COUNTRIES

Mean of Cases for each country



<input type="checkbox"/>	Argentina	1970
<input type="checkbox"/>	Chile	2150
<input type="checkbox"/>	Colombia	3095
<input type="checkbox"/>	Russia	5190
<input type="checkbox"/>	Spain	2285

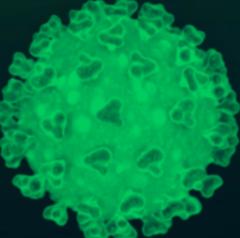


# 2,735,524

Reported cases of COVID-19 in our 5 countries

# 82,667

Reported death of COVID-19 in our 5 countries as of  
August 2020

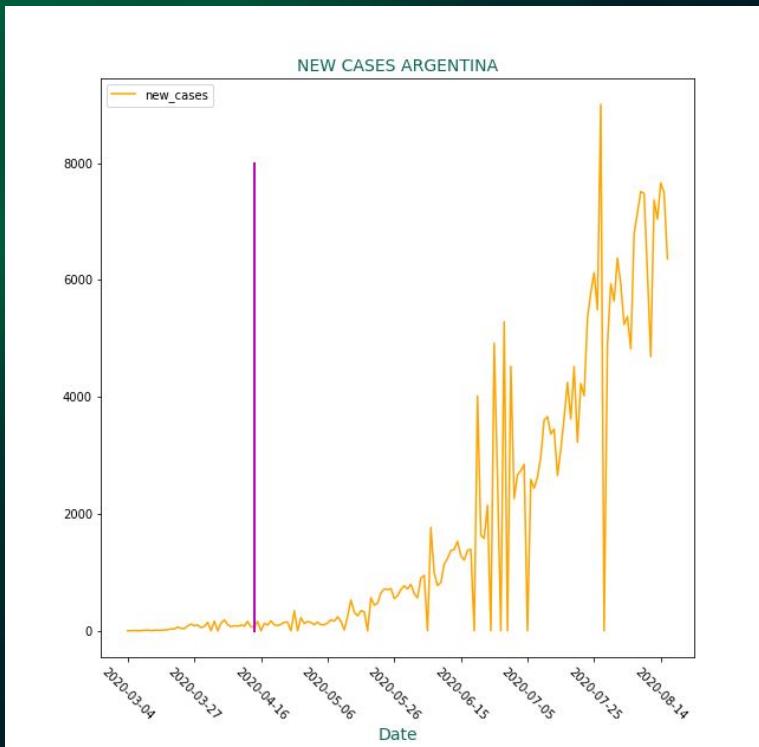


# 0,03%

Mortality percentage as of August 2020



# NUEVOS CASOS COVID-19



## ARGENTINA

Alarm status:

start 20/03/2020

End -----

Mean cases: 1.970

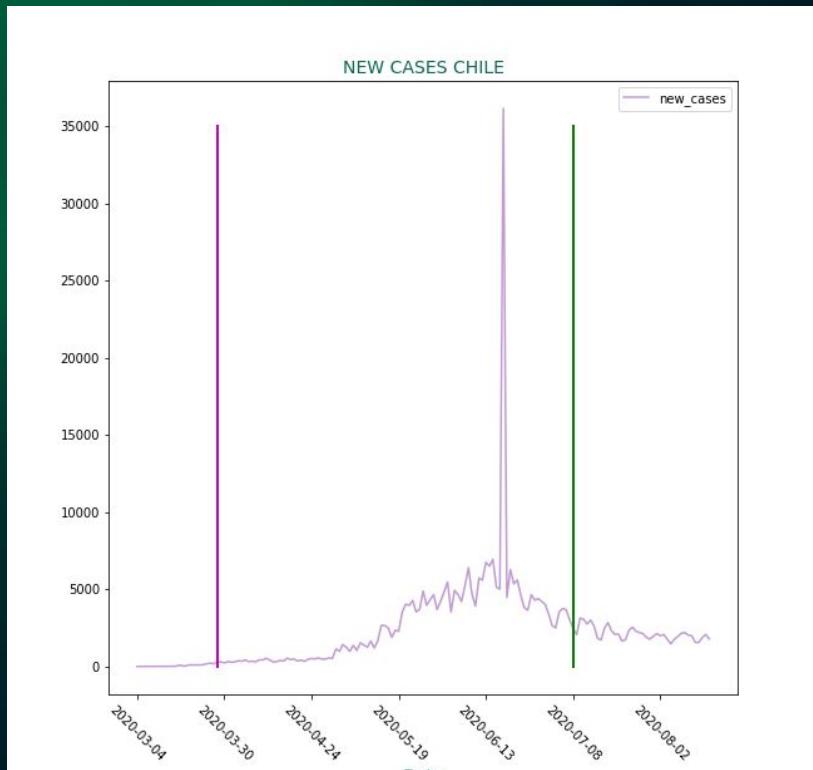
Date maximum cases:

25 de agosto:  
14.065.

‘Negative’ correlation with the  
number of new cases detected.

other factors.

# NUEVOS CASOS COVID-19



CHILE

Alarm status:

start 18/03/2020

end 28/07/2020

Mean cases: 2.150

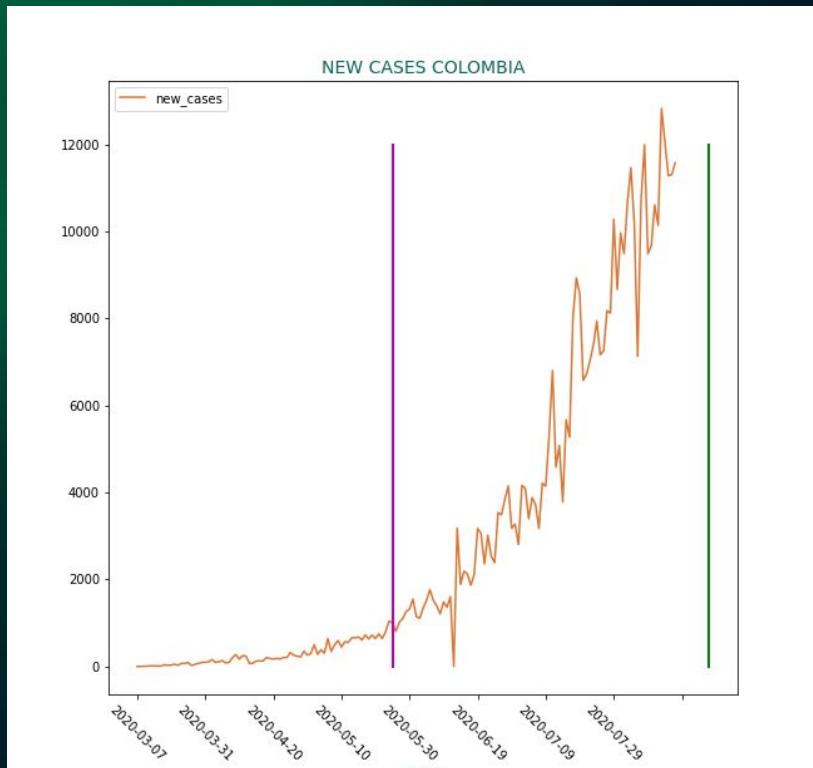
Date maximum cases:

18 de junio:

36.179

Evolution of cases has shown a regular curve.

# NUEVOS CASOS COVID-19



COLOMBIA

Alarm status:

start 25/05/2020

end 30/08/2020

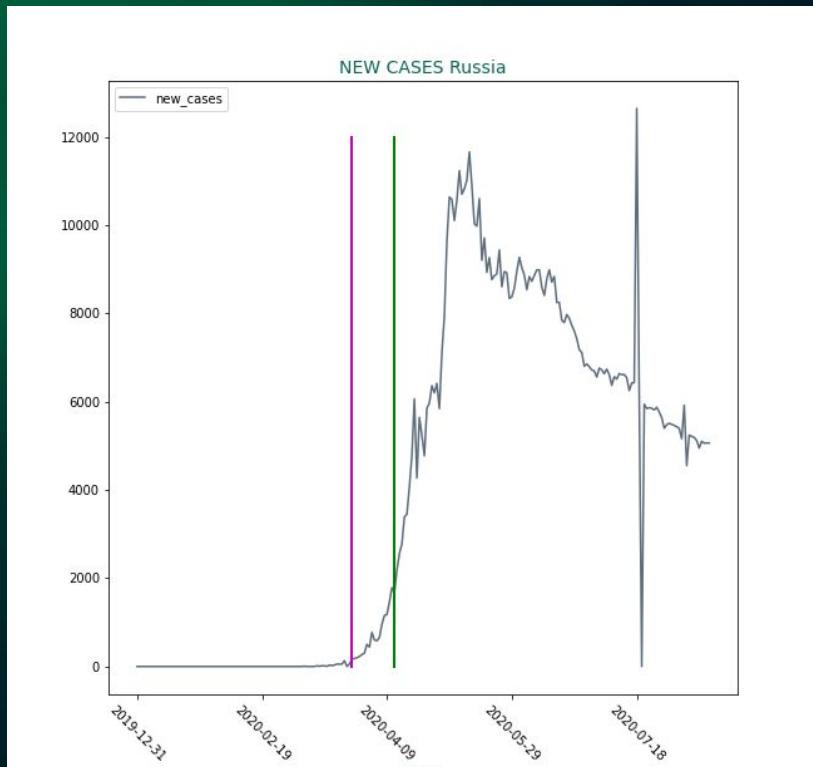
Mean cases: 3.095

Date maximum cases

20 de agosto  
13.056

The slope is always increasing  
with time.

# NUEVOS CASOS COVID-19



## RUSSIA

Alarm status:

Inicio 25/05/2020

Fin 30/08/2020

Mean cases: 5.190

Date maximum cases:

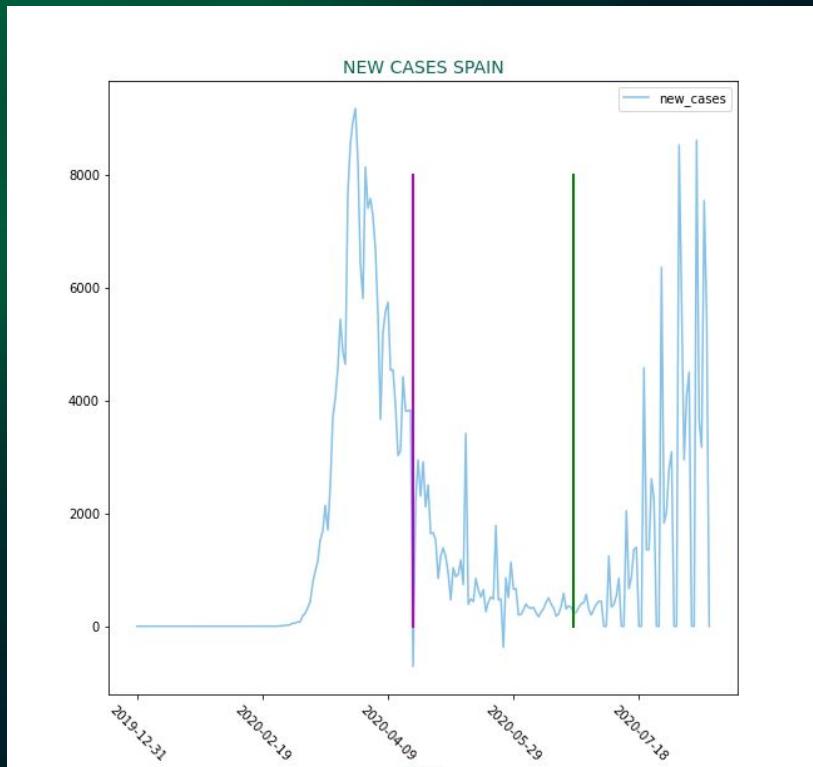
20 de agosto

13.056

“testing issue” or a mistake in the information. Usual pattern of cases and recoveries.

Max = Mid May

# NUEVOS CASOS COVID-19



## ESPAÑA

Alarm status:

Inicio 14/03/2020  
Fin 21/06/2020

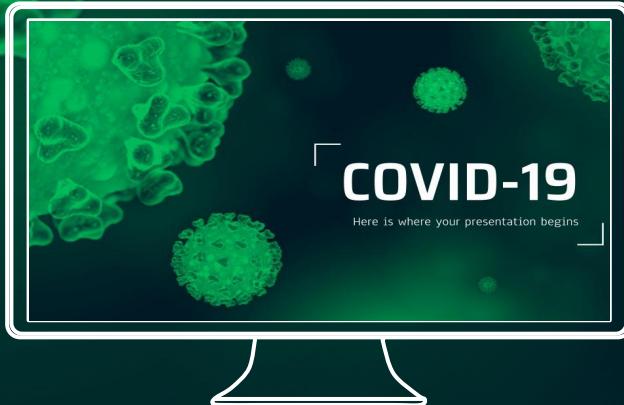
Mean cases: 2.285

Date maximum cases:

24 de agosto  
19.382.

August 24th Outlier of New Cases  
(not Deaths)

# 7.b. Conclusion on your data study

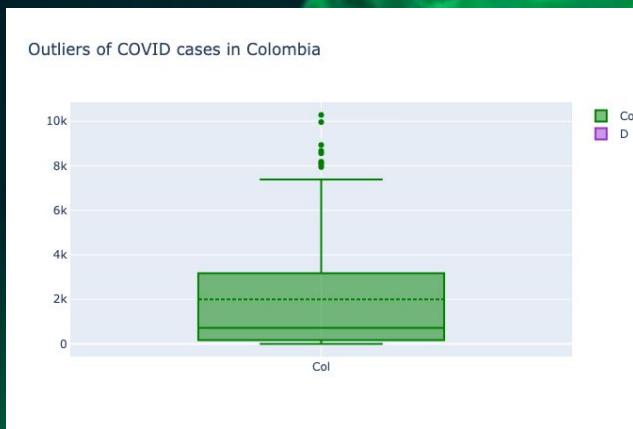
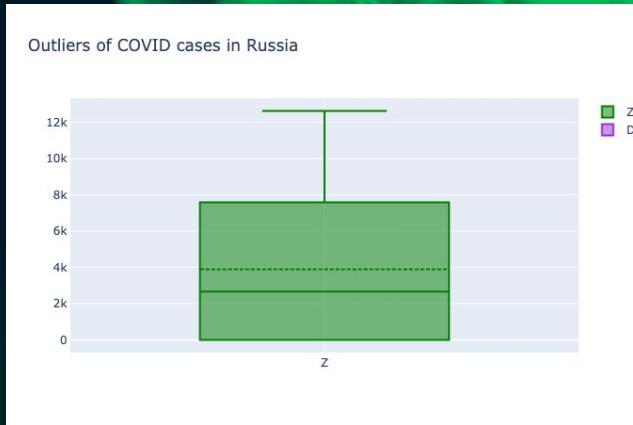


The data covers the countries of Spain, Colombia, Chile, Argentina and Russia.

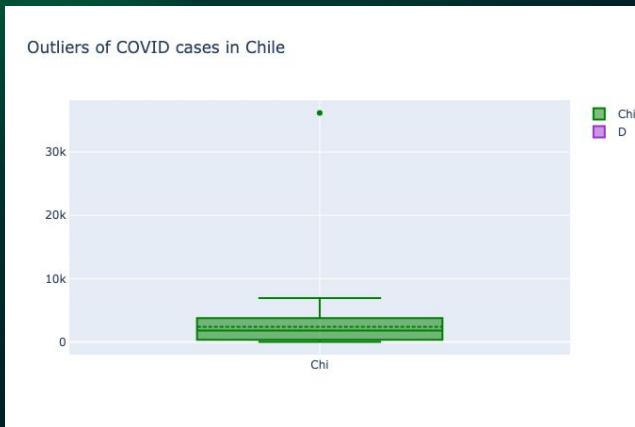
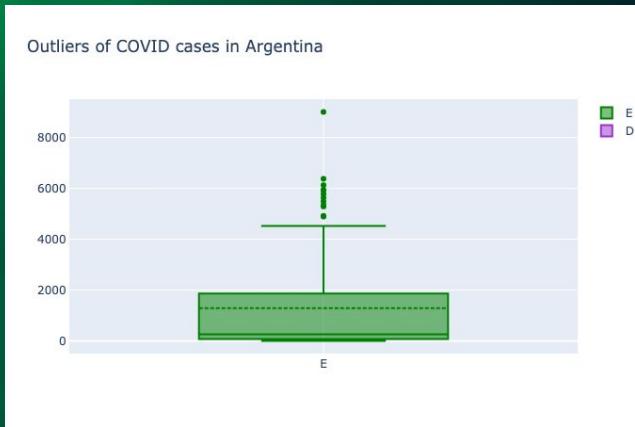
All of them except Argentina have a beginning and end of the alarm state.

It is clear from all the graphs that Russia is the country with the most infections and recoveries. Spain has had the most deaths according to this data.

# Datos atípicos



## 7.c. Conclusions outliers



We observe that in Spain, Colombia and Argentina there are atypical data but they can be faithful to the reality of the situation due to days with greater upsurge of new cases of Covid.

While in Chile there is a clear example of an outlier that triples the number of days that do not match the reality of new cases in a single day.

The only country that does not have an outlier is Russia.

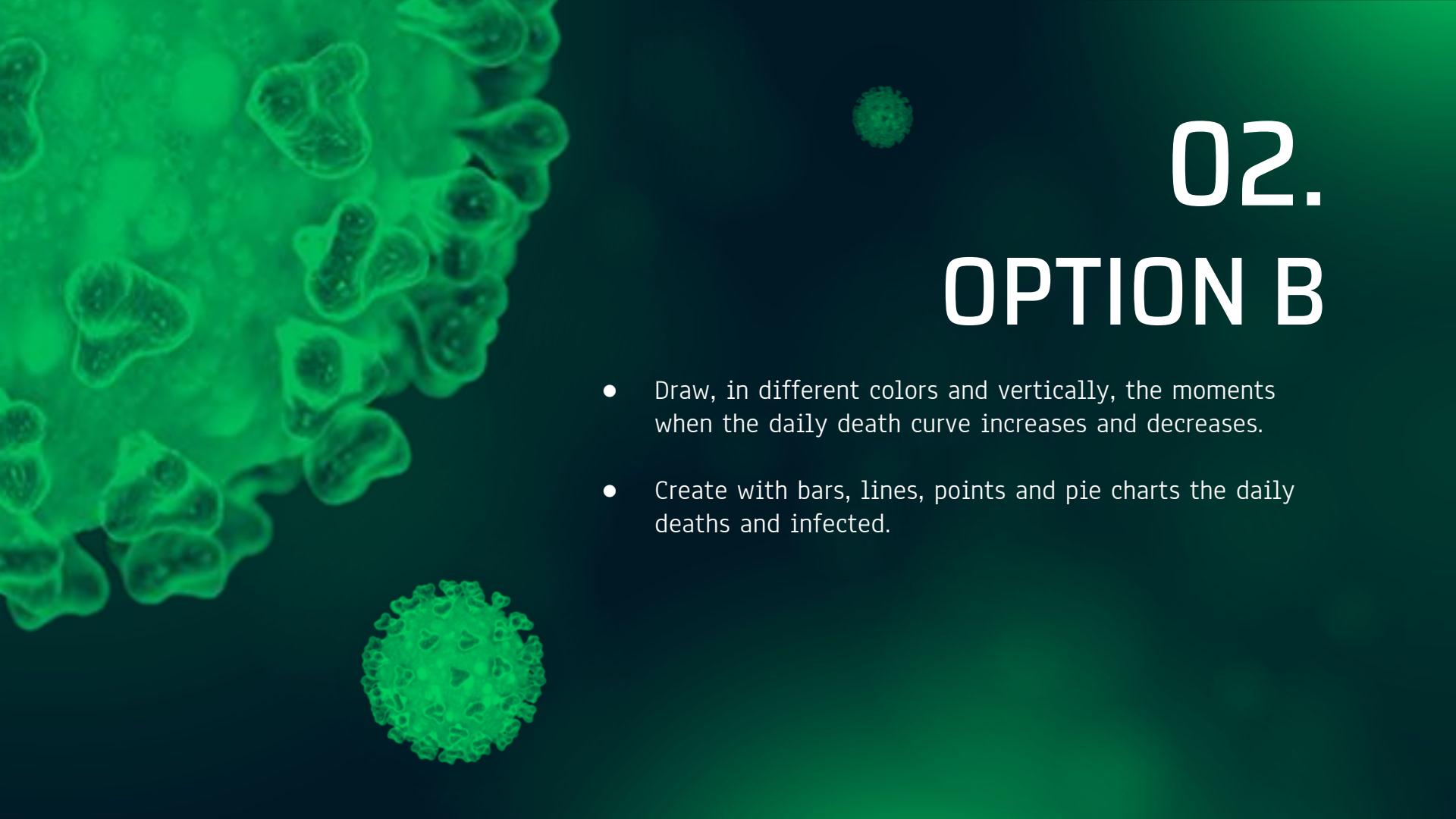
# 7.c. Conclusions about our data study - Outliers & rare data

3.240

Mean of New Reported Cases within  
the 5 countries of our Group work,  
PER DAY, since January 2020 up to  
present.

Argentina	Aug 25 <sup>th</sup>	14.065
Colombia	Aug 20 <sup>th</sup>	13.056
Chile	Jun 18 <sup>th</sup>	36.179
Russia	July 18 <sup>th</sup>	12.640
Spain	Aug 24 <sup>th</sup>	19.382

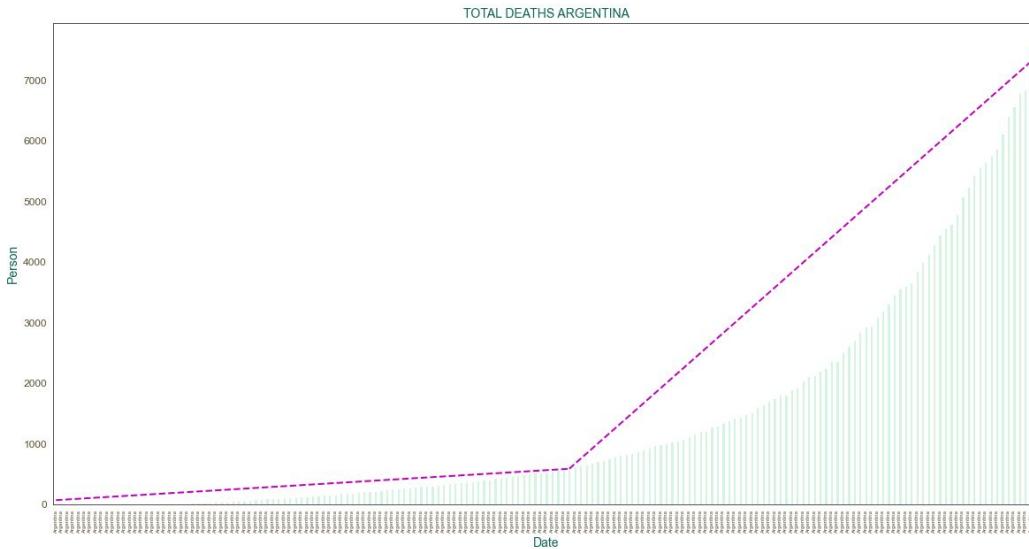
Maximum Peaks of COVID19  
Positive cases



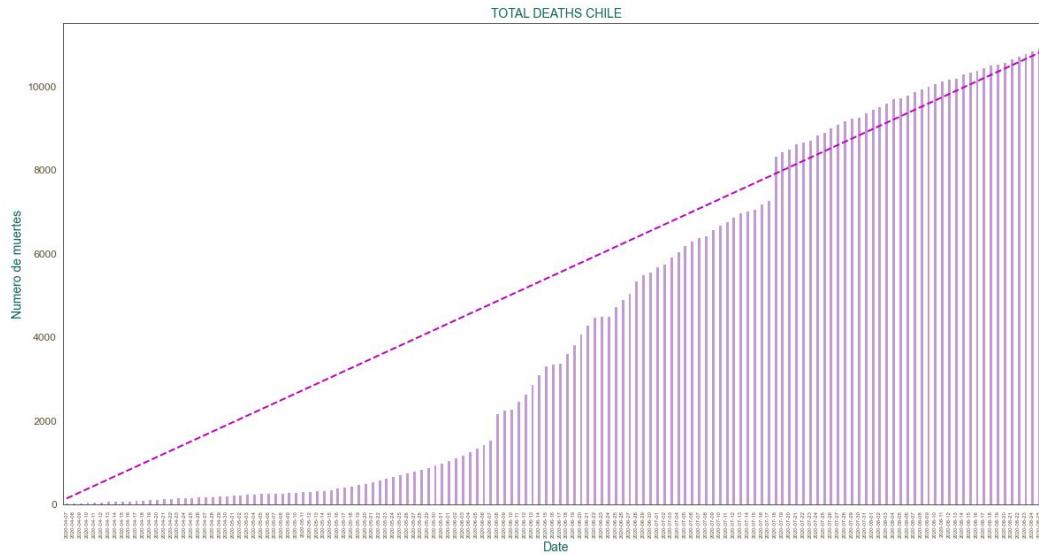
# 02. OPTION B

- Draw, in different colors and vertically, the moments when the daily death curve increases and decreases.
- Create with bars, lines, points and pie charts the daily deaths and infected.

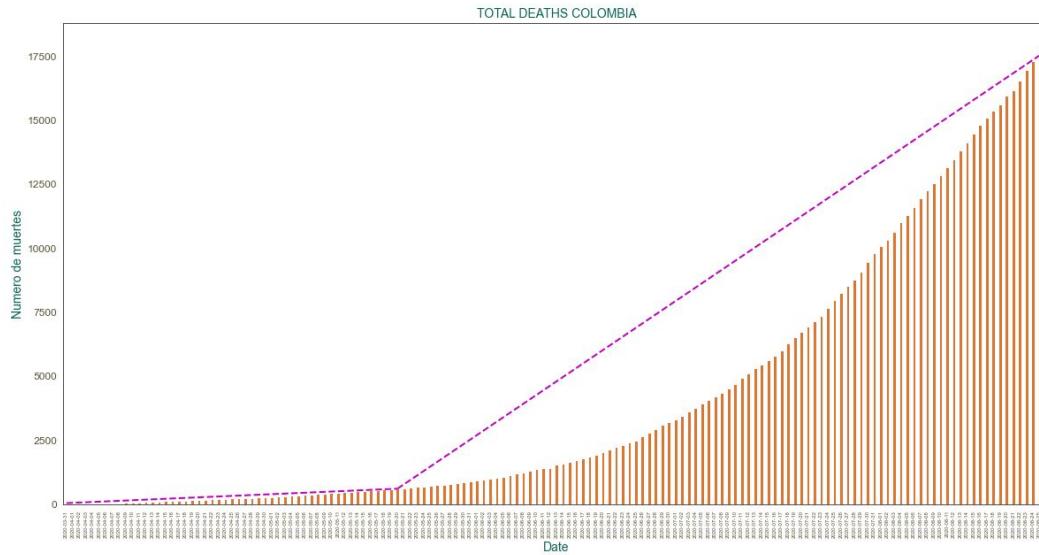
# TOTAL DEATHS ARGENTINA



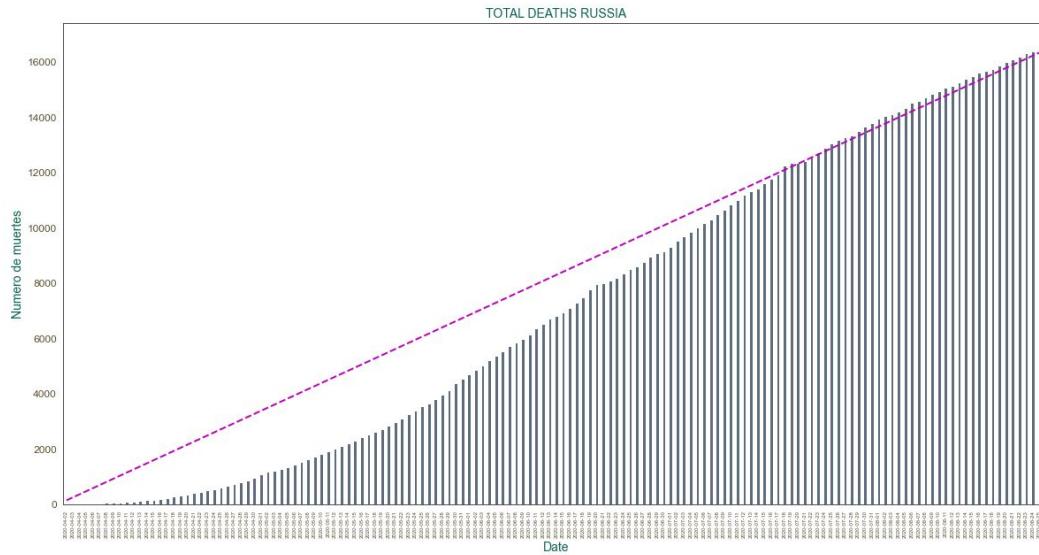
# TOTAL DE MUERTOS EN CHILE



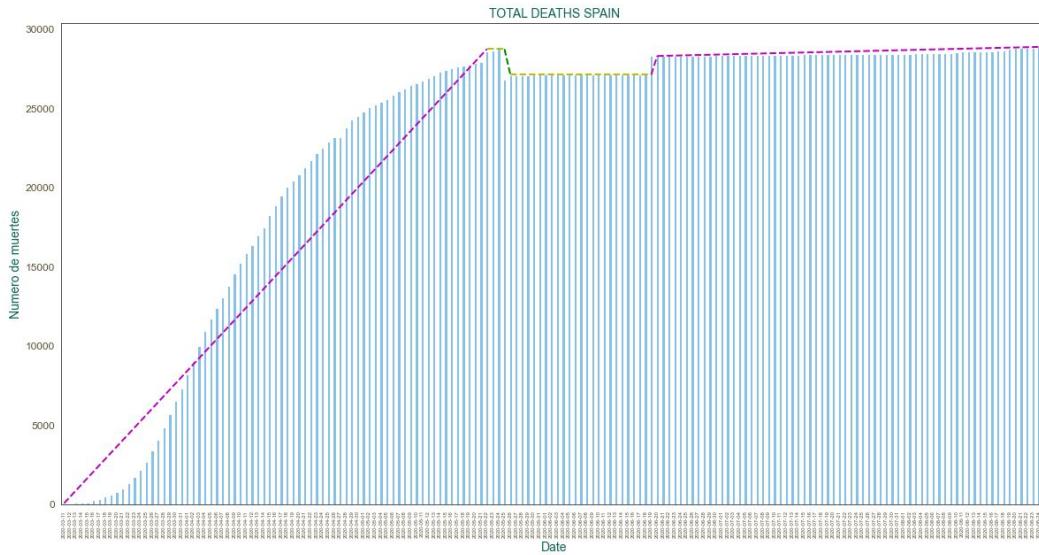
# TOTAL DEATHS COLOMBIA



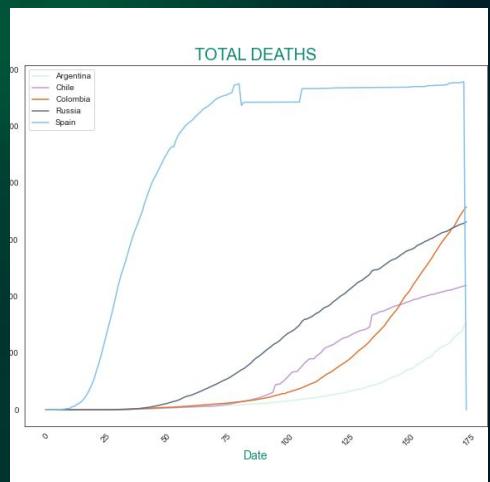
# TOTAL DEATHS EN RUSSIA



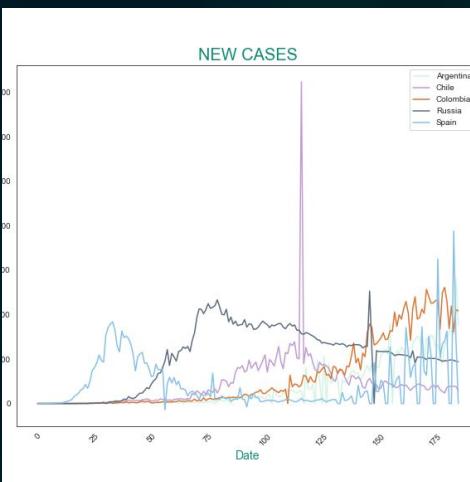
# TOTAL DEATHS SPAIN



# GENERAL COMPARISON OF OUR FIVE COUNTRIES

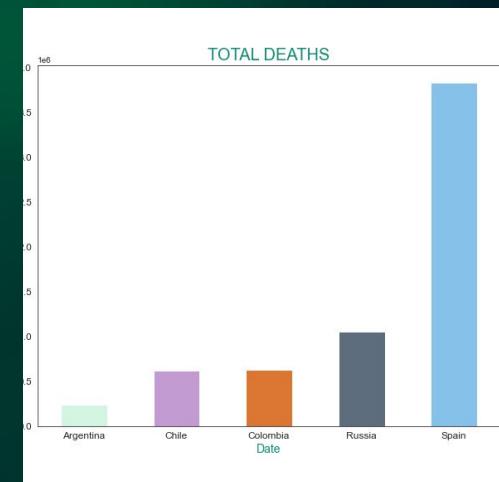


TOTAL DEATH:  
Line type graph

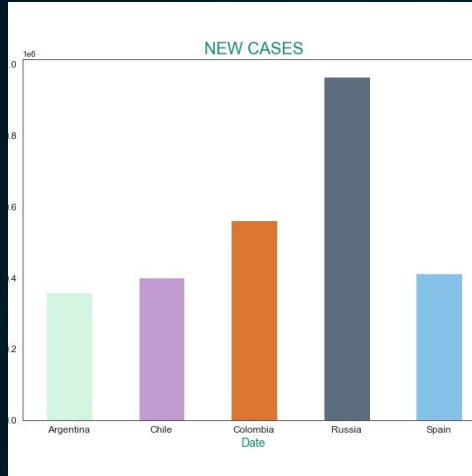


NEW CASES:  
Line type graph

# GENERAL COMPARISON OF OUR FIVE COUNTRIES

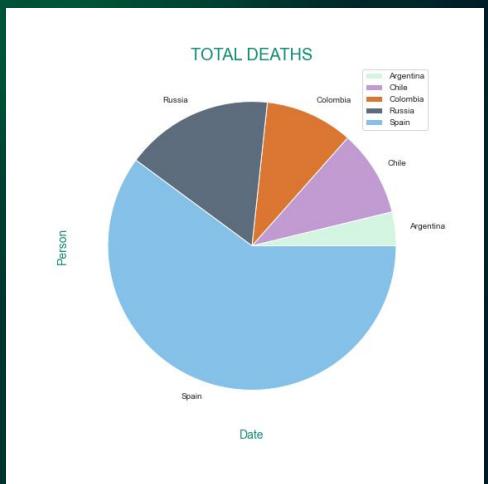


TOTAL DEATH:  
Bar type graph

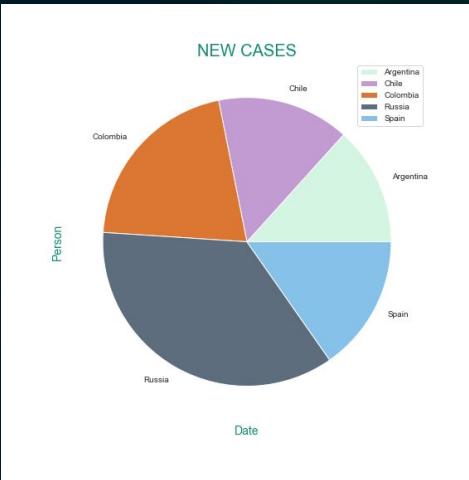


NEW CASES:  
Bar type graph

# GENERAL COMPARISON OF OUR FIVE COUNTRIES

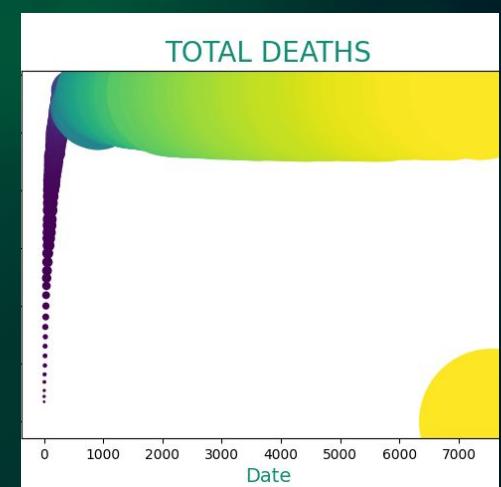


TOTAL DEATH:  
Pie type graph

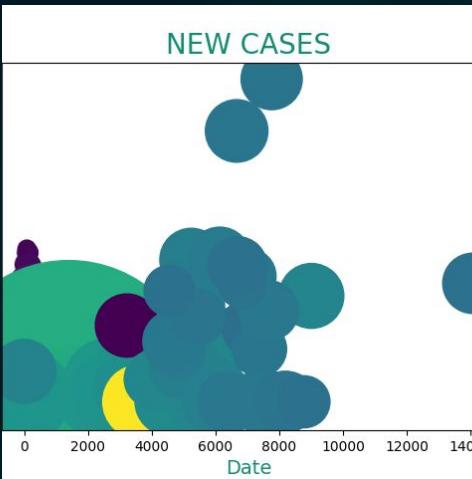


NEW CASES:  
Pie type graph

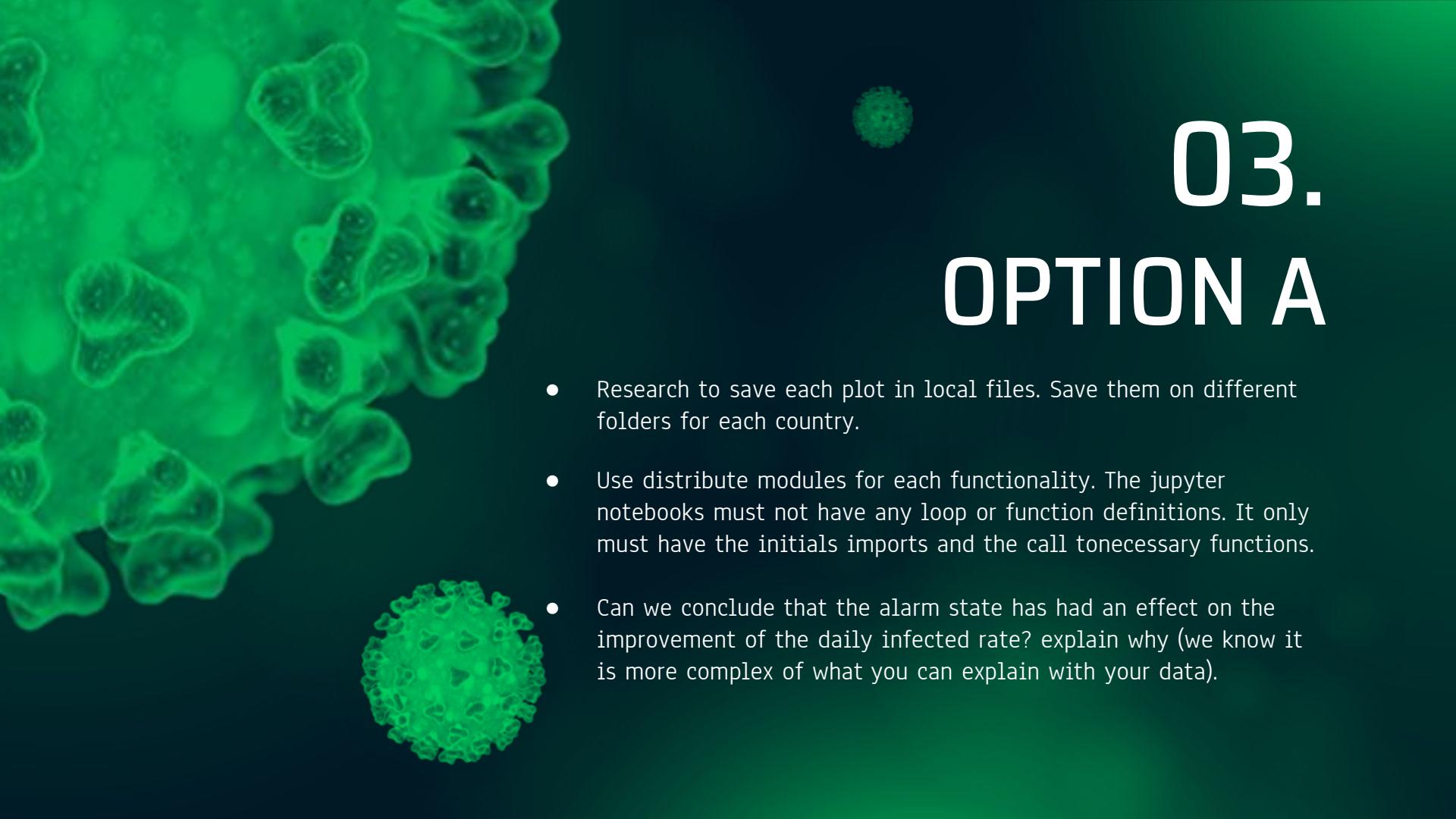
# GENERAL COMPARISON OF OUR FIVE COUNTRIES



TOTAL DEATH:  
Scatter type graph

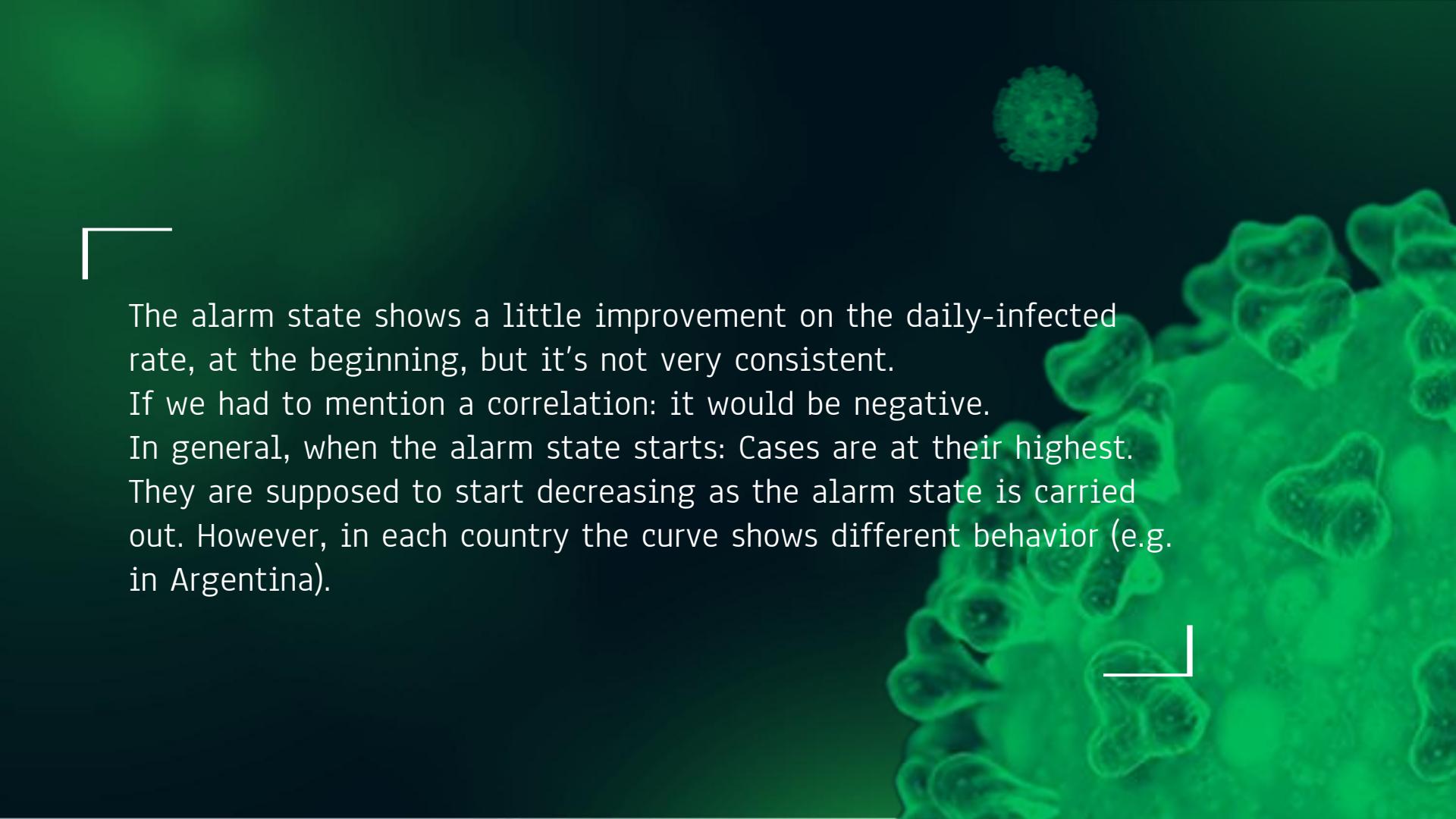


NEW CASES:  
Scatter type graph



# 03. OPTION A

- Research to save each plot in local files. Save them on different folders for each country.
- Use distribute modules for each functionality. The jupyter notebooks must not have any loop or function definitions. It only must have the initials imports and the call to necessary functions.
- Can we conclude that the alarm state has had an effect on the improvement of the daily infected rate? explain why (we know it is more complex of what you can explain with your data).



The alarm state shows a little improvement on the daily-infected rate, at the beginning, but it's not very consistent.

If we had to mention a correlation: it would be negative.

In general, when the alarm state starts: Cases are at their highest. They are supposed to start decreasing as the alarm state is carried out. However, in each country the curve shows different behavior (e.g. in Argentina).



# 04. OPTION A+

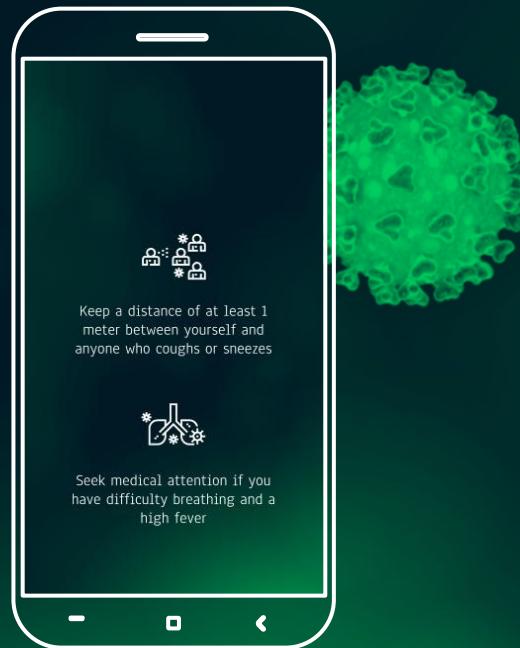
- Use a different github repository by adding all the participants of the group with write permissions.
- How can you put your flask server with a public IP?
- How can you set your flask server to a public URL?
- There are more urls to collect data from Covid-19. Collect from one or more different urls and merge the new information by columns with the original. Try to find the populations of the country.
- Make a functional program. Use the program to create the class diagram.
- By country and column, create a correlation matrix.
- Get the total deaths, new deaths, new cases and total cases for your countries using web scraping from the website.

# OPCION A+

- Use a different github repository by adding all the participants of the group with write permissions.

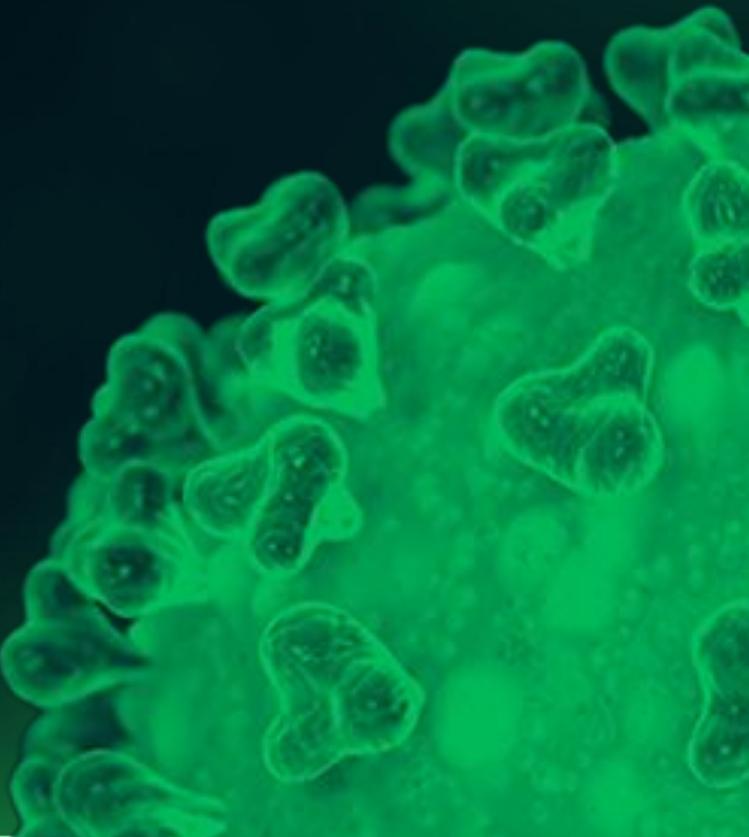
Github:

[https://github.com/ElsaTH/Proyecto\\_covid](https://github.com/ElsaTH/Proyecto_covid)



“We cannot say this loudly enough or clearly enough or often enough: All countries can still change the course of this pandemic”

—DR. TEDROS ADHANOM GHEBREYESUS, WORLD HEALTH ORGANIZATION'S DIRECTOR GENERAL



# THANKS!



Do you have any questions?

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