

# Applying AI for Coronavirus Real Time Heat Map

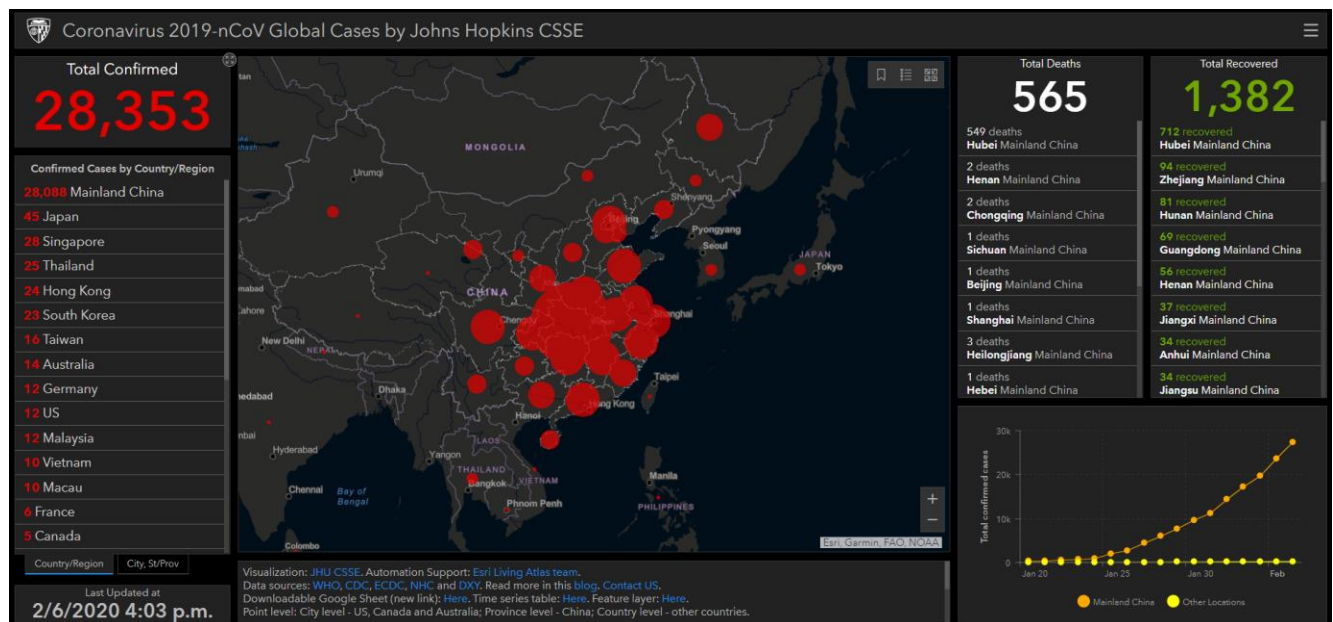
## Analyze and Filter the information upon the reaction

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## **Background of the project**

The Coronavirus is recently becoming a world emergency while it is spreading around the world. Though, many scientists and researchers are trying to react quickly to resist it or even cure it if it is possible.

Thanks to modern technology and Artificial Intelligence, there are existing works that try to identify the number of infected individuals in the entire world.

Data scraping tools are used to extract this information. The data are being scrapped from all over the internet. Any footprint found related to the virus is extracted and analyzed to inform scientists about the situation in real-time using data visualization tools.

At the time in 2003, there were no ways to rapidly identify key information to resist SARS, which is also a type of Coronavirus. And today, there are more than 24 thousand confirmed cases with fewer casualties with the rapidity of spreading information.

The targeted source information platforms to get this information is Social Media Sites (Facebook, Twitter, Reddit and more), trusted news platforms, online magazines, and health organizations.

## **Objectives**

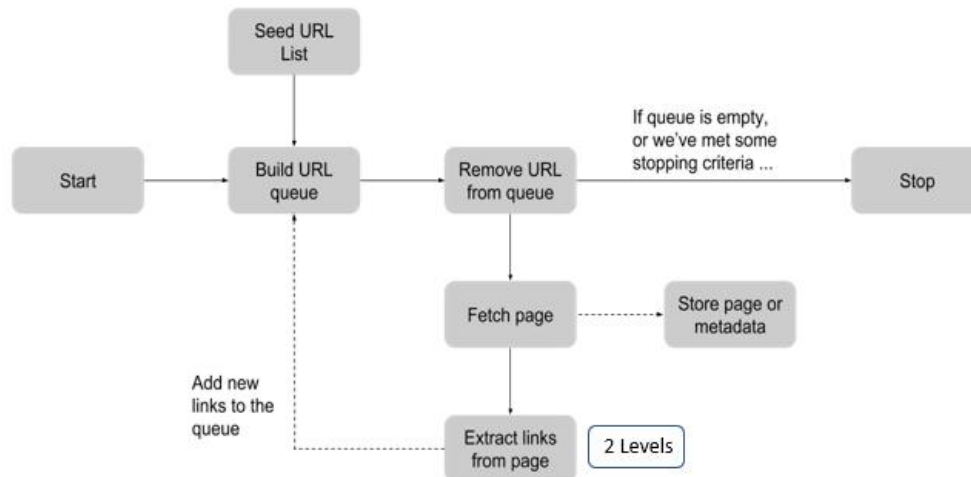
To provide the scientists, doctors and people around the world:

1. The right information
2. At the right place
3. And the right time

## **AI Scraping technology**

Some of the most useful technologies are used to extract information from notable websites on the world wide web. The concept of web scraping is the best way to do so by using one of the most reputable scraping packages called "Scrapy".

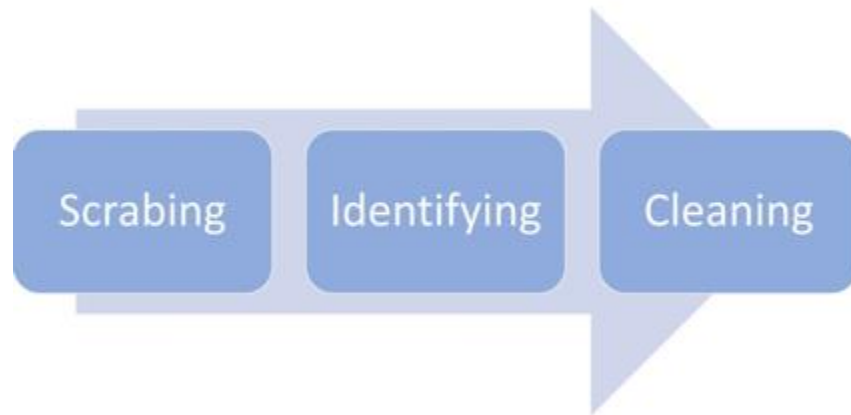
With Scrapy, you have the ability to extract information from predefined URLs and a Dictionary that contains specific terminologies scientists and researchers are specifically looking for.



Specific sections of the specified URLs should be extracted by specifying the sections in the URL before going into the data cleaning process.

The screenshot displays a Twitter search interface for the query 'coronavirus R0'. The main feed shows tweets with associated line graphs. The right sidebar includes search filters (People, Location, Trends) and a 'Who to follow' section. The developer tools on the right show the DOM structure, with a red circle highlighting a specific element in the 'Elements' panel.

While retrieving the data after cleaning, they are being visualized in a data visualization tool so that researchers can benefit from it.



### **Tableau Data Visualization**

Tableau was the main data visualization tool that was used to demonstrate the heat map. By utilizing data from WHO (World Health Organization), it was possible to visualize the intensity of the coronavirus that is spreading all over the world.

Though, according to their data, china remains to struggle from the virus by far and more frequently than other neighboring countries and countries from different continents.

The intensity can be categorized as  $R_0$ , which can help researchers decide upon the data they have and also the data they scrape from the world wide web.

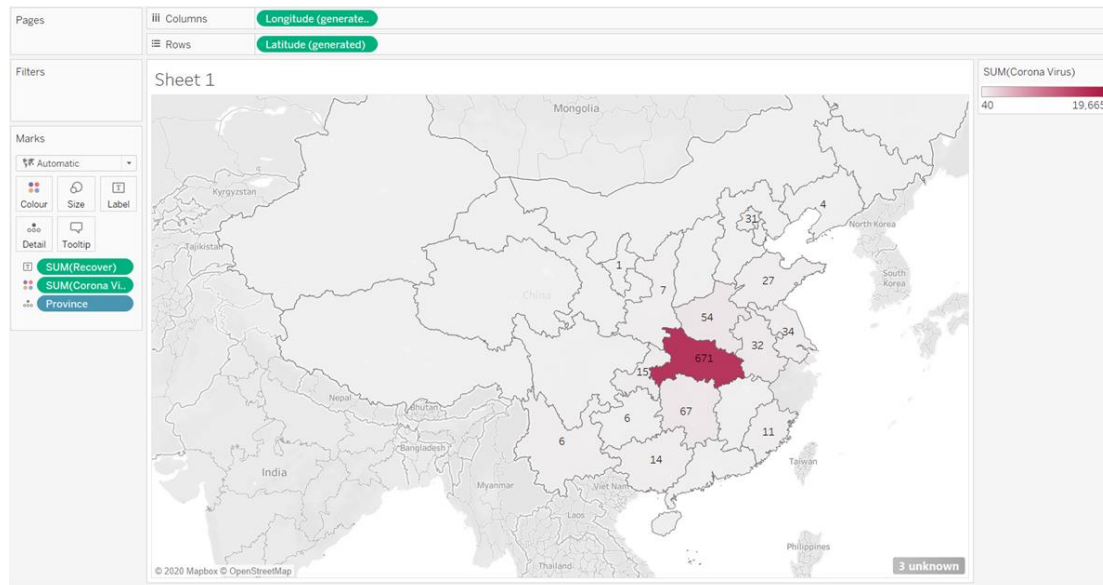
### **Demonstration**

## World Heat Map

Heat map showing Coronavirus Global case



## Local Heat Map by Province of China



## Conclusion

Thanks to the improvement of AI Technology and the Data Visualization human have more tools to prevent the spreading of the virus and diseases in general. The advancing of information transmission and sharing had also put the challenge for filtering the right information need, given there are plenty of false information. This requires both the evolution of AI and the responsibility of users on internet.

## References

1. Health statistics, <https://www.who.int/features/qa/73/en/>
2. Coronavirus 2019-nCoV Global Cases by Johns Hopkins CSSE, <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>
3. In coronavirus response, AI is becoming a useful tool in a global outbreak, data experts say, <https://www.statnews.com/2020/01/29/coronavirus-response-artificial-intelligence-becoming-useful/>