

3KE3---Assignment 1

Jieyu Zhang

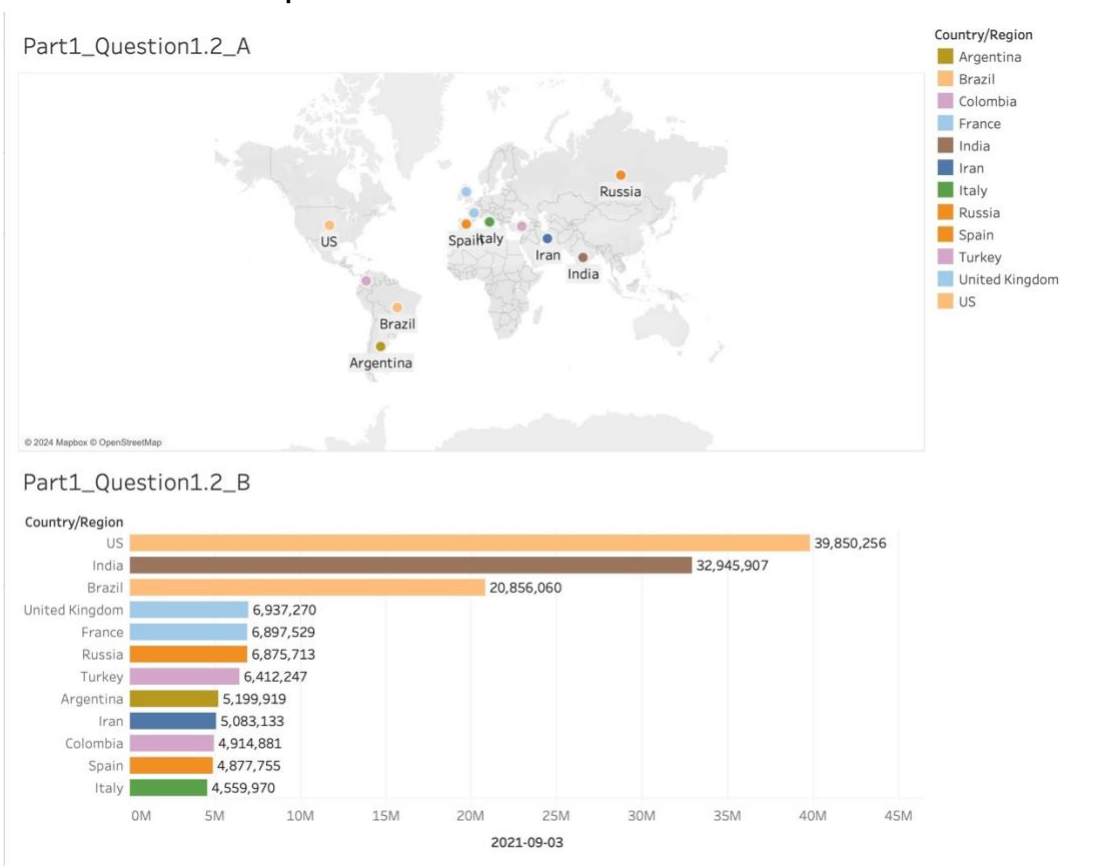
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Part1

1.2 A---Map pf 12 countries with the highest number of confirmed cases on 2021-09-03



1.2 B---Dashboard of map & bar chart



1.2 C---3 South American countries with the highest number of confirmed cases in 2021-09-03



(Map of South American using Lasso Selection)

Part1 C

View Data: Part1 C

Summary 12 rows 4 fields

Full Data

Country/Region	Latitude	Longitude	2021-09-03
Brazil	-14.2350	-51.9253	20,856,060
Argentina	-38.4161	-63.6167	5,199,919
Colombia	4.5709	-74.2973	4,914,881
Peru	-9.1900	-75.0152	2,153,092
Chile	-35.6751	-71.5430	1,640,192
Ecuador	-1.8312	-78.1834	502,146
Bolivia	-16.2902	-63.5887	491,759
Paraguay	-23.4425	-58.4438	458,799
Uruguay	-32.5228	-55.7658	385,423
Venezuela	6.4238	-66.5897	337,359
Suriname	3.9193	-56.0278	30,120
Guyana	4.8604	-58.9302	26,112

Country/Region

- Argentina
- Bolivia
- Brazil
- Chile
- Colombia
- Ecuador
- Guyana
- Paraguay
- Peru
- Suriname
- Uruguay
- Venezuela

(Brazil, Argentina, Colombia had the highest number of confirmed cases in September 3rd, 2021)

Part1 C

View Data: Part1 C

Summary 12 rows 4 fields

Country/Region

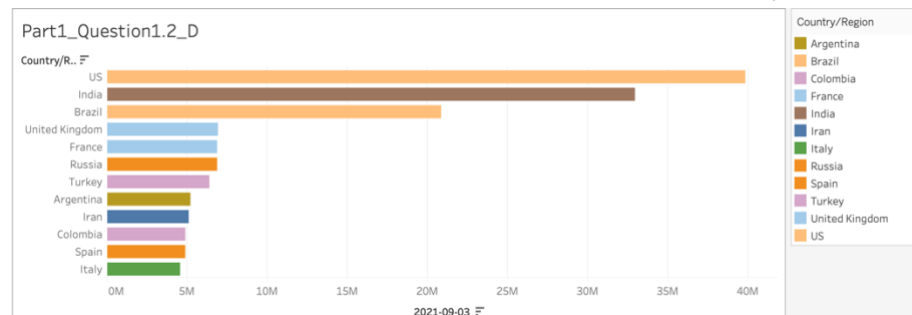
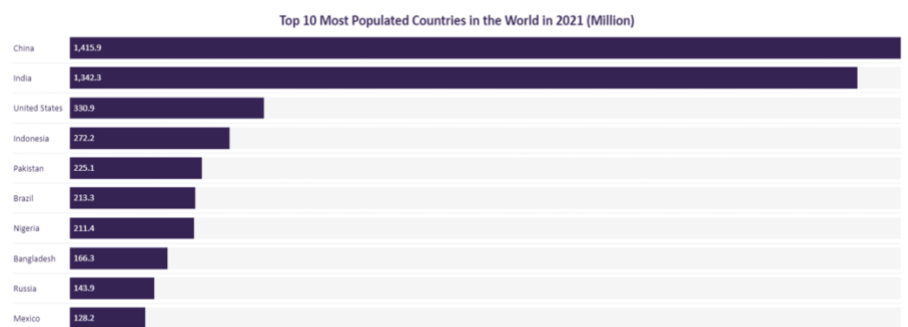
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(In assignment instruction, there is a request for ascending list. But the highest confirmed case should use descending list if you want us to choose the first 3 country of the list.)

1.2 D---Compare and contrast

Countries such as the **United States, India, Brazil, and Russia** are among the top 10 with the highest number of confirmed cases. Meanwhile, Indonesia, Mexico, and China are not included in this group. **I believe that a country's population size plays a significant role in the number of cases.** For instance, the U.S., India, and Brazil, which have large populations, rank high in confirmed cases. However, despite their sizable populations, China and Mexico report relatively fewer cases. This suggests that while population size is an important factor, it is not the only determinant affecting the number of confirmed cases.



Part2

2.1---Map of November 26, 2020



2.2--- Screenshots for the fastest countries



(8 countries reached 2,000,000 confirmed cases sooner than others)

2.3--- Screenshots for the slowest countries

Part2 2.3 (slowest 4 countries)- August 22, 2021



Part2 2.3 (slowest 4 countries)- August 9, 2021



Part2 2.3 (slowest 4 countries)- August 8, 2021



Part2 2.3 (slowest 4 countries)- August 6, 2021



(4 countries reached 700,000 cases later than all.)

2.4--- Difference among the 2 time slots for 7 largest countries

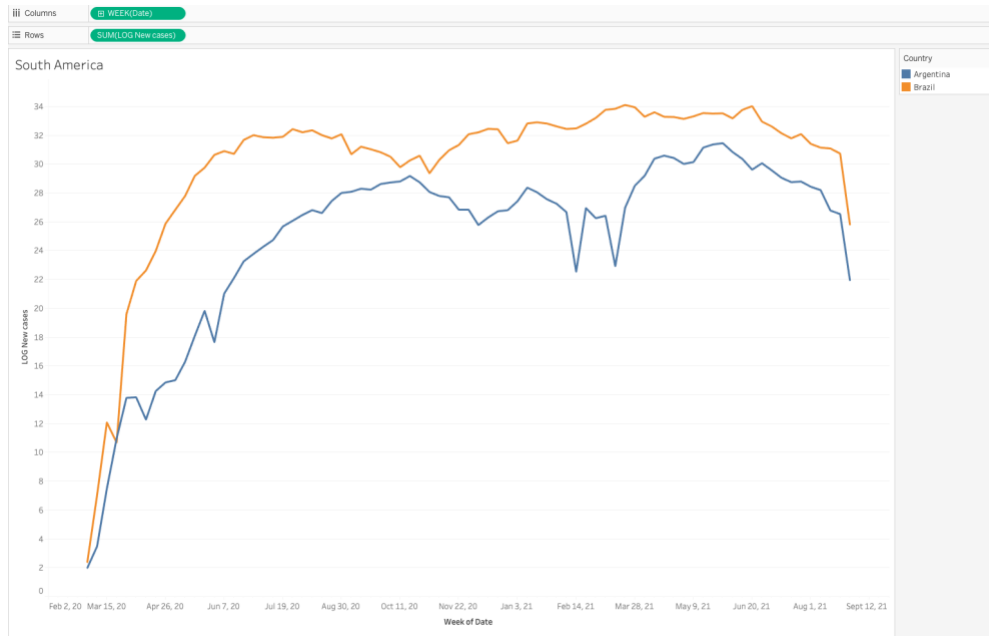
The Spread of the Pandemic in the First Two Months (2020/01/22 - 2020/03/22):

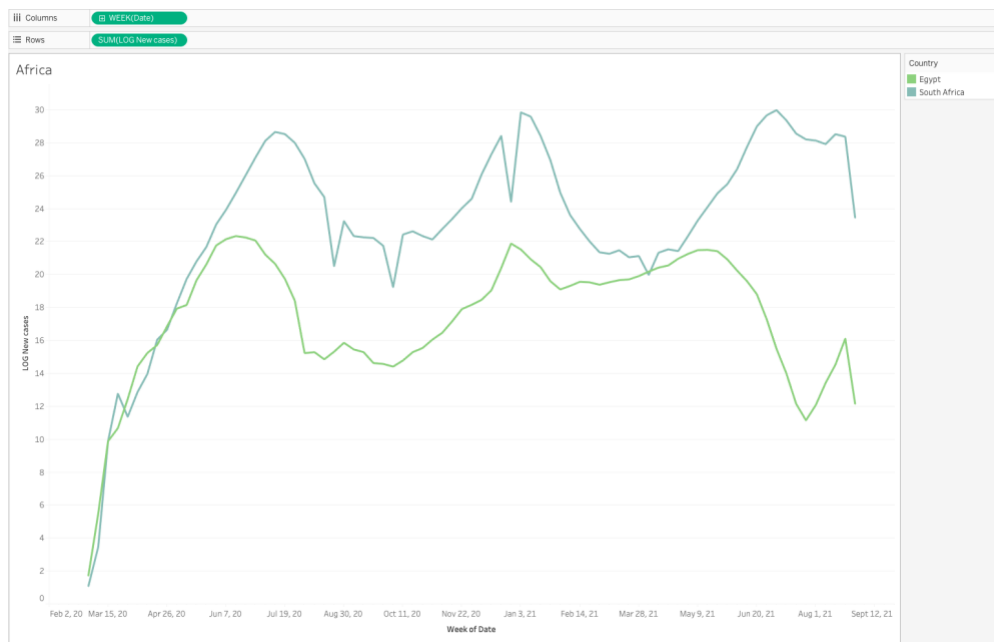
Apart from China, nearly no confirmed cases were reported in the other six countries during this period. However, the number of confirmed cases in these countries began to increase at a steady rate over the two months. The U.S. experienced the fastest growth, with over 30,000 new confirmed cases. Brazil and Australia each surpassed 1,000 cases, while Canada exceeded 2,000. China's initial figure of 548 cases surged to over 80,000 during this time, maintaining the highest number of confirmed cases from the beginning to the end of this period.

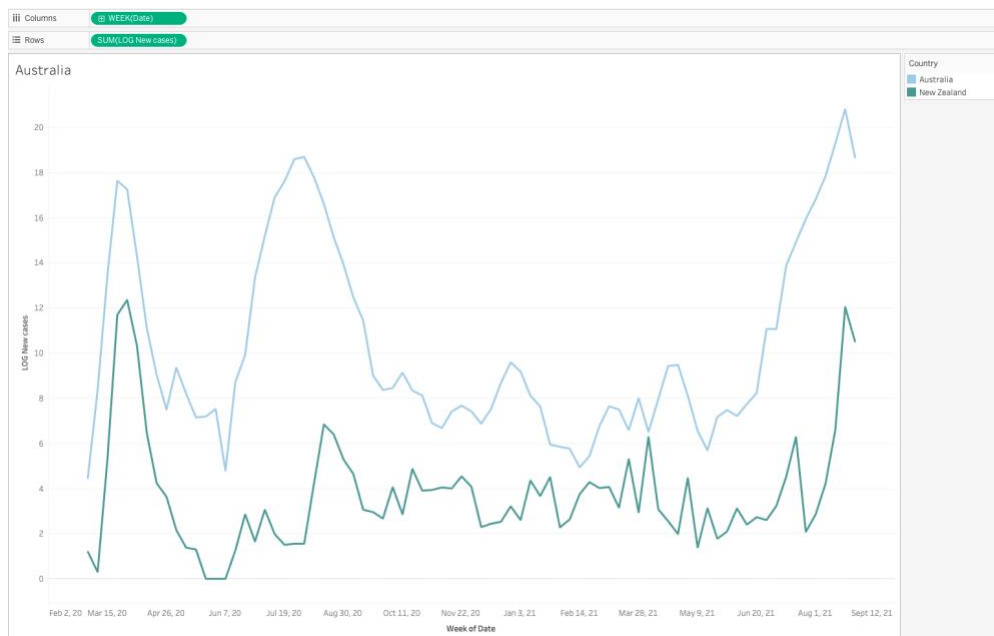
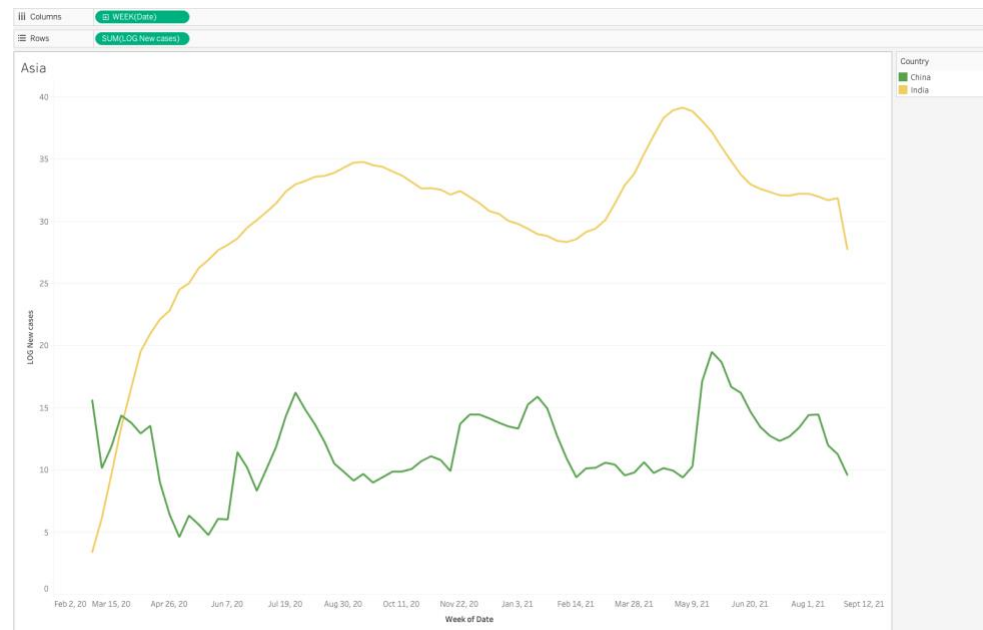
The Spread of the Pandemic in the Last Two Months (2021/07/03 - 2021/09/03):
During this period, the United States and India reported new cases at a significantly faster rate than any other country, with increases of 6 million and 2 million cases respectively. Notably, China, which previously had the highest number of cases and the fastest growth rate, now has the second-lowest number of cases among the seven countries. Australia recorded the lowest number of cases during this time.

Part3

3.1---Line chart of 6 continents







3.2---Task Questions

A. Number of waves of cases for each country separately and when (roughly) the waves started

South America:

- **Argentina:** 3 waves.
 - **First wave:** Began in March 2020, peaked by October 2020.
 - **Second wave:** Started in February 2021, peaked in February 2021.
 - **Third wave:** Began in March 2021.
- **Brazil:** 3 waves.
 - **First wave:** Started in February 2020, peaked in June 2020.
 - **Second wave:** Began in November 2020, peaked in March 2021.
 - **Third wave:** Started in May 2021.

North America:

- **United States:** 3 waves.
 - **First wave:** Started in February 2020, peaked in July 2020.
 - **Second wave:** Began in October 2020, peaked in January 2021.
 - **Third wave:** Started in June 2021.

- **Canada:** 3 waves.
 - **First wave:** Began in February 2020, peaked in May 2020.
 - **Second wave:** Started in June 2020, peaked in January 2021.
 - **Third wave:** Began in March 2021.

Africa:

- **Egypt:** 3 waves.
 - **First wave:** Began in March 2020, peaked in June 2020.
 - **Second wave:** Started in November 2020, peaked in January 2021.
 - **Third wave:** Began in April 2021.
- **South Africa:** 3 waves.
 - **First wave:** Started in April 2020, peaked in July 2020.
 - **Second wave:** Began in November 2020, peaked in January 2021.
 - **Third wave:** Started in May 2021.

Europe:

- **France:** 3 waves.
 - **First wave:** Began in February 2020, peaked by March 2020.
 - **Second wave:** Started in July 2020, peaked in November 2020.
 - **Third wave:** Began in May 2021.
- **Spain:** 3 waves.
 - **First wave:** Began in February 2020, peaked in March 2020.
 - **Second wave:** Started in July 2020, peaked in January 2021.
 - **Third wave:** Began in March 2021.

Asia:

- **China:** 1 significant wave.
 - **First wave:** Began in February 2020, peaked by April 2020. After this, case counts remained low.
- **India:** 2 waves.
 - **First wave:** Started in April 2020, peaked in September 2020.
 - **Second wave:** Began in February 2021, peaked in May 2021.

Australia (Oceania):

- **Australia:** 2 waves.
 - **First wave:** Began in March 2020, peaked by July 2020.
 - **Second wave:** Started in June 2021.
- **New Zealand:** 1 wave.
 - **First wave:** Began in March 2020, peaked by April 2020. After this, case levels remained consistently low.

B. Compare the countries in each continent

- **South America: Argentina vs. Brazil :**

I think Brazil had much bigger and longer-lasting COVID-19 waves compared to Argentina, which means the virus spread faster and more widely there. Argentina's case numbers also rose during each wave, but I think they were more controlled and didn't reach the same high levels as Brazil. It seems like Brazil had a harder time controlling the virus, while Argentina was better at managing the spikes in cases.

- **North America: United States vs. Canada :**

The United States had much higher peaks and a quicker rise in cases compared to Canada. I think the U.S. faced bigger and more severe outbreaks than Canada, which had smaller and shorter waves. This suggests to me that Canada did a better job of controlling the virus between waves, while the U.S. struggled more.

- **Africa: Egypt vs. South Africa :**

I think South Africa experienced much bigger and more intense waves than Egypt. South Africa's waves were higher, showing a faster and more serious spread of the virus. On the other hand, Egypt had smaller waves and fewer fluctuations in case numbers, which I think means they faced less intense surges overall.

- **Europe: France vs. Spain :**

France and Spain went through their COVID-19 waves at around the same time, but I think France had higher and more long-lasting peaks. Even though both countries were hit around the same time, I believe France had a harder time controlling the virus during its peaks compared to Spain.

- **Asia: China vs. India :**

I think India had more waves and higher peaks compared to China. While China quickly got its first wave under control with strict measures, India struggled with a long and severe second wave. I think this shows a big difference in how the two countries managed the pandemic, with China keeping tight control and India dealing with larger outbreaks.

- **Australia (Oceania): Australia vs. New Zealand :**

Australia had more waves and higher peaks compared to New Zealand. I think Australia went through several big waves, while New Zealand only had one major wave early on. After that, New Zealand managed to keep its case numbers very low, which I think shows they had a better plan to contain the virus compared to Australia, which saw more frequent surges.

C---Prediction about the spread of COVID-19

South America:

When looking at **Argentina** and **Brazil**, I noticed that they have different patterns in their COVID-19 waves. Brazil has had more serious and frequent waves, so I think it will continue to have more cases. Argentina, on the other hand, has managed to keep its case numbers lower and more controlled. I expect Argentina will continue to see fewer fluctuations in the future compared to Brazil.

North America:

In **North America**, the **United States** and **Canada** have handled the pandemic differently. The U.S. has had larger and more severe outbreaks, so I think it will continue to experience bigger waves of cases. Canada's waves have been smaller and more stable, and I believe it will likely continue to manage the virus more effectively, though there may still be some smaller increases.

Africa:

Comparing **Egypt** and **South Africa**, South Africa has had bigger outbreaks, and I think it will likely continue to experience more serious waves. Egypt has kept its case numbers lower and more manageable, so I expect it will continue to have smaller and less intense waves.

Europe:

France and **Spain** have shown similar patterns in their waves, which makes me think that they will likely experience future waves at the same time. Based on how things have gone, I expect both countries will see moderate increases in cases in the coming months. Their similar responses to the pandemic make me think they will continue to follow similar trends.

Asia:

China and **India** have had very different experiences with COVID-19. India has faced multiple serious waves, so I think another wave may happen in the near future. On the other hand, China has done a great job controlling the virus after its first wave, and I believe it will continue to keep its case numbers low. Their different ways of handling the pandemic have led to very different outcomes, and I think this will stay the same.

Australia (Oceania):

Australia and **New Zealand** have very different patterns. Australia has had multiple waves, and I think it will continue to see new increases in cases. New Zealand, however, has kept its case numbers low and stable, and I expect it will continue to manage the pandemic well, avoiding big outbreaks.

Conclusion:

From what I've seen, the pandemic has affected each country in unique ways. In places where countries have similar patterns, like **France** and **Spain**, I think they will continue to experience waves at the same time. In places where countries have had different experiences, like **the U.S.** and **Canada**, I expect them to continue following their own paths. It's clear that factors like how each country responds to the virus, the size of their population, and the strength of their healthcare systems play a big role in how the pandemic unfolds. Based on this, I think we will continue to see differences in how countries handle COVID-19 in the months ahead.