

COEN 275 Object-Oriented Analysis, Design and Programming

Covid-19 Real Time Tracker Deliverables



Group 6

Varun Toshinwal

vtoshniwal@scu.edu
W1620487

Maharsh Suryawala

msuryawala@scu.edu
W1628800

Shriya Sarraf

ssarraf@scu.edu
W1606767

Shalin Ruparel

sruparel@scu.edu
W1628850



Introduction

Our Covid-19 dashboard will give updates about the following:-

- Total / Today Cases
- Total / Today Recovered
- Total / Today Deaths
- Alert Level (Red, Yellow, and Green)
- Total / Today Vaccine Coverage






Design

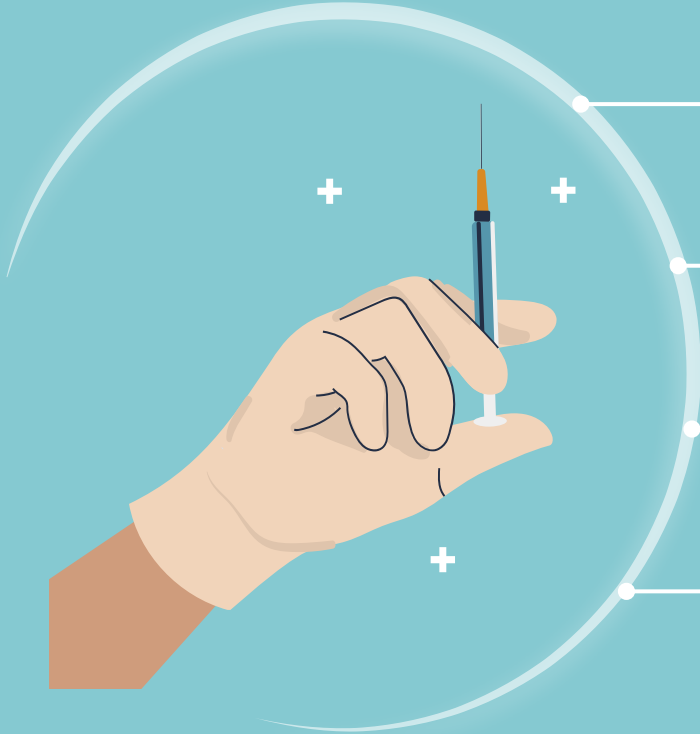


● Project

Definitions:

- To provide an evaluation for current counts, plans and capabilities in response to an outbreak of a novel viral disease.
 - Collecting data and tracking how covid-19 has disproportionately affected in various demographics of the world.
 - We've put together an application that uses an API containing active coronavirus statistics, maps out the locations and the impact that each country is facing.
 - This helps to track the geographical positions of the cases.
- 

Requirement Analysis



1



Designed an application which can allow users to see real time covid-19 worldwide stats.

2



Dashboard includes counts of total covid cases, recovery counts, deaths, alert levels and vaccine coverage.

3



Contains Map which provides visual of the impacted cases both globally and country wise on click.

4

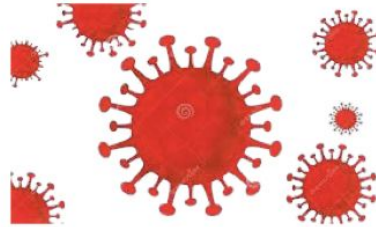


**Used an API containing active coronavirus statistics.
Backend- Java, Frontend- React**

The coronavirus (or COVID-19) is a newly discovered virus that is making people in many parts of the world sick.



Coronavirus is invisible tiny germs that can spread from one person to another.



The coronavirus is spread through close contact with someone who has the virus, through droplets in the air (from coughing and sneezing), or through touching an infected surface.

Even if a person doesn't look sick they can still spread the virus.



It is important to remember that this kind of virus can affect **ANYBODY**. It doesn't matter where you or your family comes from.



Application Architecture - MVC



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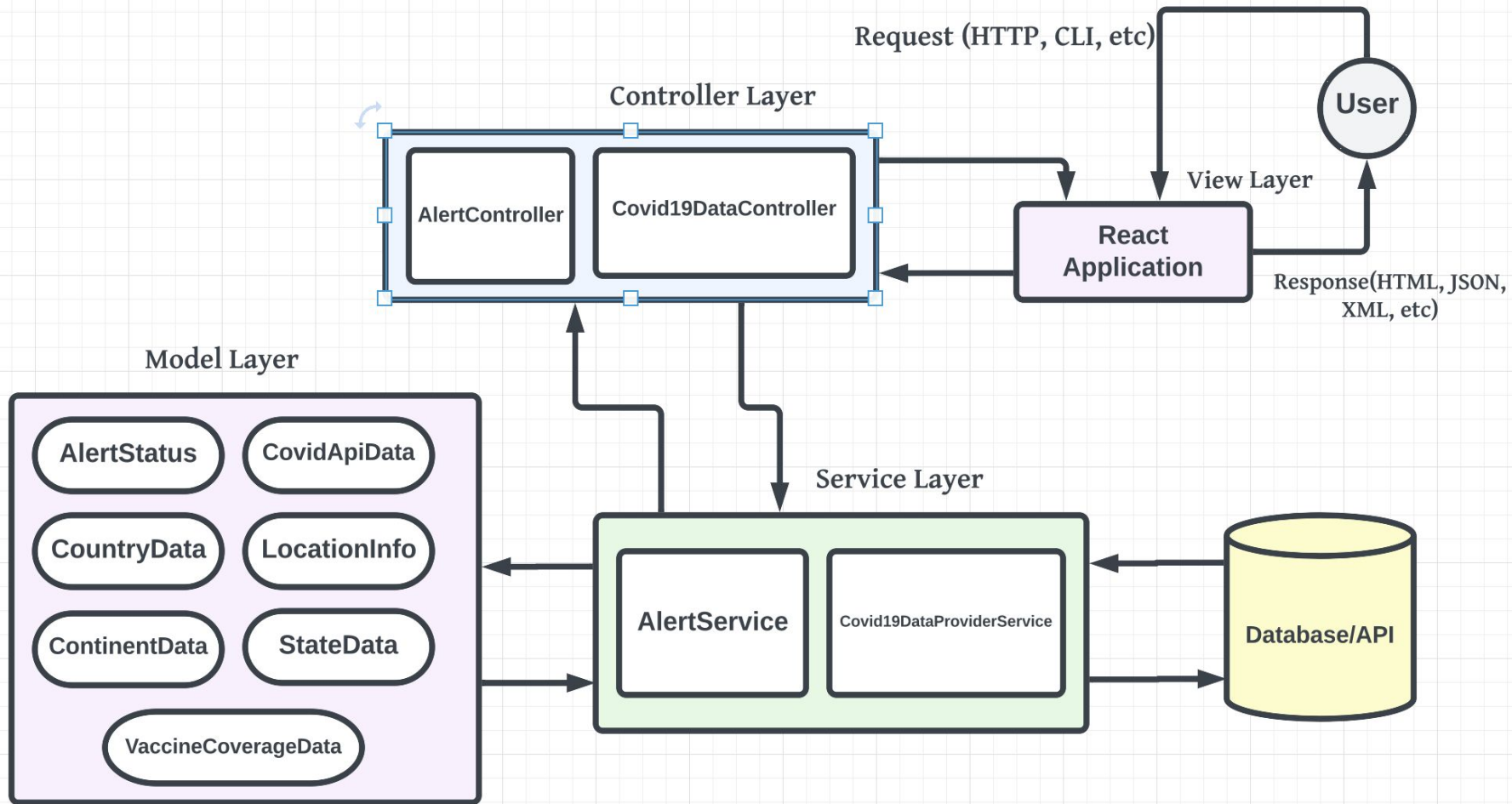
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CLASSES



➤ **Model Classes:**


- ***Alert Status-*** It gives various alert details such as alert status, measures to be taken, etc.
 - ***Continent Data-*** It gives details of all covid data such as Total Cases, Total Vaccinated, etc about entire continent.
 - ***Country Data-*** It gives details of all covid data such as Total Cases, Total Vaccinated, etc about different countries.
 - ***Covid Api Data-*** Continent and Country gathers all the Covid related data from CovidApiData Class.
 - ***Location Data-*** It gives all the location details such as longitude, latitude, etc.
 - ***State Data-*** It gives details of Covid Cases of states.
 - ***Vaccine Coverage Data-*** It gives Vaccination details of all the countries.
- 



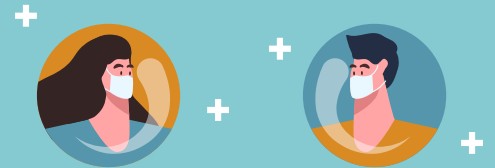
CLASSES



➤ **Service Classes:**

- ***Alert Service-*** It handles the alert logic according to the number of active cases.
 - ***Covid19 Data Provider Service-*** It handles logic to retrieve all the covid related details such as number of cases and Vaccine Coverage.
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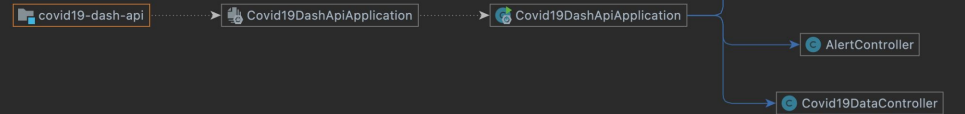
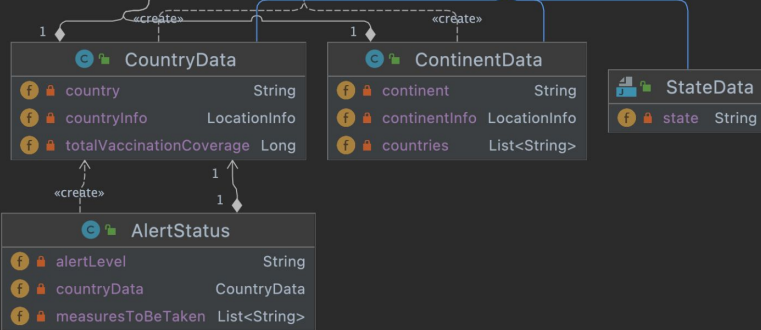
UML



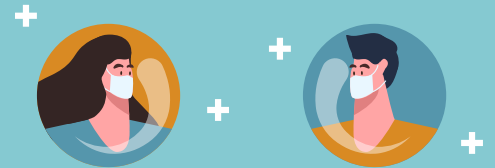
LocationInfo	
longitude	Double
iso3	String
_id	Long
iso2	String
flag	String
latitude	Double

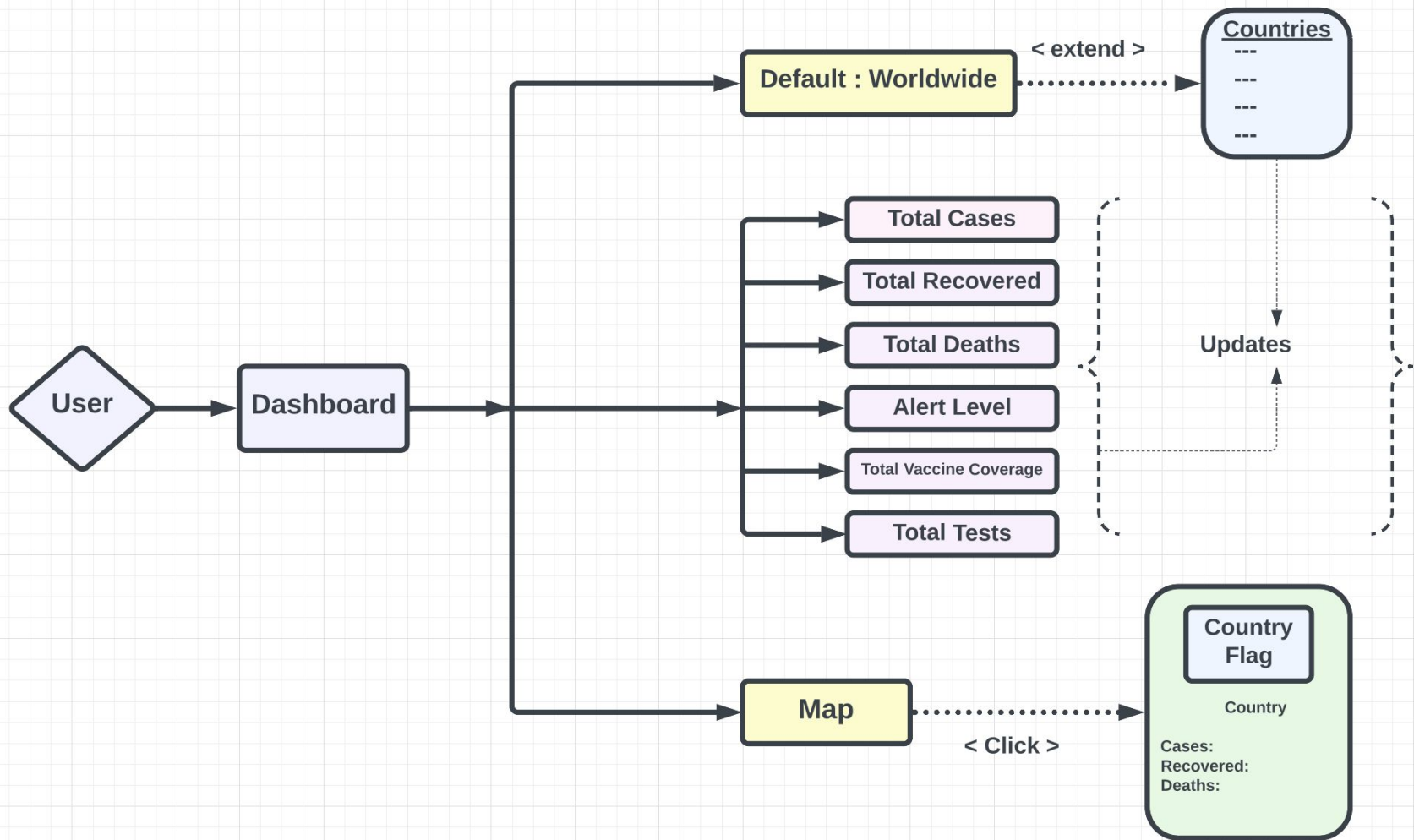
CovidApiData	
todayDeaths	Long
recoveredPerOneMillion	Double
updated	Long
todayRecovered	Long
activePerOneMillion	Double
active	Long
casesPerOneMillion	Double
testsPerOneMillion	Double
recovered	Long
cases	Long
oneTestPerPeople	Double
tests	Long
criticalPerOneMillion	Double
deaths	Long
oneCasePerPeople	Double
todayCases	Long
critical	Long
deathsPerOneMillion	Double
population	Long
oneDeathPerPeople	Double
affectedCountries	Integer

VaccineCoverageData	
country	String
timeline	Map<String, Long>



Use Case Diagram





Object Oriented Concepts



- **Object Oriented Design**

- Used classes and objects to implement Inheritance, Polymorphism, Encapsulation and Abstraction.
- Classes are used to store the data and information to be used and the members of the classes define the behavior of the class.
- OOAD allows us to write clean readable code with maintaining the accessibility of the data.

- **Polymorphism**

- The word “poly” and “morphs” means forms, it means many forms.
- Two types of polymorphism- Compile-time Polymorphism and Runtime Polymorphism.
- Compile-time Polymorphism is achieved by function overloading and Runtime polymorphism is achieved by function overriding.
- In the application, in CountryData class method overloading is performed by passing different parameters in both the methods of the class.

OBJECT ORIENTED CONCEPTS



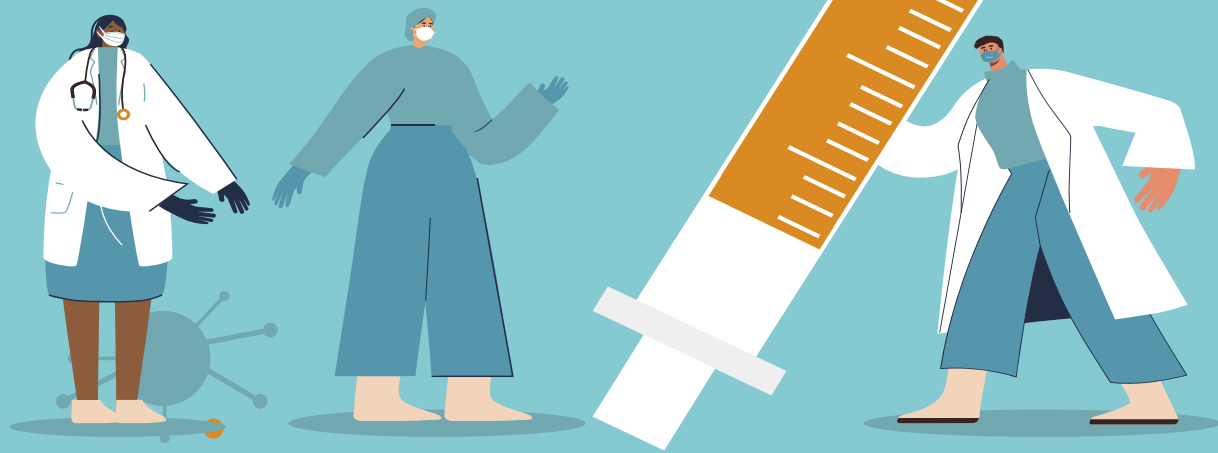
- **Encapsulation**

- Encapsulation is the mechanism in which the data and the code acting on the data will be wrapped together as a single unit.
- The variables of the class will be hidden from all other classes and it can only be accessed through the current class's methods and this concept is called Data Hiding.
- Encapsulation in the application is achieved when data such as Total Cases or Total Recovered is to be accessed from CovidApiData class, it can only be accessed by getter and setter methods.

- **Inheritance**

- Inheritance is the mechanism in which one class can inherit the features of another. The class which inherits from another class is called subclass and the class being inherited from is called the Super Class.
- In this project one of the implementations of Inheritance is CovidApiData is inherited by Country Data and Continent data which can also add their own data and methods.

Output



COVID-19 DASHBOARD LIVE

Worldwide ▾

Total Cases

+371.0k

645.5m Total

Total Recovered

+369.9k

624.2m Total

Total Deaths

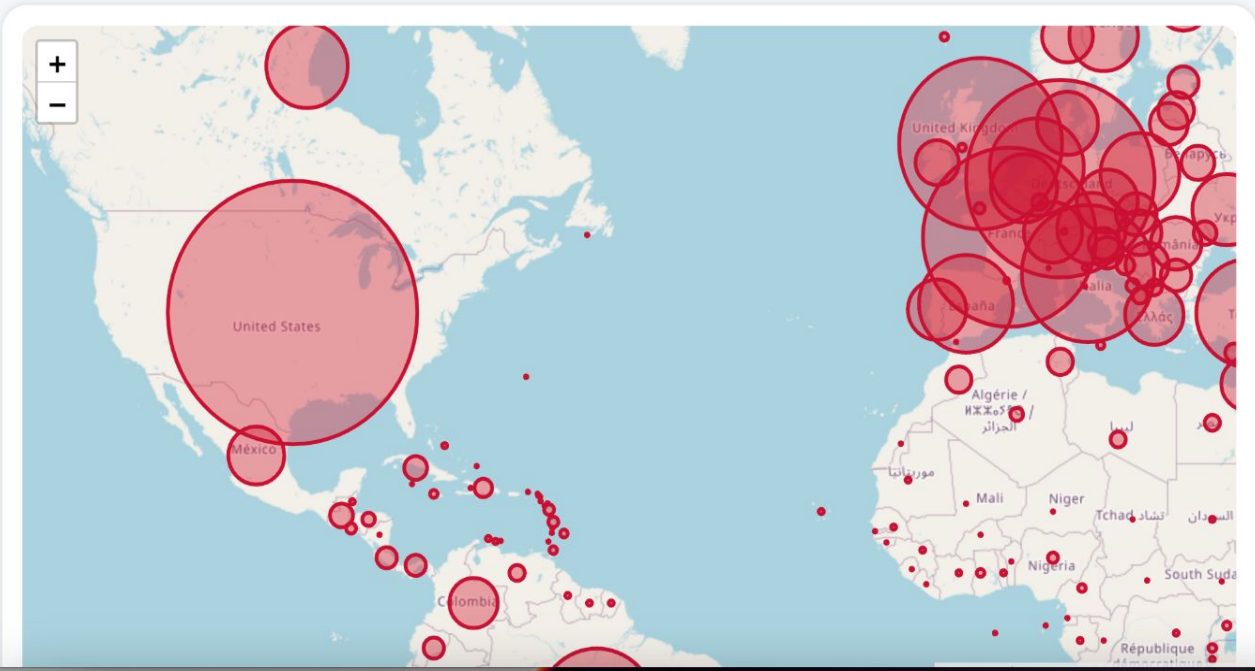
+794.0

6.6m Total

Total Vaccine Coverage

+0

13.0b Total



Active Cases by Country

Japan	3,543,875
USA	1,384,230
Tunisia	1,117,723
S. Korea	980,875
Poland	896,579
Vietnam	862,726
France	644,321
Germany	552,889
Italy	492,457
Honduras	446,633
Mexico	398,892
Taiwan	377,939
Brazil	313,062
Costa Rica	273,855
Martinique	223,397
Hong Kong	218,452
Lao People's Democratic Republic	215,810
Iceland	206,952
Russia	198,356

COVID-19 DASHBOARD LIVE

Worldwide ▾

Total Cases

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645.5m Total

Total Recovered

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624.2m Total

Total Deaths

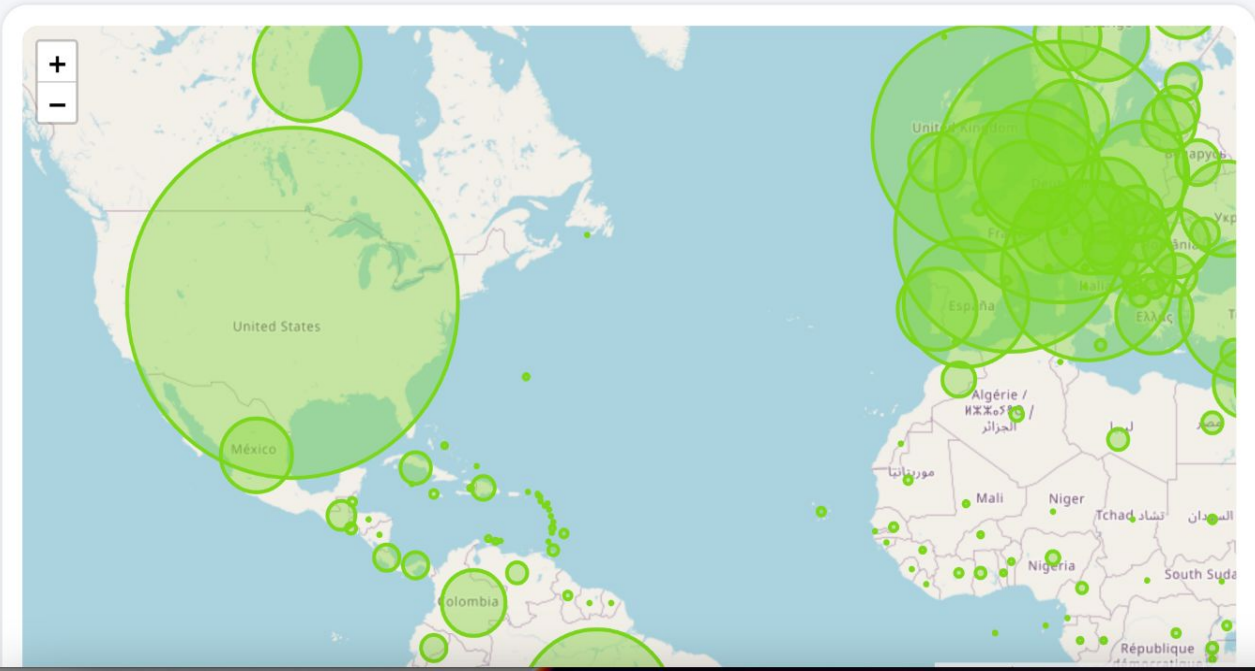
+794.0

6.6m Total

Total Vaccine Coverage

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13.0b Total



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COVID-19 DASHBOARD LIVE

Worldwide ▾

Total Cases

+371.0k

645.5m Total

Total Recovered

+369.9k

624.2m Total

Total Deaths

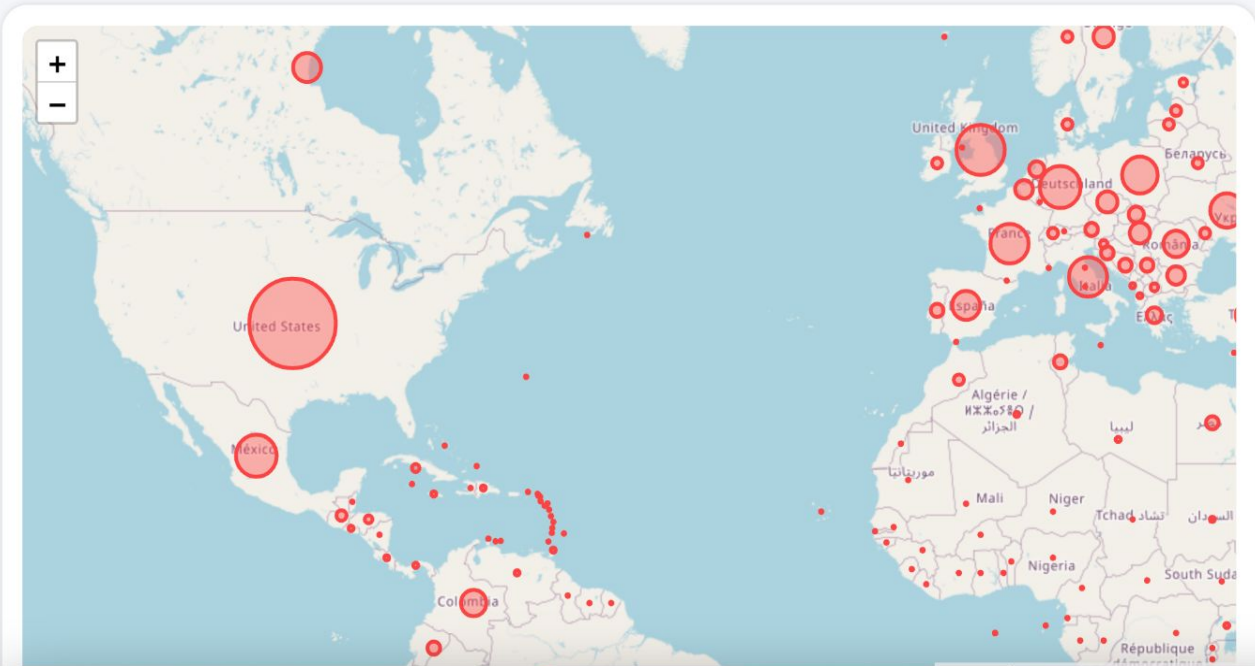
+794.0

6.6m Total

Total Vaccine Coverage

+0

13.0b Total



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Lao People's Democratic Republic	215,810
Iceland	206,952
Russia	198,356

COVID-19 DASHBOARD LIVE

USA

Total Cases

+9.5k

100.5m Total

Total Recovered

+39.3k

98.0m Total

Total Deaths

+58.0

1.1m Total

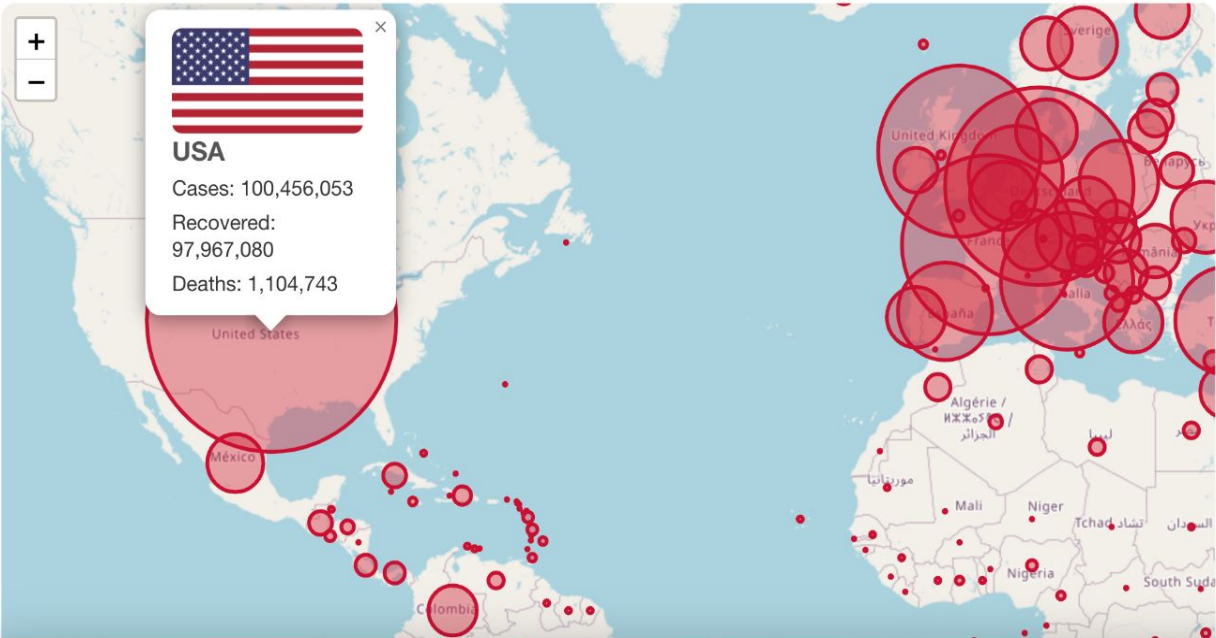
Total Vaccine Coverage

+0

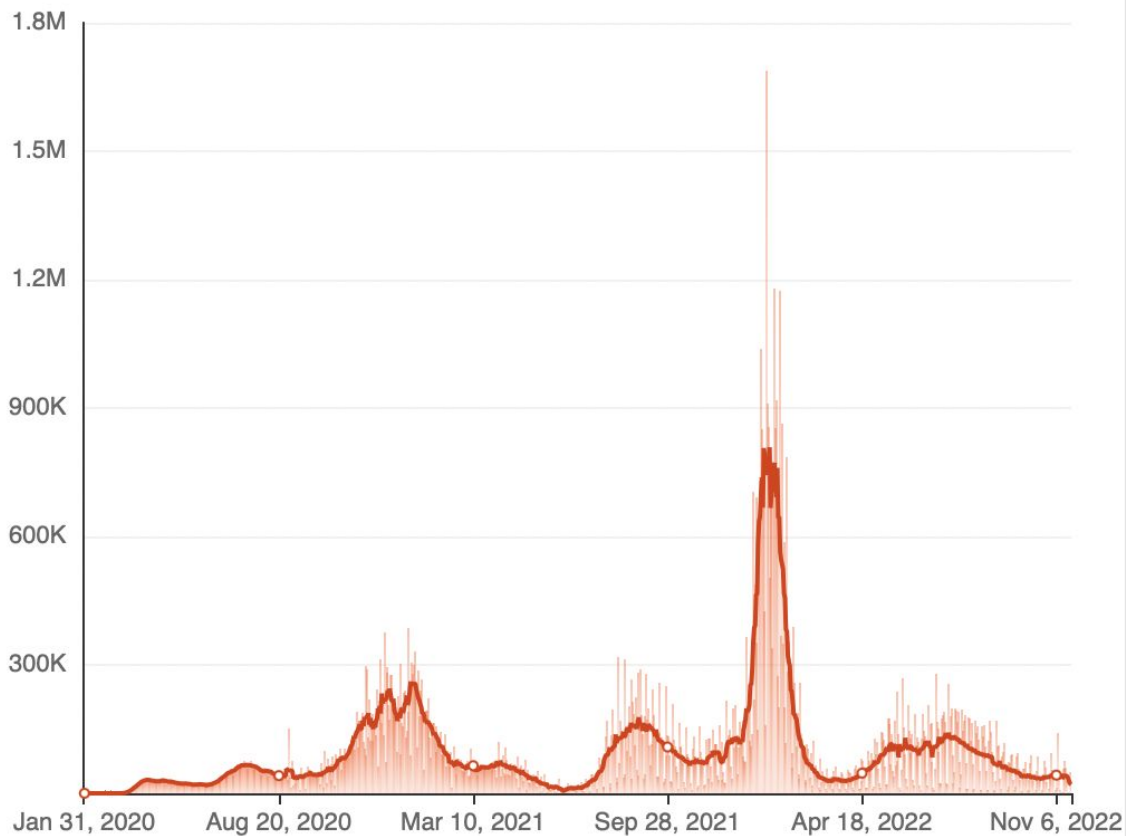
650.8m Total

Active Cases by Country

Japan	3,543,875
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New cases of all time in USA



Future Scope

- **Check for Symptoms**
- **Ask questions and get answers**
- **Emergency call feature**
- **Generating covid 19 status report**
- **Patients data**

