Report for Java2 Project

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1 Introduction

Coronavirus disease 2019 (COVID-19) is a contagious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The first known case was identified in Wuhan, China, in December 2019. The disease has since spread worldwide, leading to an ongoing pandemic.

Several testing methods have been developed to diagnose the disease. The standard diagnostic method is by detection of the virus' nucleic acid by real-time reverse transcription polymerase chain reaction (rRT-PCR), transcription-mediated amplification (TMA), or by reverse transcription loop-mediated isothermal amplification (RT-LAMP) from a nasopharyngeal swab.

Several COVID-19 vaccines have been approved and distributed in various countries, which have initiated mass vaccination campaigns. Other preventive measures include physical or social distancing, quarantining, ventilation of indoor spaces, covering coughs and sneezes, hand washing, and keeping unwashed hands away from the face. The use of face masks or coverings has been recommended in public settings to minimize the risk of transmissions. While work is underway to develop drugs that inhibit the virus, the primary treatment is symptomatic. Management involves the treatment of symptoms, supportive care, isolation, and experimental measures.

And Meanwhile, data visualization is the art of providing insights with the aid of some type of visual representation, such as charts, graphs, or more complex forms of visualizations like dashboards.

2 Project file structure

In our project, we adopt springboot as the back end and vue as the front end, with html and css.

Here is our back end structure:

src
main
java
com
example
dspringproject
-SpringProjectApplication.java
config
- MyException.java
- MyExceptionHandler.java
- MyResponseAdvice.java
- SpringFoxConfig.java
- WebConfig.java
controller
-FileDataController.java

-OutBreakDataController.java
domain
- Data.java
- FileData.java
- OutBreakData.java
- WhoData.java
service
- InfoService.java
- InfoServiceImpl.java
- maintest.java
resources
- application.yml
- META-INF
- additional-spring-configuration-metadata.json

And here is the structure of front end:

- displayAllFileData.html
- displayOutBreakData.html
- home.html
- worldMap.html

- displayAllFileData.js
- displayAllOutBreakData.js
- vue.js
- world.js

3 Interpretation

In this project, the main member variables used are fileDataList and dataList. FileDataList contains everything that is read from the CSV file, dataList contains all data to show.

There are several methods in InfoServiceImpl:

constructor : public InfoServiceImpl():initiate the class, read data from file, using multithreading to speedup.

public void *setType*(String type):change data source and store data into dataList.

public ArrayList $\langle Data \rangle$ *queryAll*(): return current dataList.

public ArrayList$\langle Data \rangle$ *search* (String columnName, String value): search in dataList, which satisfied the correspond value in columnName columnName is equals to value.

public ArrayList$\langle Data \rangle$ *sort* (ArrayList$\langle Data \rangle$ list, String columnName, String upOrDown): sort the list according to column columnName.

public void *save*() :save dataList to file.

public String[] *getRandomHex*(): get 250 random hex numbers.

static String *normalizeString*(String a): normalizing input String, deal with wrong data.

And in the javascript and html in the front end, we just design the view and set the corresponding function and interface to execute the relative methods defined in the back end.

4 Demonstration

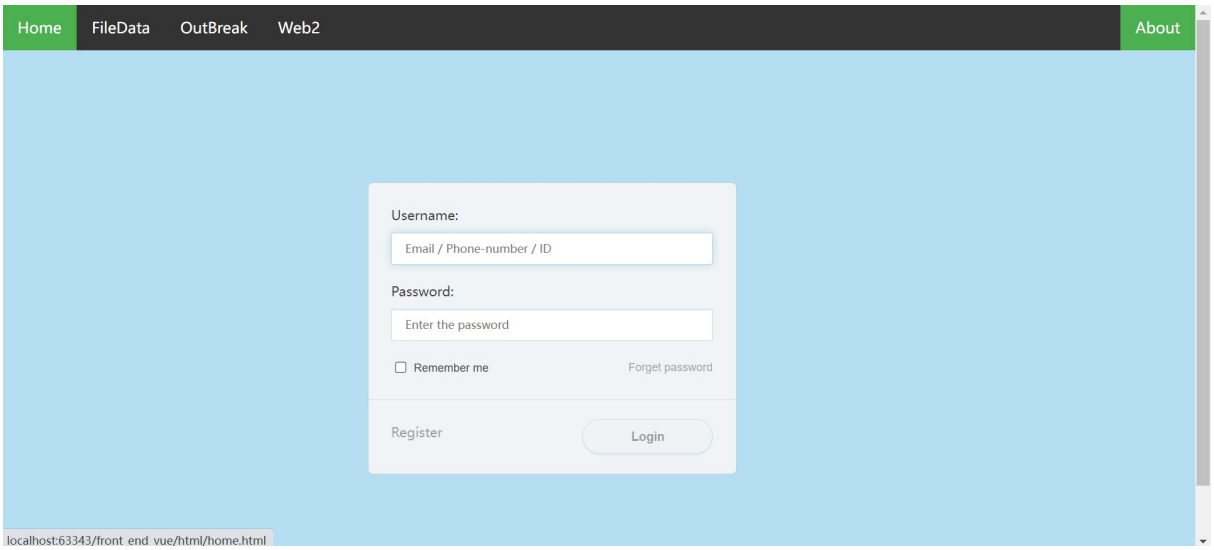


Figure 1: home

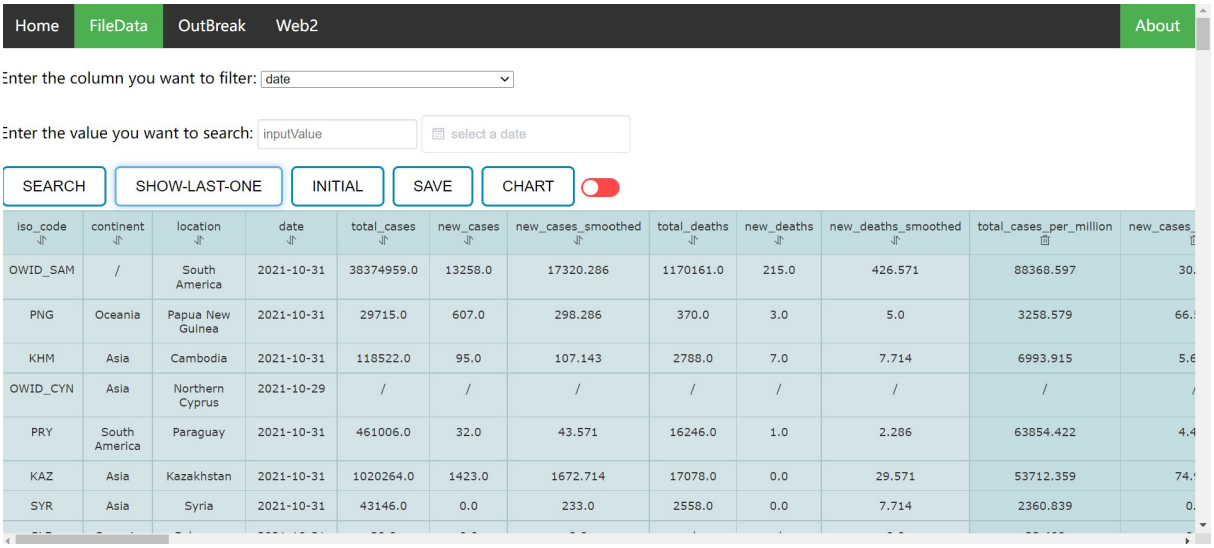


Figure 2: file

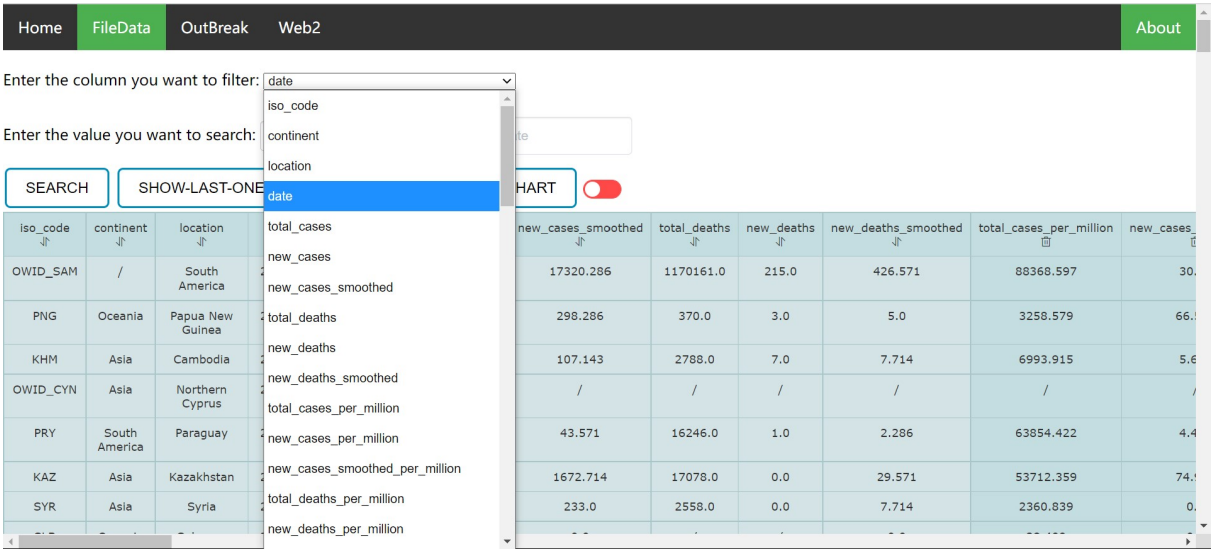


Figure 3: search

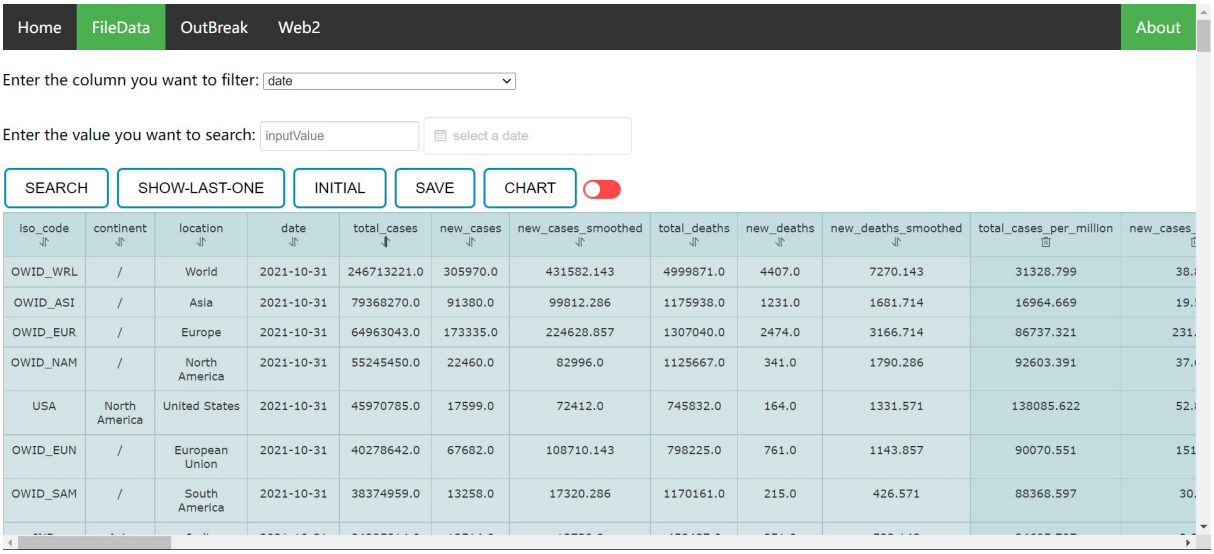


Figure 4: sort

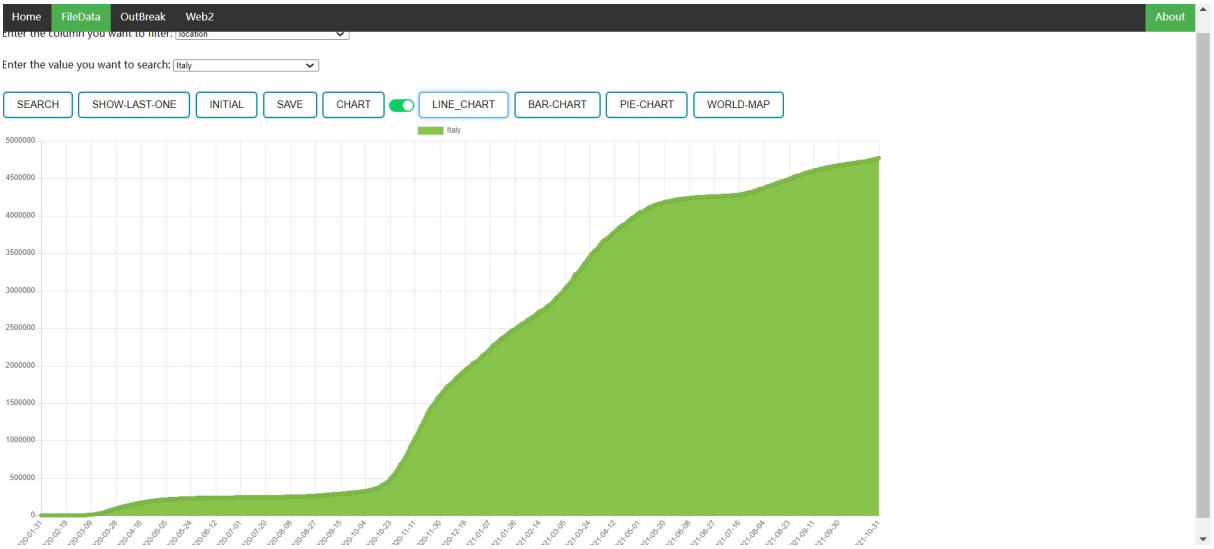


Figure 5: line

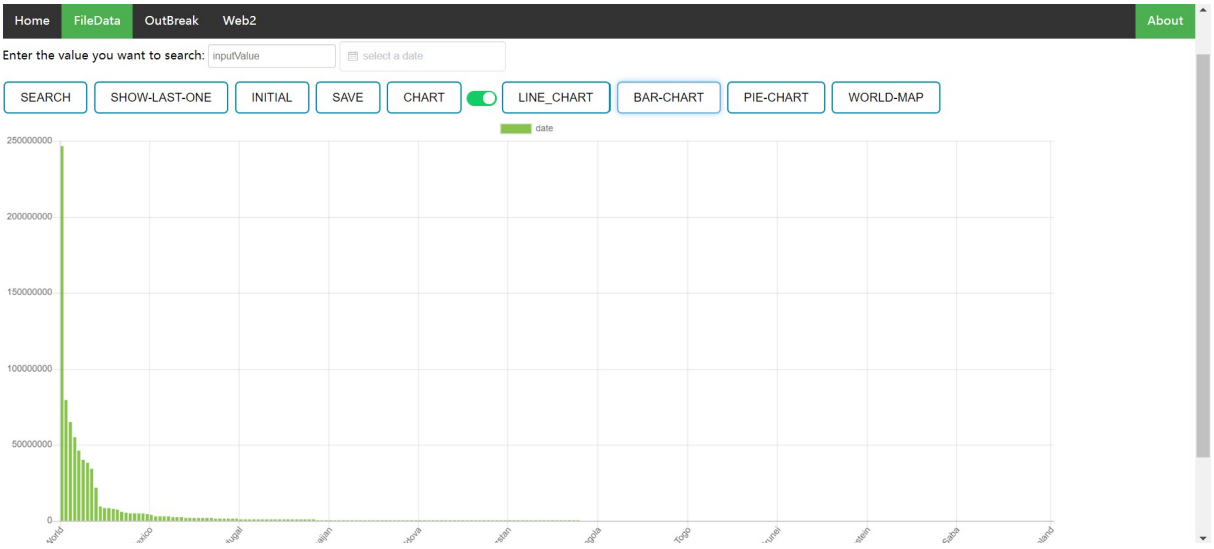


Figure 6: bar

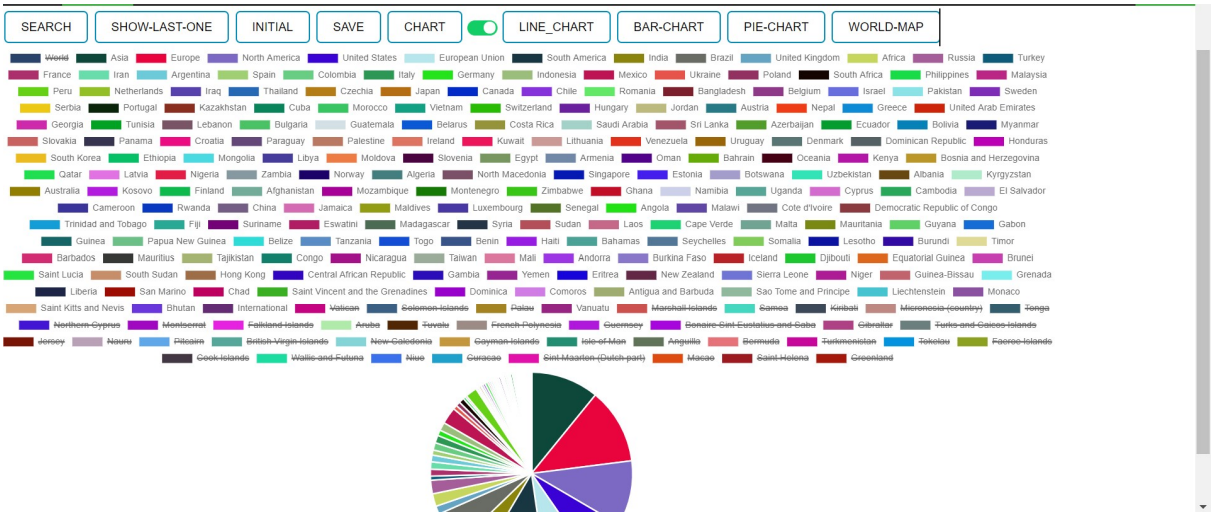
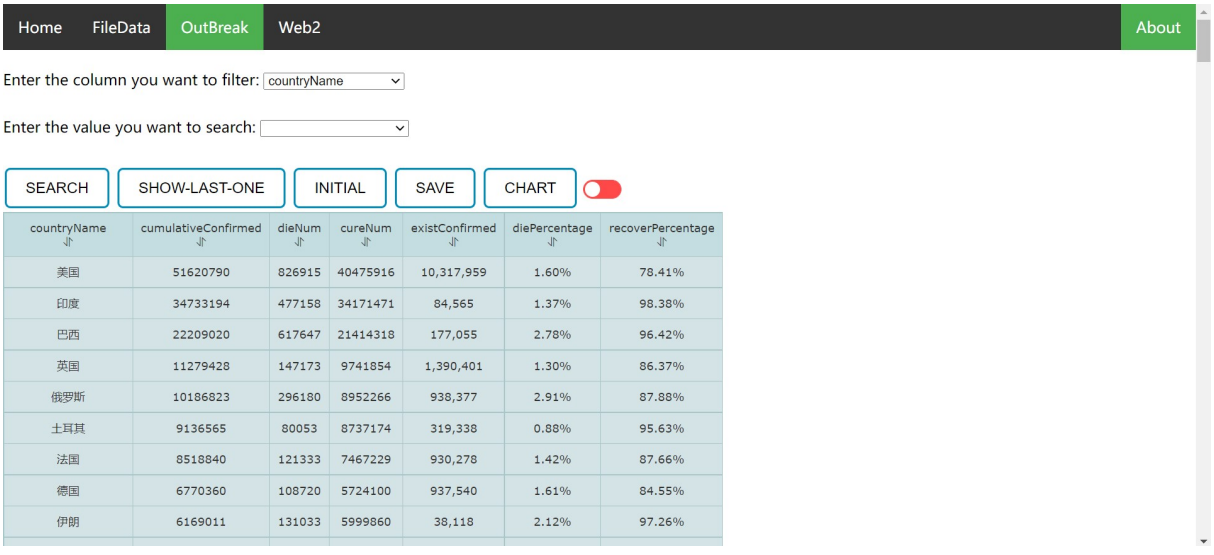


Figure 7: pie



countryName	cumulativeConfirmed	dieNum	cureNum	existConfirmed	diePercentage	recoverPercentage
美国	51620790	826915	40475916	10,317,959	1.60%	78.41%
印度	34733194	477158	34171471	84,565	1.37%	98.38%
巴西	22209020	617647	21414318	177,055	2.78%	96.42%
英国	11279428	147173	9741854	1,390,401	1.30%	86.37%
俄罗斯	10186823	296180	8952266	938,377	2.91%	87.88%
土耳其	9136565	80053	8737174	319,338	0.88%	95.63%
法国	8518840	121333	7467229	930,278	1.42%	87.66%
德国	6770360	108720	5724100	937,540	1.61%	84.55%
伊朗	6169011	131033	5999860	38,118	2.12%	97.26%

Figure 8: online

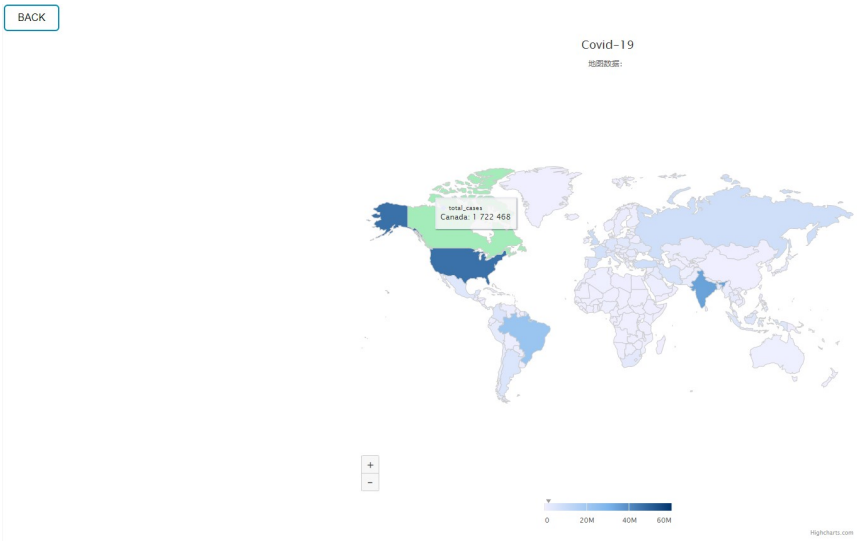


Figure 9: worldmap