CG PROJECT

Real-time COVID-19 Tracker using p5.js

SUBMITED BY:

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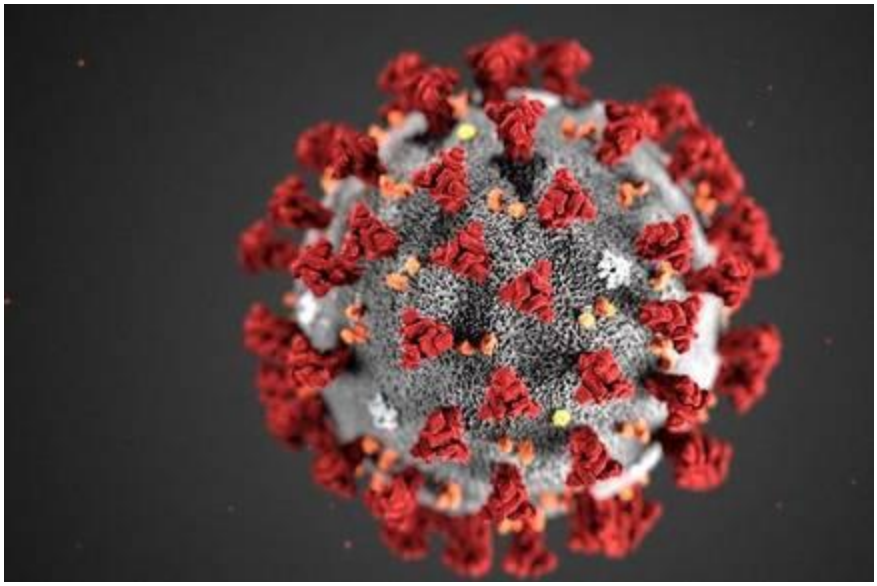


Problem Statement :

As we all know that Corona Virus has created havoc in the whole world. It has become one of the world's biggest pandemic.

We can take better precautions and steps to prevent further spread of the pandemic and control it using statistical analysis.

In this project we take real time information from an API and then plot the graph of the data showing the number of cases vs the days for respective country.

Tools and Technologies used :

1. **COVID-19 Statistics API (Open Source)**
   To visualize real-time covid-19 statistics, we have used this **open source API**
   https://pomber.github.io/covid19/timeseries.json.

2. **Bresenham's Line Drawing Algorithm**
   The process involves plotting the points fetched from the API onto the canvas. The points are the joined using lines.
   The line between every 2 points is processed using the Bresenham's Line Drawing Algorithm.

3. **P5.js and its inbuilt library called – Grafica.js**
   p5.js is a JavaScript library for creative coding which processes graphics. Grafica.js is used to produce charts and canvases.

Checkout the project here - https://shawn1912.github.io/covid-19-p5/

HTML File

```
<!DOCTYPE html>

<html lang="en">

  <head>

    <meta charset="UTF-8" />

    <meta name="viewport" content="width=device-width, initial-
scale=1.0" />

    <link rel="icon" href="Links\virus.svg" type="image/svg+xml" />

    <link rel="stylesheet" href="style.css" />

    <script

      src="https://code.jquery.com/jquery-3.5.0.min.js"

      integrity="sha256-xNzN2a4ltkB44Mc/Jz3pT4iU1cmeR0FkXs4pru/JxaQ="

      crossorigin="anonymous"

    ></script>


    <title>COVID-19 Visualizer | Shawn</title>

  </head>

  <body>

    <h2>

      <img src="Links\virus.svg" />

        COVID-19 Data Visualizer

    </h2>

    <hr />

    <div class="ui">

      <label style="font-size: 17px;">Enter country name : </label>
```

```
  <br />
  <br />
  <input
    name="country"
    id="myInput"
    list="countries"
    placeholder="Country"
  />
  <datalist id="countries"> </datalist>
  <input
    type="submit"
    id="submitCountry"
    value="Submit"
    onclick="runSketch(myPlotSketch)"
  />
</div>
<br />

<div id="sketchContainer"></div>

<script>
  //Enter key call to submit button
  var input = document.getElementById("myInput");
  input.addEventListener("keyup", function (event) {
    if (event.keyCode === 13) {
```

```
      event.preventDefault();
      document.getElementById("submitCountry").click();
    }
  });
  //Populating countries' names datalist from JSON
  const API = "https://pomber.github.io/covid19/timeseries.json";
  async function getData() {
    let response = await fetch(API);
    let data = await response.json();

    let stringged = JSON.stringify(data);
    let obj = JSON.parse(stringged);

    let affectedCountries = Object.keys(obj);
    let list = document.getElementById("countries");

    affectedCountries.forEach(function (item) {
      let option = document.createElement("option");
      option.value = item;
      // option.onclick = function() {runSketch(myPlotSketch)};
      list.appendChild(option);
    });
  }
  getData();
</script>
```

```
    <script
src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/1.0.0/p5.min.js"></s
cript>

    <script src="Links\grafica.min.js"></script>

    <!-- <script
src="C:\Users\shawn\Desktop\Assignments\CovidVisualizer\myProject\covi
d.js"></script> -->

    <script src="sketch.js"></script>

    <script>

      // This is the sketch launcher

      let p5Sketch;


      function runSketch(sketch) {

        if (typeof p5Sketch !== "undefined") {

          p5Sketch.remove();

        }


        p5Sketch = new p5(sketch, "sketchContainer");

      }

    </script>

  </body>

</html>
```

CSS File

```
body {
  background-color: #121212;
  color: #dddddd;
  font-family: Segoe UI, Tahoma, Geneva, Verdana, sans-serif;
}

img {
  width: 40px;
  height: 40px;
}

#submitCountry {
  background-color: #81f0af;
  font-weight: 600;
  border: none;
  padding: 7px 15px;
  margin-left: 5px;
  text-decoration: none;
  cursor: pointer;
}

#submitCountry:hover,
#submitCountry:focus {
```

```
  font-weight: 550;
  background-color: black;
  color: #81f0af;
  outline: 1px solid;
}

#myInput {
  box-sizing: border-box;
  background-image: url(Links/search.svg);
  background-position: 7px 7px;
  background-size: 7%;
  background-repeat: no-repeat;
  font-size: 16px;
  padding: 0.4rem 10px 0.4rem 30px;
  border: none;
}

#myInput:focus {
  outline: 3px solid #ddd;
}
```

JS File

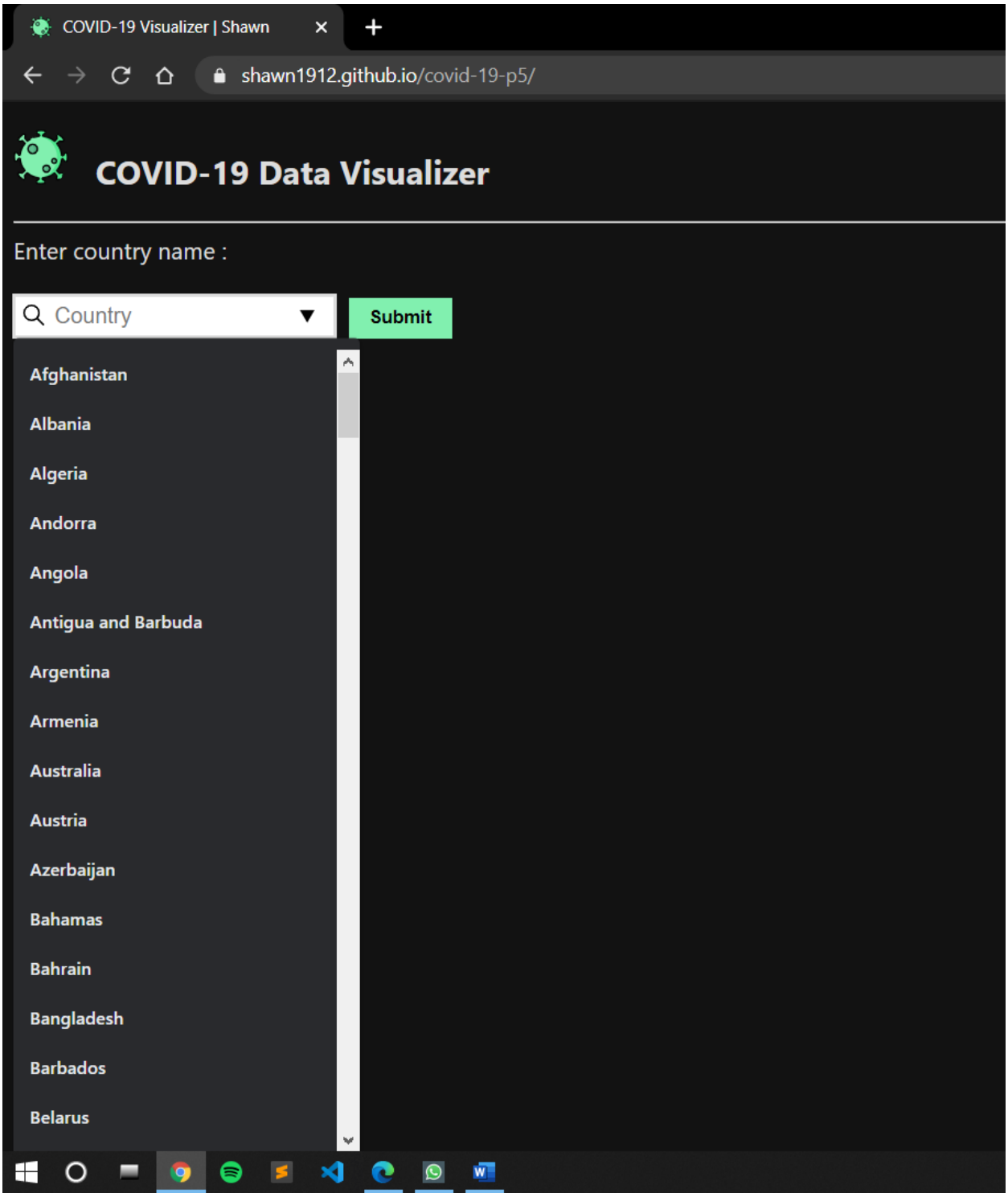
```
const worldAPI = "https://pomber.github.io/covid19/timeseries.json";


function toTitleCase(str) {
  if (str.toLowerCase() == "us") return "US";
  return str.replace(/\w\S*/g, function (txt) {
    return txt.charAt(0).toUpperCase() + txt.substr(1).toLowerCase();
  });
}


myPlotSketch = (p) => {
  let dates = [];
  let confirms = [];
  let points = [];
  let countryChoice =
toTitleCase(document.getElementById("myInput").value);
  console.log(countryChoice);


  p.setup = () => {
    // Create the canvas
    let canvas = p.createCanvas(900, 600);
    p.background(120);


    getData().then((data) => {
      for (let i = 0; i < confirms.length; i++) {
```

```
    points[i] = new GPoint(i + 1, confirms[i]);
  }

  // Create a new plot and set its position on the screen
  let plot = new GPlot(p);
  plot.setPos(20, 20);
  plot.setDim(760, 460);

  // Set the plot title and the axis labels
  plot.setPoints(points);
  plot
    .getXAxis()
    .setAxisLabelText(
      `${dates.length} Days from ${dates[0]} till ${
        dates[dates.length - 1]
      }`
    );
  plot.getYAxis().setAxisLabelText("No. of patients");
  plot.setTitleText("COVID-19 stats " + countryChoice);

  // Draw it!
  plot.defaultDraw();
  p.noLoop();
});
//.catch((err) => console.log("Error in Fetch: " + err));
```

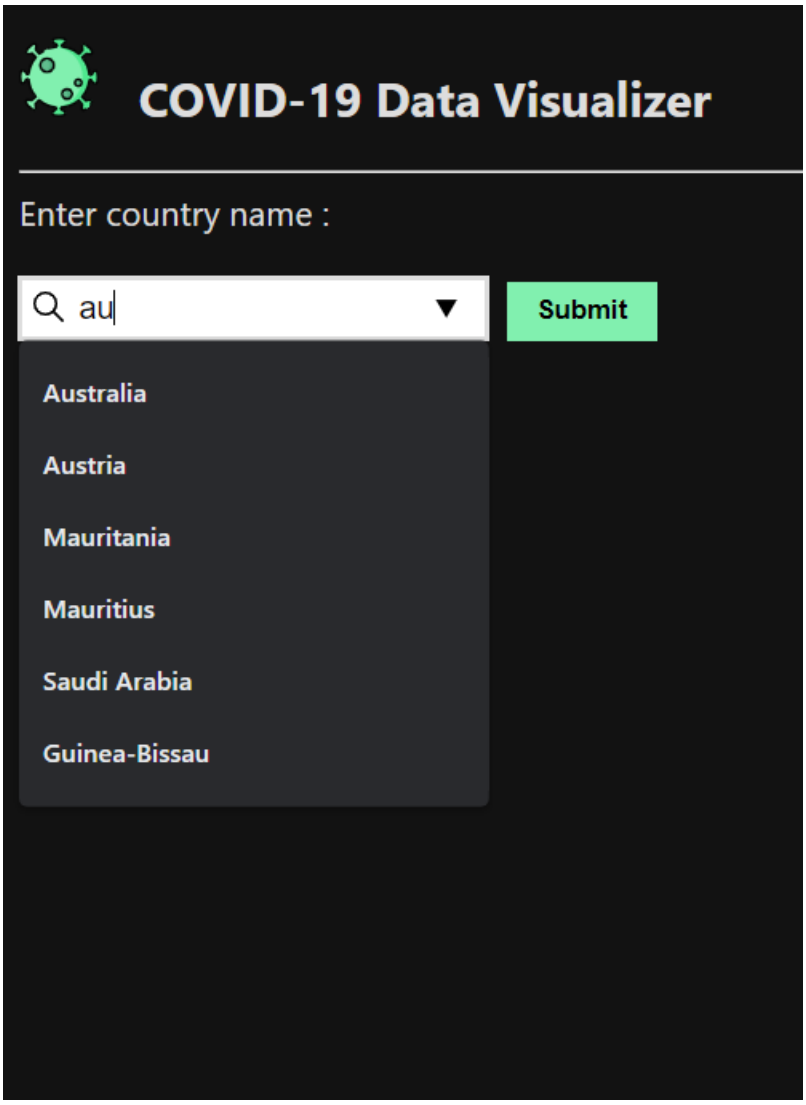
```
  };


  async function getData() {
    let response = await fetch(worldAPI);
    let data = await response.json();


    data[countryChoice].forEach(({ date, confirmed, recovered, deaths
}) => {
      // console.log(`${date} active cases: ${confirmed - recovered -
deaths}`)
      dates.push(date);
      confirms.push(confirmed);
    });


    return {
      dates: dates,
      confirms: confirms,
    };
  }
};
```

OUPUT SNAPSHOTS

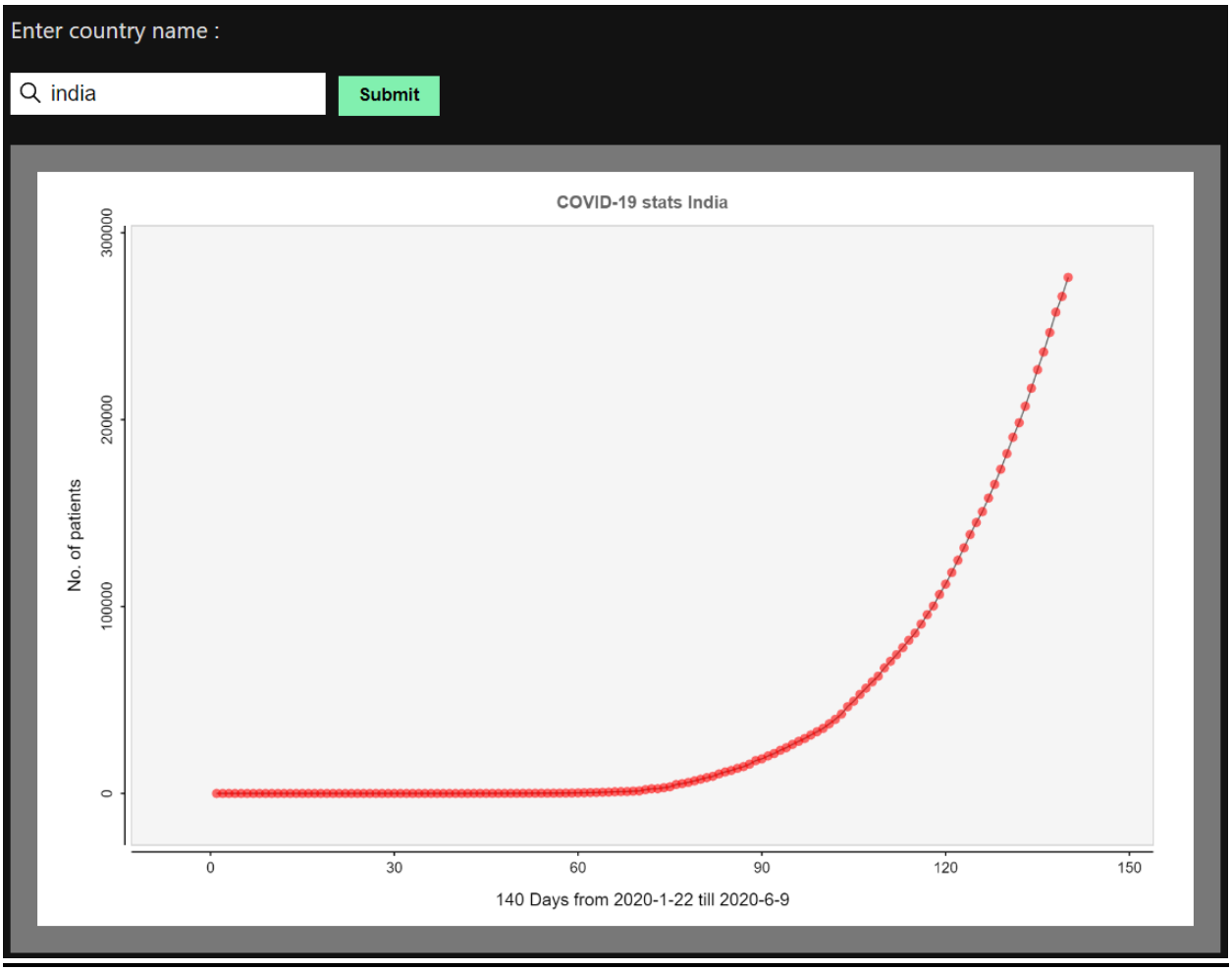
1. Country dropdown list :



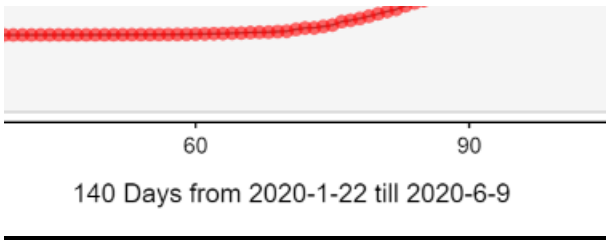
2. Live search for countries :



3. Plots the graph of corona virus cases

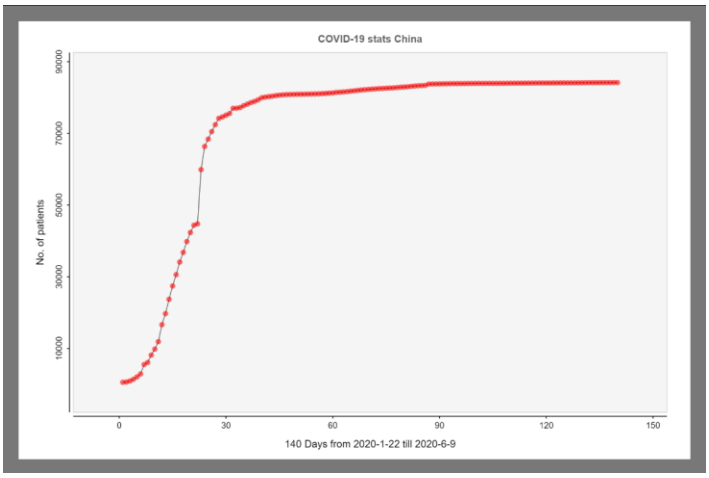


4. From 22nd Jan 2020 till date :

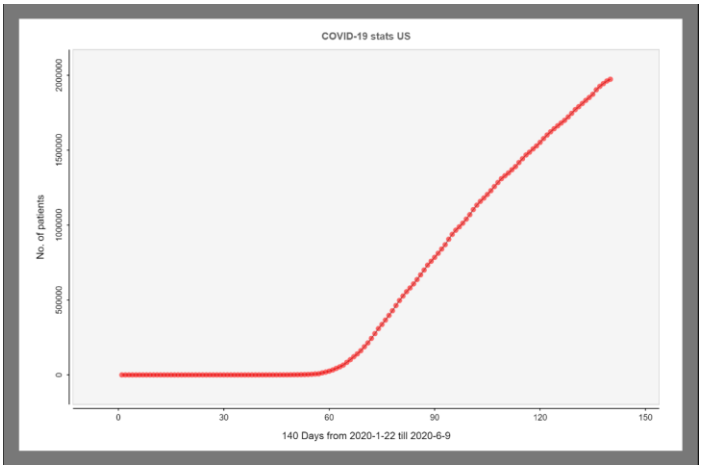


5. Other countries' snapshots :

China :



US :



Italy :