BSc (Hons.) in Information Technology 2023

IT31063 -Service Oriented Computing Mini Project

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URL : https://rapidapi.com/devXprite/api/city-and-state-search-api/ 16

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Complete code of Citydetails.php as text. 26

1. Use COVID-19 API Documentation : COVID-19 API Documentation (api-sports) | RapidAPI 30

URL: https://rapidapi.com/api-sports/api/covid-193/ 30

a) Display European countries COVID-19 information (Country, Population, Total Covid Cases,

Total Deaths, Tests, Continent) on “covid19.php” page. Example as follows. 30

i. Output of covid19.php ..... 31 ii.

Complete code of covid19.php ..... 31 iii.

Complete code of covid19.php as a text. 32

b) Use Google Charts: Charts | Google Developers URL: https://developers.google.com/chart Display European COVID cases vs. countries in the bar chart on the “covid19chart.php” page. Example as follows. .....

35 i. Output of Covid19chart.php 35

ii. Complete code of covid19chart.php 36

iii. Complete code of covid19chart.php as text. 37

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1. Use the Rest Countries API (https://restcountries.com/)

   a) Display all Asian country information (Flag, Country Name, Capital City, Region, Subregion, Currencies, Country Code) on the "country.php" page. Example as follows.

Asian Countries

Flag	Country Name	Capital City	Region	Subregion	Currencies	Country Code	
	Azerbaijan	Baku	Asia	Western Asia	Azerbaijani manat(₼)	AZ	View
	Maldives	Malé	Asia	Southern Asia	Maldivian rufiyaa(ރ)	MV	View
	Timor-Leste	Dili	Asia	South-Eastern Asia	United States dollar($)	TL	View
	Hong Kong	City of Victoria	Asia	Eastern Asia	Hong Kong dollar($)	HK	View
	Malaysia	Kuala Lumpur	Asia	South-Eastern Asia	Malaysian ringgit(RM)	MY	View
	Nepal	Kathmandu	Asia	Southern Asia	Nepalese rupee(Rs)	NP	View
	North Korea	Pyongyang	Asia	Eastern Asia	North Korean won(₩)	KP	View
	Pakistan	Islamabad	Asia	Southern Asia	Pakistani rupee(Rs)	PK	View

Figure 1Example1(country.php)

   i. Output of the country.php

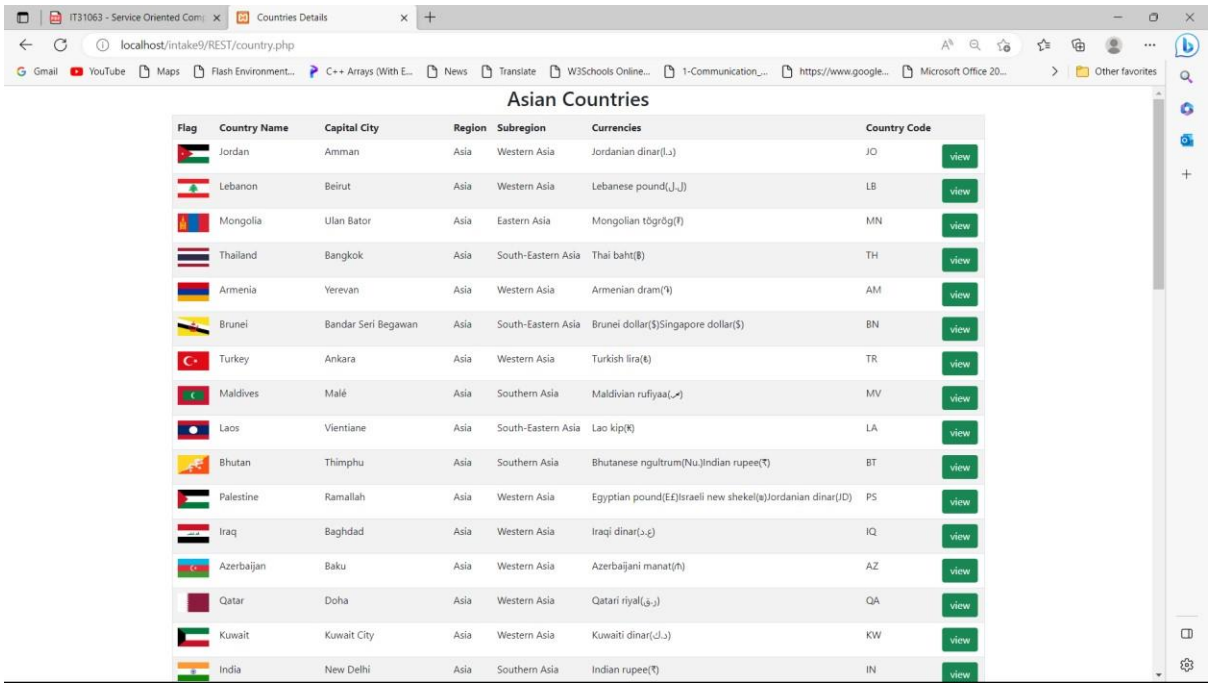


Figure 2country.php(output)

ii. Complete Code for country.php

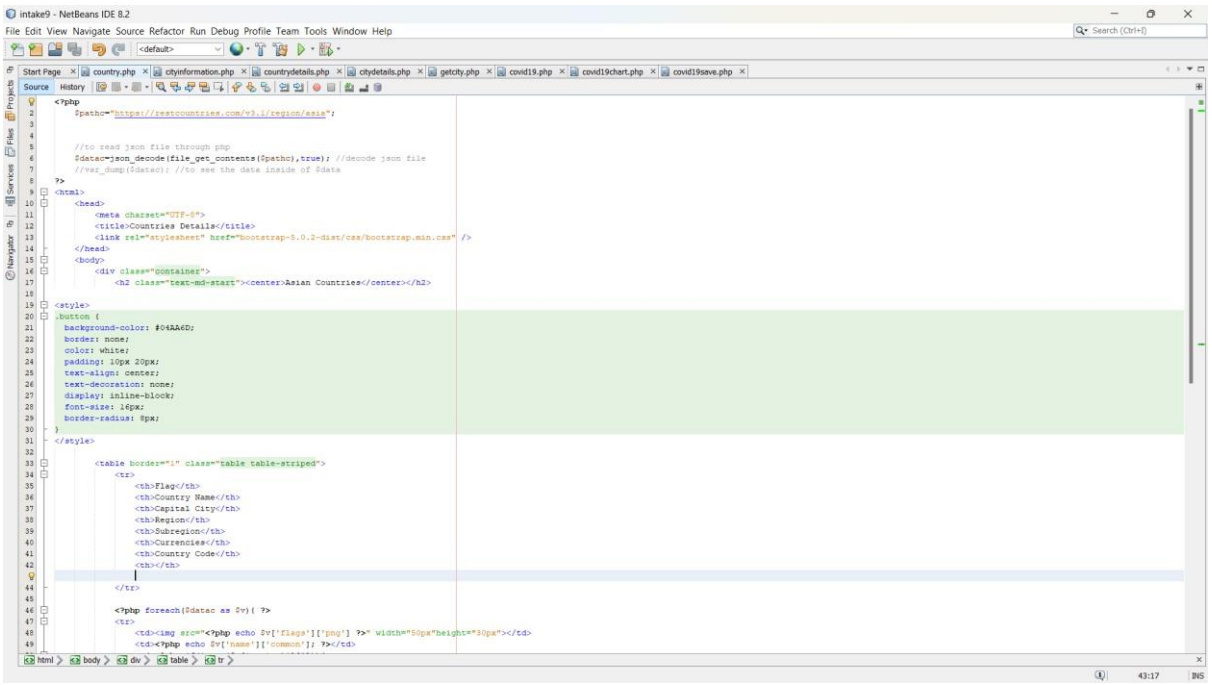


Figure 4country.php(code part-1)

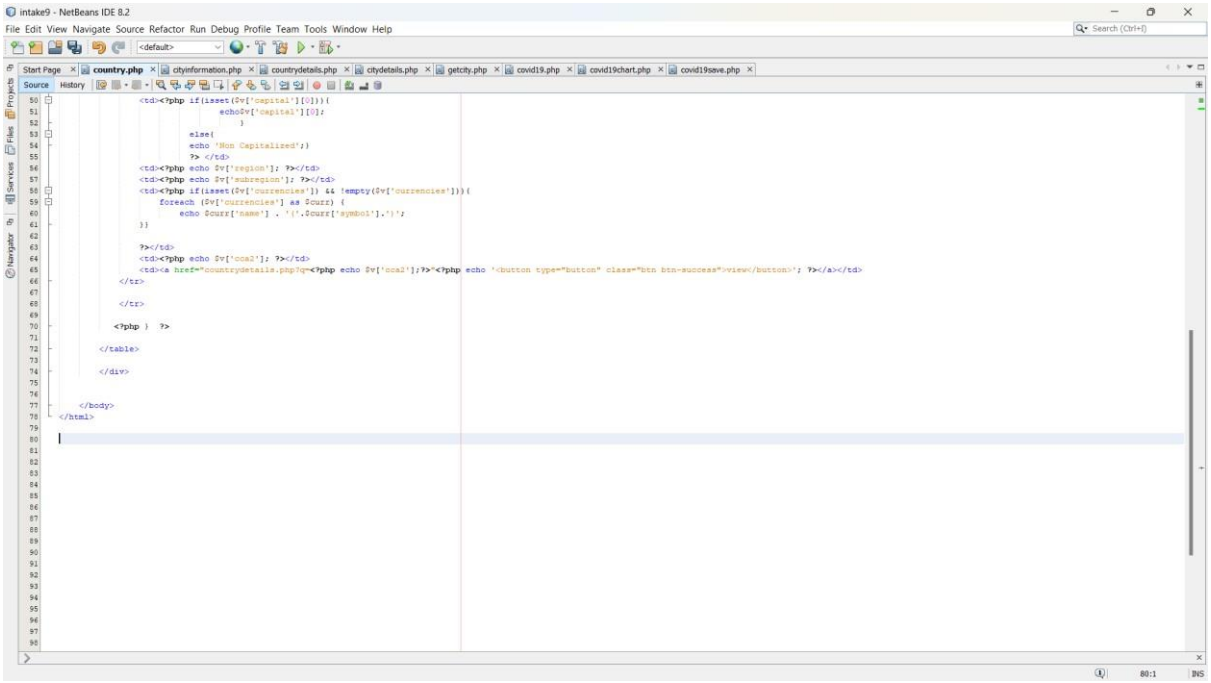


Figure 3country.php(code part-2)

- The script starts by defining the variable $pathc, which holds the URL of a JSON file containing information about Asian countries.
- It then uses the file_get_contents function to retrieve the contents of the JSON file and json_decode to decode the JSON data into a PHP array. The resulting array is stored in the variable $datac.

iii. Country.php full code as a text.

```
<?php
   $pathc="https://restcountries.com/v3.1/region/asia";
   //to read json file through php
   $datac=json_decode(file_get_contents($pathc),true); //decode json file
   //var_dump($datac); //to see the data inside of $data
?>
<html>
   <head>
      <meta charset="UTF-8">
      <title>Countries Details</title>
      <link rel="stylesheet" href="bootstrap-5.0.2-dist/css/bootstrap.min.css" />
   </head>
   <body>
```

```
    <div class="container">
        <h2 class="text-md-start"><center>Asian Countries</center></h2>
<style>
.button {
  background-color: #04AA6D;
border: none;   color: white;
padding: 10px 20px;
  text-align: center;   text-
decoration: none;   display:
inline-block;   font-size: 16px;
border-radius: 8px;
}
</style>

    <table border="1" class="table table-striped">
        <tr>
            <th>Flag</th>
            <th>Country Name</th>
            <th>Capital City</th>
            <th>Region</th>
            <th>Subregion</th>
            <th>Currencies</th>
            <th>Country Code</th>
            <th></th>

        </tr>

        <?php foreach($datac as $v){ ?>
        <tr>
            <td><img src="<?php echo $v['flags']['png'] ?>" width="50px"height="30px"></td>
            <td><?php echo $v['name']['common']; ?></td>
```

```
            <td><?php if(isset($v['capital'][0])){
echo$v['capital'][0];
                            }
else{                       echo 'Non
Capitalized';}
                    ?> </td>
            <td><?php echo $v['region']; ?></td>
            <td><?php echo $v['subregion']; ?></td>
            <td><?php if(isset($v['currencies']) && !empty($v['currencies'])){
foreach ($v['currencies'] as $curr) {                    echo $curr['name'] .
'('.$curr['symbol'].')';
            }}
            ?></td>
            <td><?php echo $v['cca2']; ?></td>
            <td><a href="countrydetails.php?q=<?php echo $v['cca2'];?>"<?php echo '<button
type="button" class="btn btn-success">view</button>'; ?></a></td>
          </tr>
          </tr>
         <?php }  ?>
       </table>
       </div>
    </body>
</html>
```

b) Once you click on the view button, it is going to display selected country information on “countrydetails.php” page. Example as follows.

Figure 5Example output(countrydetails.php)

i. Output of countrydetails.php

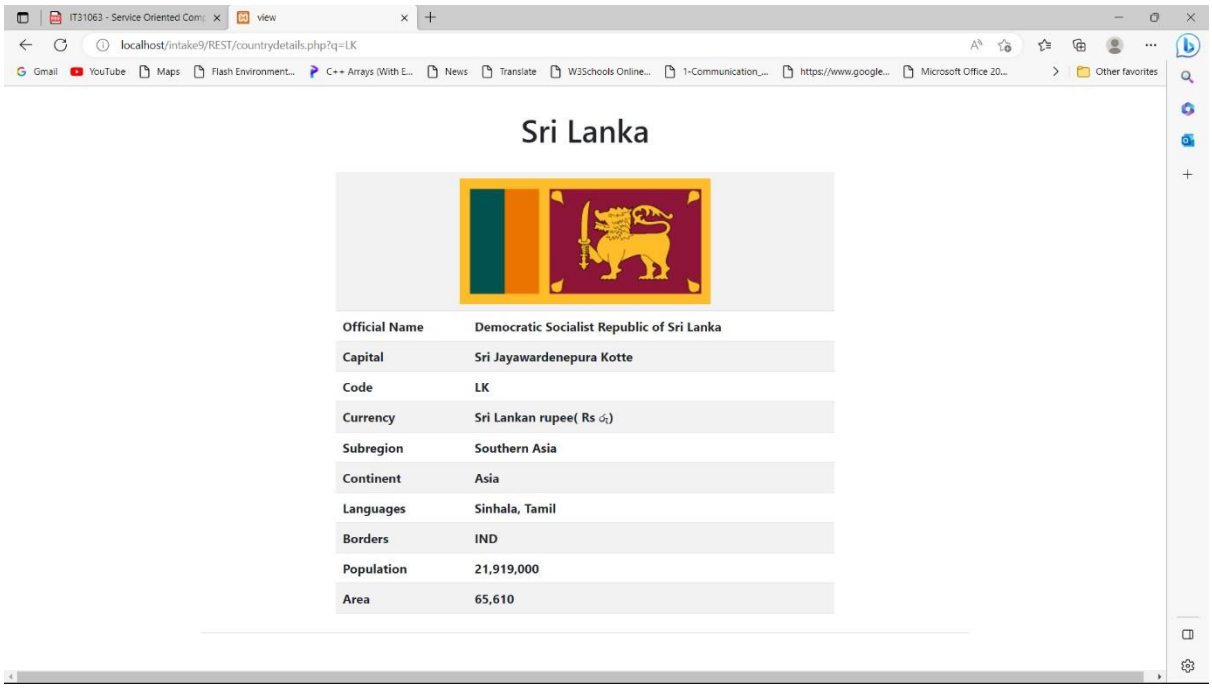


Figure 6 countrydetails.php

ii. Complete Code for countrydetails.php

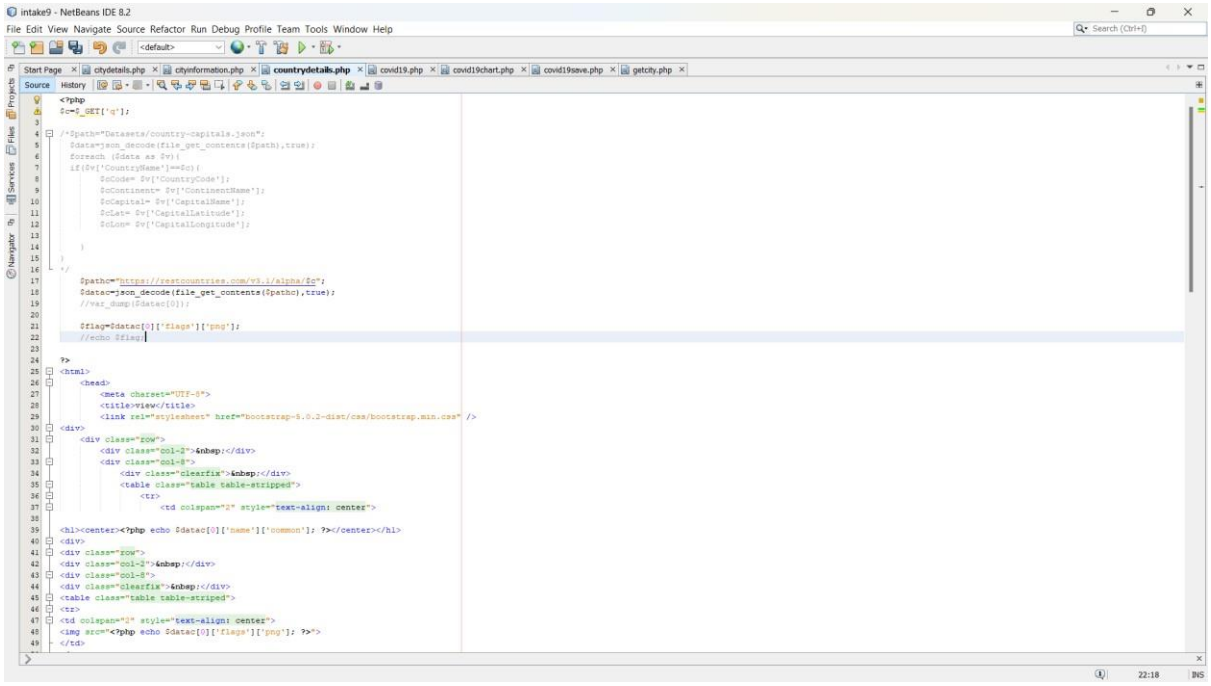


Figure 7countrydetails.php code part-1

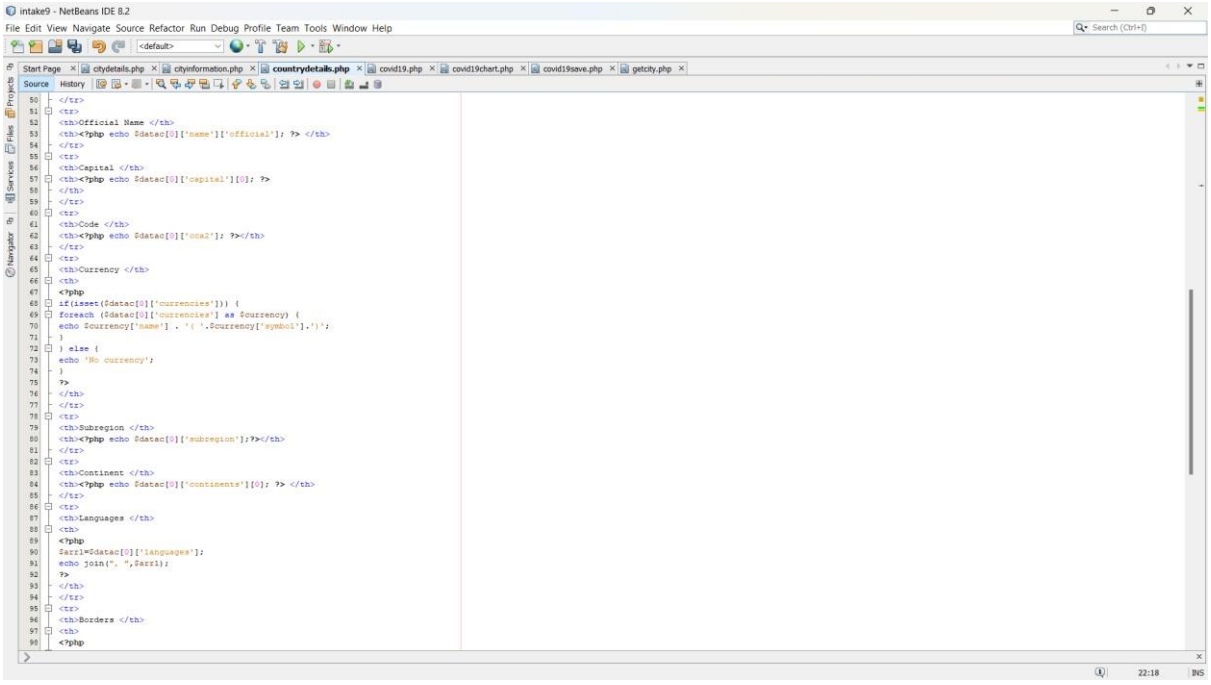


Figure 9countrydetails.php code part-2

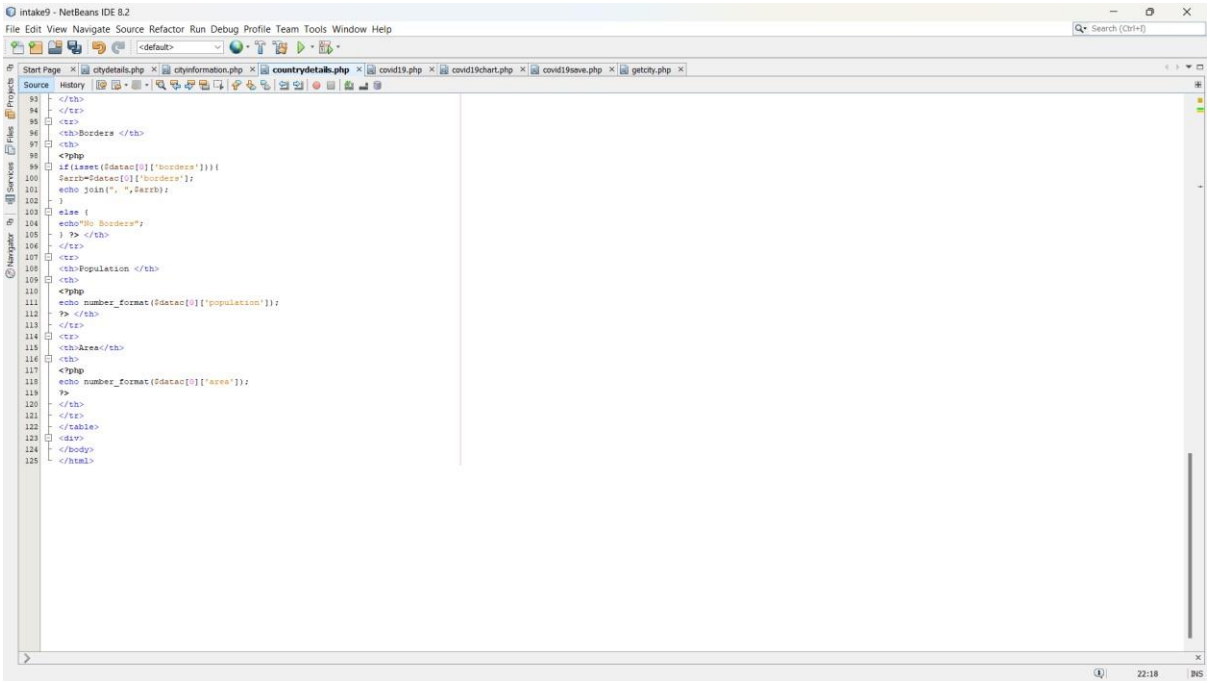


Figure 8countrydetails.php code part-3

- The script retrieves the country code from the query parameter using $_GET['q'] and assigns it to the variable $c.
- The script defines the URL ($pathc) to fetch country data based on the country code using the REST Countries API.
- The population and area values are formatted with the **number_format** function for easiness.

iii. Countrydetails.php complete code as text.

```
<?php
$c=$_GET['q'];


/*$path="Datasets/country-capitals.json";
$data=json_decode(file_get_contents($path),true);
foreach ($data as $v){   if($v['CountryName']==$c){
    $cCode= $v['CountryCode'];
    $cContinent= $v['ContinentName'];
    $cCapital= $v['CapitalName'];
    $cLat= $v['CapitalLatitude'];
    $cLon= $v['CapitalLongitude'];
```

```
    }
}
*/
    $pathc="https://restcountries.com/v3.1/alpha/$c";
    $datac=json_decode(file_get_contents($pathc),true);
    //var_dump($datac[0]);

    $flag=$datac[0]['flags']['png'];
    //echo $flag;

?>
<html>
    <head>
        <meta charset="UTF-8">
        <title>view</title>
        <link rel="stylesheet" href="bootstrap-5.0.2-dist/css/bootstrap.min.css" /> <div>
    <div class="row">
        <div class="col-2"> </div>
        <div class="col-8">
            <div class="clearfix"> </div>
            <table class="table table-stripped">
                <tr>
                    <td colspan="2" style="text-align: center">

<h1><center><?php echo $datac[0]['name']['common']; ?></center></h1>
<div>
<div class="row">
<div class="col-2"> </div>
<div class="col-8">
<div class="clearfix"> </div>
<table class="table table-striped">
<tr>
```

```
<td colspan="2" style="text-align: center">
<img src="<?php echo $datac[0]['flags']['png']; ?>">
</td>
</tr>
<tr>
<th>Official Name </th>
<th><?php echo $datac[0]['name']['official']; ?> </th>
</tr>
<tr>
<th>Capital </th>
<th><?php echo $datac[0]['capital'][0]; ?>
</th>
</tr>
<tr>
<th>Code </th>
<th><?php echo $datac[0]['cca2']; ?></th>
</tr>
<tr>
<th>Currency </th>
<th> <?php
if(isset($datac[0]['currencies'])) { foreach
($datac[0]['currencies'] as $currency) { echo
$currency['name'] . '( '.$currency['symbol'].')';
}
} else {
echo 'No currency';
}
?>
</th>
</tr>
<tr>
<th>Subregion </th>
```

```
<th><?php echo $datac[0]['subregion'];?></th>
</tr>
<tr>
<th>Continent </th>
<th><?php echo $datac[0]['continents'][0]; ?> </th>
</tr>
<tr>
<th>Languages </th>
<th>
<?php
$arrl=$datac[0]['languages']; echo
join(", ",$arrl);

?>
</th>
</tr>
<tr>
<th>Borders </th>
<th> <?php
if(isset($datac[0]['borders'])){
$arrb=$datac[0]['borders']; echo
join(", ",$arrb);
}
else {
echo"No Borders";
} ?> </th>
</tr>
<tr>
<th>Population </th>
<th> <?php echo
number_format($datac[0]['population']);
?> </th>
</tr>
```

```
<tr>
<th>Area</th>
<th> <?php echo
number_format($datac[0]['area']);
?>
</th>
</tr>
</table>
<div>
</body>
</html>
```

2. Use the City and State Search API - City and State Search API API Documentation (devXprite) | RapidAPI and the Google Map API (Use API Keys | Maps JavaScript API | Google Developers).

   URL : https://rapidapi.com/devXprite/api/city-and-state-searchapi/

   URL:https://developers.google.com/maps/documentation/javascript/get-api-key

a) Type city name to search cities (use AJAX) and display information (ID, City Name, State Name, Country Name) as a sample.

Figure 10Example cityinformation.php

i. Output of the cityinformation.php

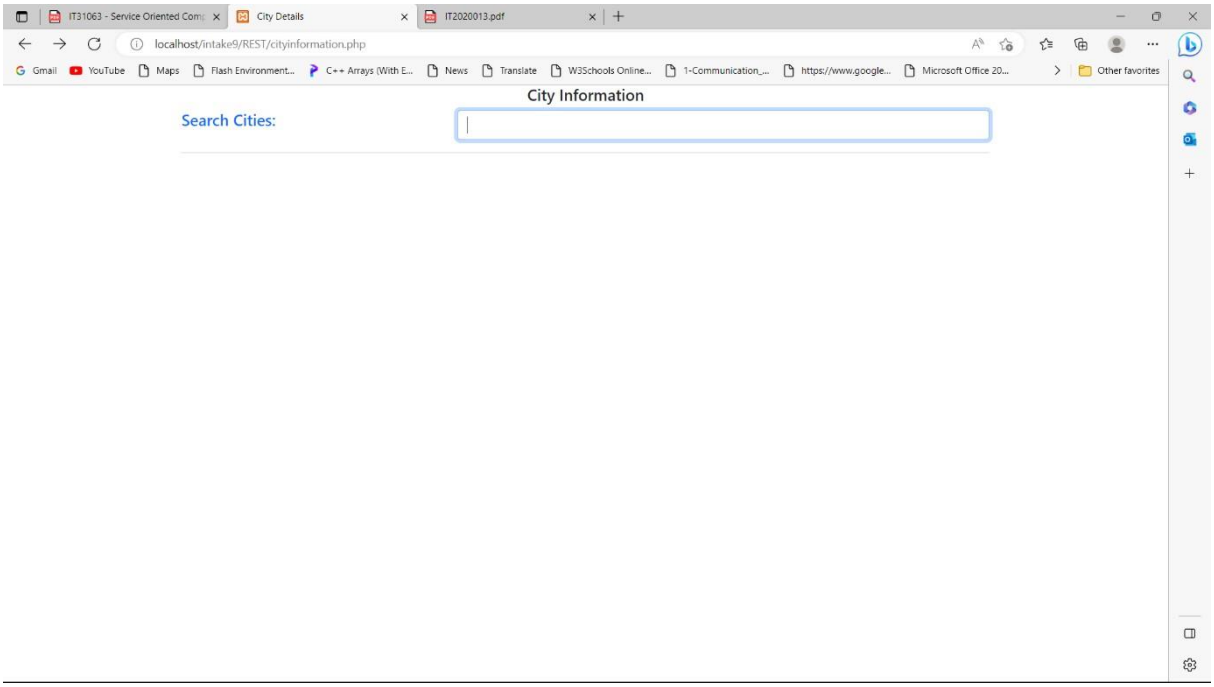


Figure 11Output for cityinformation.php

ii. Complete code for cityinformation.php

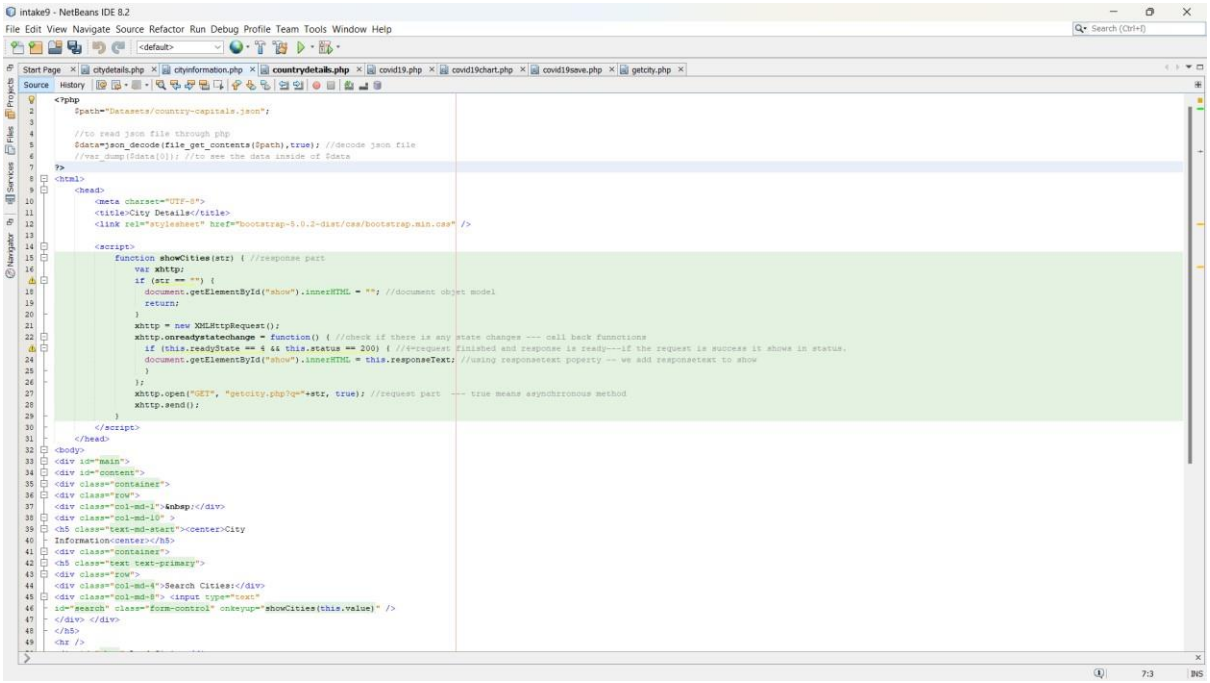


Figure 12Cityinformation.php code part-1

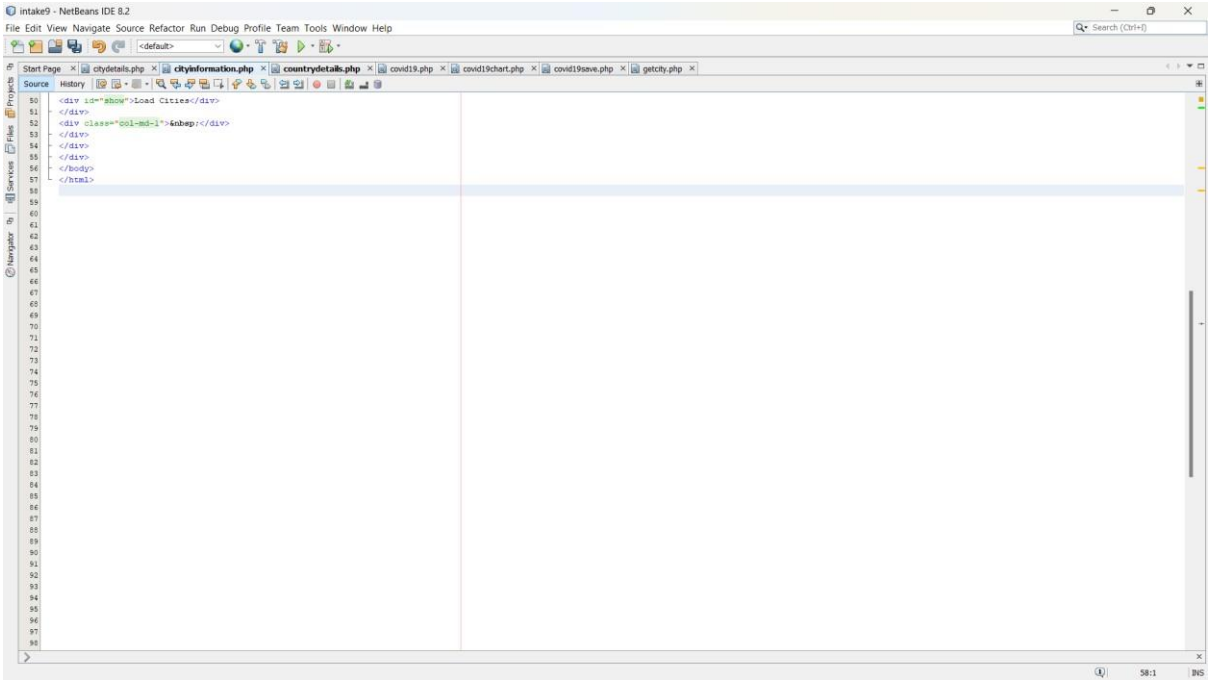


Figure 13cityinformation code part-2

iii. Complete code for cityinformation.php as text.

```
<?php
   $path="Datasets/country-capitals.json";

   //to read json file through php
   $data=json_decode(file_get_contents($path),true); //decode json file
   //var_dump($data[0]); //to see the data inside of $data
?>
<html>
   <head>
      <meta charset="UTF-8">
      <title>City Details</title>
      <link rel="stylesheet" href="bootstrap-5.0.2-dist/css/bootstrap.min.css" />

      <script>
         function showCities(str) { //response part
            var xhttp;
if (str == "") {
              document.getElementById("show").innerHTML = ""; //document objet model
              return;
            }
            xhttp = new XMLHttpRequest();
            xhttp.onreadystatechange = function() { //check if there is any state changes --- call back funnctions
              if (this.readyState == 4 && this.status == 200) { //4=request finished and response is ready--if the request is success it shows in status.
              document.getElementById("show").innerHTML = this.responseText; //using responsetext poperty -- we add responsetext to show
              }
            };
```

```
            xhttp.open("GET", "getcity.php?q="+str, true); //request part  --- true means asynchrronous method
            xhttp.send();
        }
    </script>
  </head>
<body>
<div id="main">
<div id="content">
<div class="container">
<div class="row">
<div class="col-md-1"> </div>
<div class="col-md-10" >
<h5 class="text-md-start"><center>City Information<center></h5>
<div class="container">
<h5 class="text text-primary">
<div class="row">
<div class="col-md-4">Search Cities:</div> <div class="col-md-8">
<input type="text" id="search" class="form-control"
onkeyup="showCities(this.value)" />
</div> </div>
</h5>
<hr />
<div id="show">Load Cities</div>
</div>
<div class="col-md-1"> </div>
</div>
</div>
</div>
</body>
</html>
```

b) getcity.php

i. Output of getcity.php

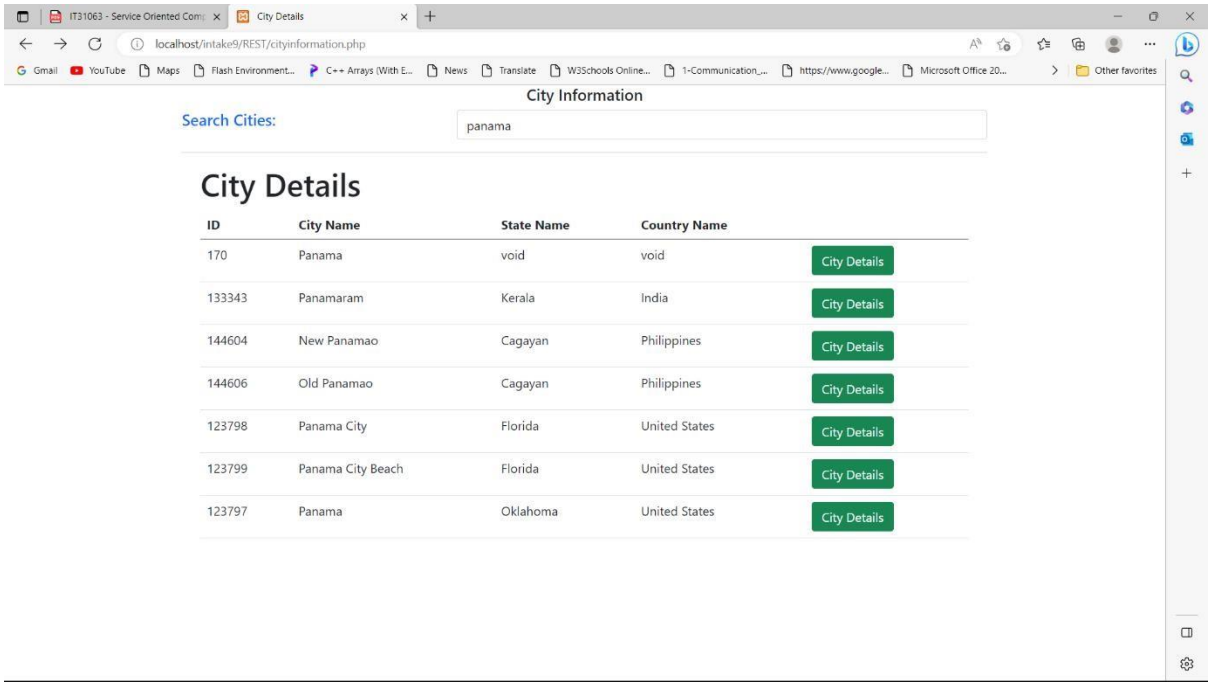


Figure 14output of getcity.php

ii. Complete code of getcity.php

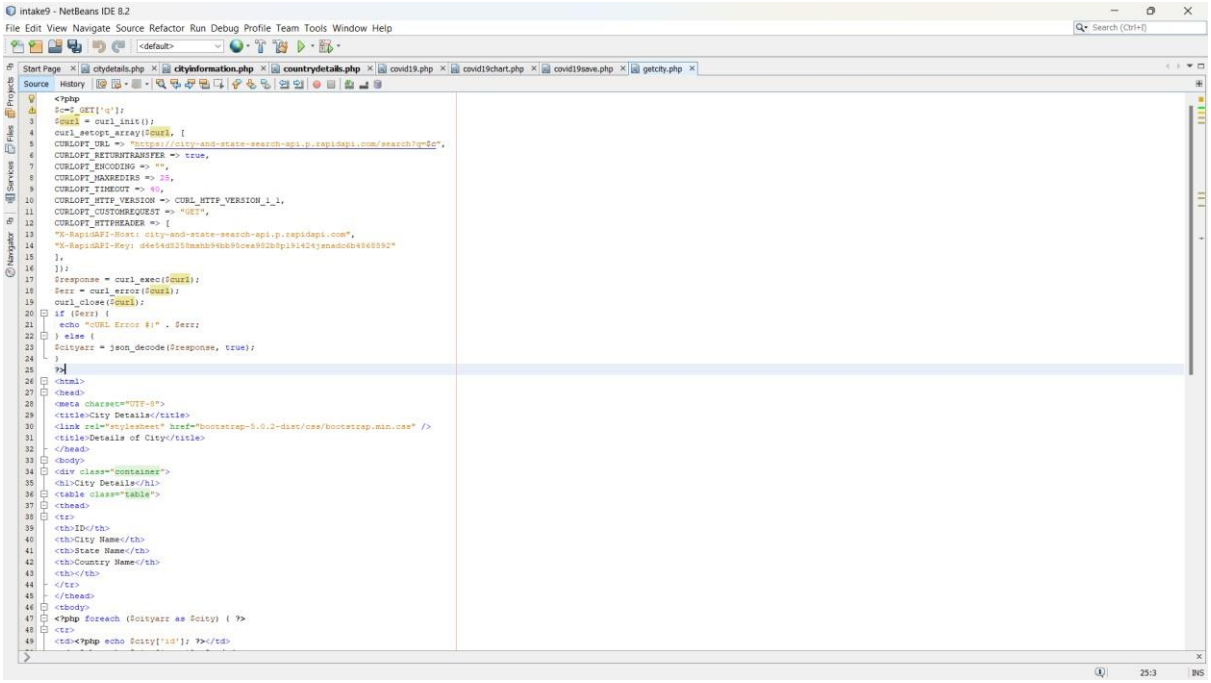


Figure 15 getcity.php code part-1

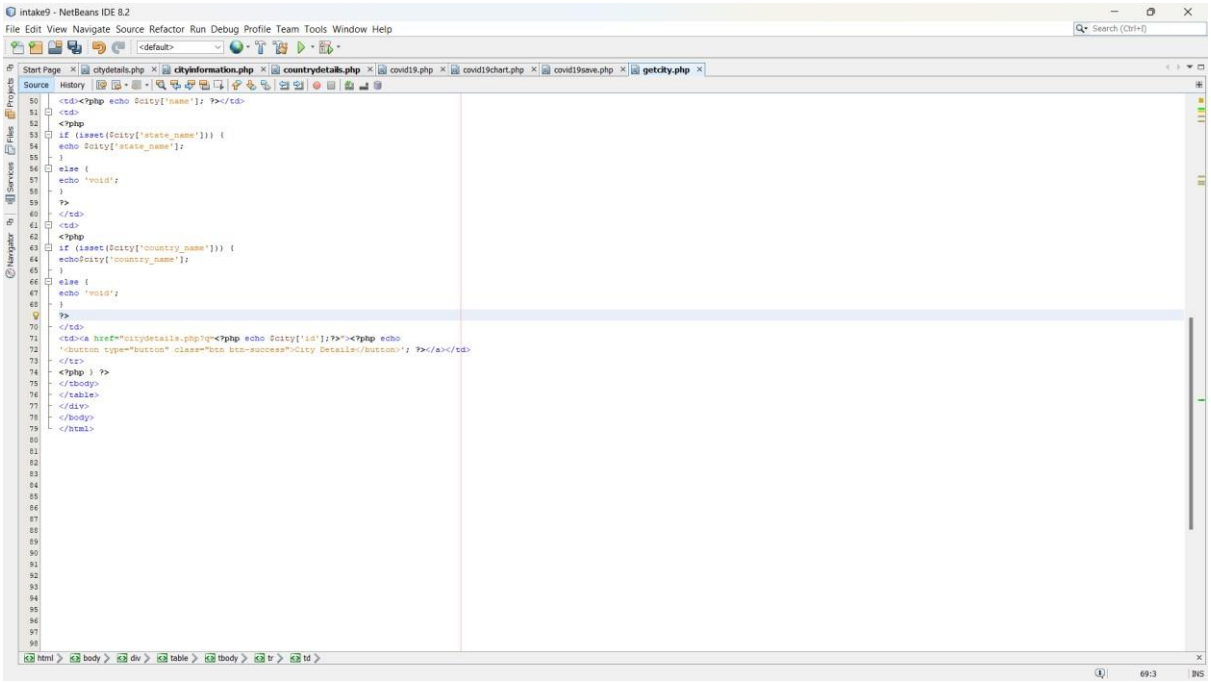


Figure 16 getcity.php code part-2

iii. Complete code of getcity.php as text.

```
<?php
$c=$_GET['q'];
$curl = curl_init(); curl_setopt_array($curl,
[
CURLOPT_URL => "https://city-and-state-search-api.p.rapidapi.com/search?q=$c",
CURLOPT_RETURNTRANSFER => true,
CURLOPT_ENCODING => "",
CURLOPT_MAXREDIRS => 25,
CURLOPT_TIMEOUT => 40,
CURLOPT_HTTP_VERSION => CURL_HTTP_VERSION_1_1,
CURLOPT_CUSTOMREQUEST => "GET",
CURLOPT_HTTPHEADER => [
"X-RapidAPI-Host: city-and-state-search-api.p.rapidapi.com",
"X-RapidAPI-Key: d4e54d8258mshb94bb95cea982b8p191424jsnadc6b4868892"
],
]);
```

```
$response = curl_exec($curl); $err
= curl_error($curl);
curl_close($curl);
if ($err) {  echo "cURL Error
#:" . $err;
} else {
$cityarr = json_decode($response, true);
}
?>
<html>
<head>
<meta charset="UTF-8">
<title>City Details</title>
<link rel="stylesheet" href="bootstrap-5.0.2-dist/css/bootstrap.min.css" />
<title>Details of City</title>
</head>
<body>
<div class="container">
<h1>City Details</h1>
<table class="table">
<thead>
<tr>
<th>ID</th>
<th>City Name</th>
<th>State Name</th>
<th>Country Name</th>
<th></th>
</tr>
</thead>
<tbody>
<?php foreach ($cityarr as $city) { ?>
<tr>
```

```
<td><?php echo $city['id']; ?></td>
<td><?php echo $city['name']; ?></td>
<td> <?php
if (isset($city['state_name'])) { echo
$city['state_name'];
}
else { echo
'void';
}
?>
</td>
<td>
<?php
if (isset($city['country_name'])) { echo$city['country_name'];
}
else { echo
'void';
}
?>
</td>
<td><a href="citydetails.php?q=<?php echo $city['id'];?>"><?php echo
'<button type="button" class="btn btn-success">City Details</button>'; ?></a></td>
</tr>
<?php } ?>
</tbody>
</table> </div>
</body>
</html>
```

Explanation for cityinformation.php code • The script includes JavaScript code that defines the showCities function.

- The showCities function is triggered when the user enters input in the search field (<input>). It checks if the input is empty and if not, it creates an XMLHttpRequest object.
- The onreadystatechange event handler is set for the XMLHttpRequest object to handle the response from the server.

Explanation for getcity.php and citydetails.php codes

- The script initializes a cURL request using curl_init() and sets various cURL options using curl_setopt_array() [1].
- The cURL options include the URL of the RapidAPI endpoint with the user-provided query ("https://city-and-state-search-api.p.rapidapi.com/search?q=$c"), enabling the return of the response as a string (CURLOPT_RETURNTRANSFER => true), and setting necessary headers including the RapidAPI host and key

c) Citydetails.php

i. Output of Citydetails.php

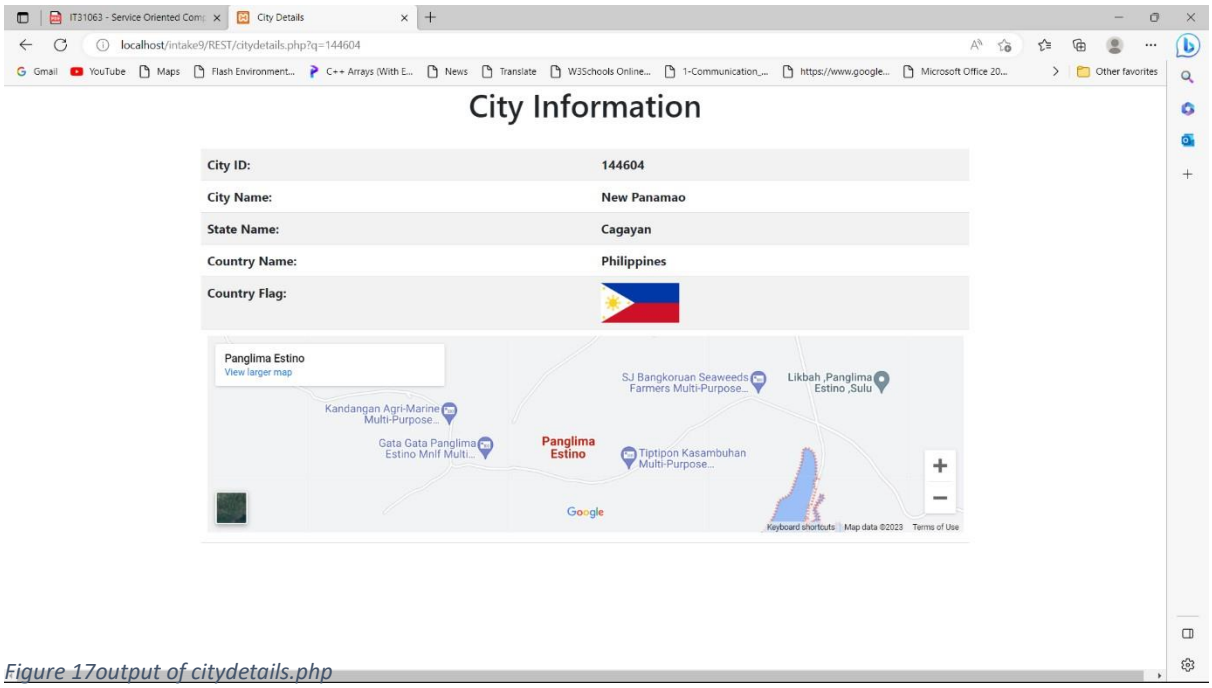


Figure 17output of citydetails.php

i. Complete code of citydetails.php

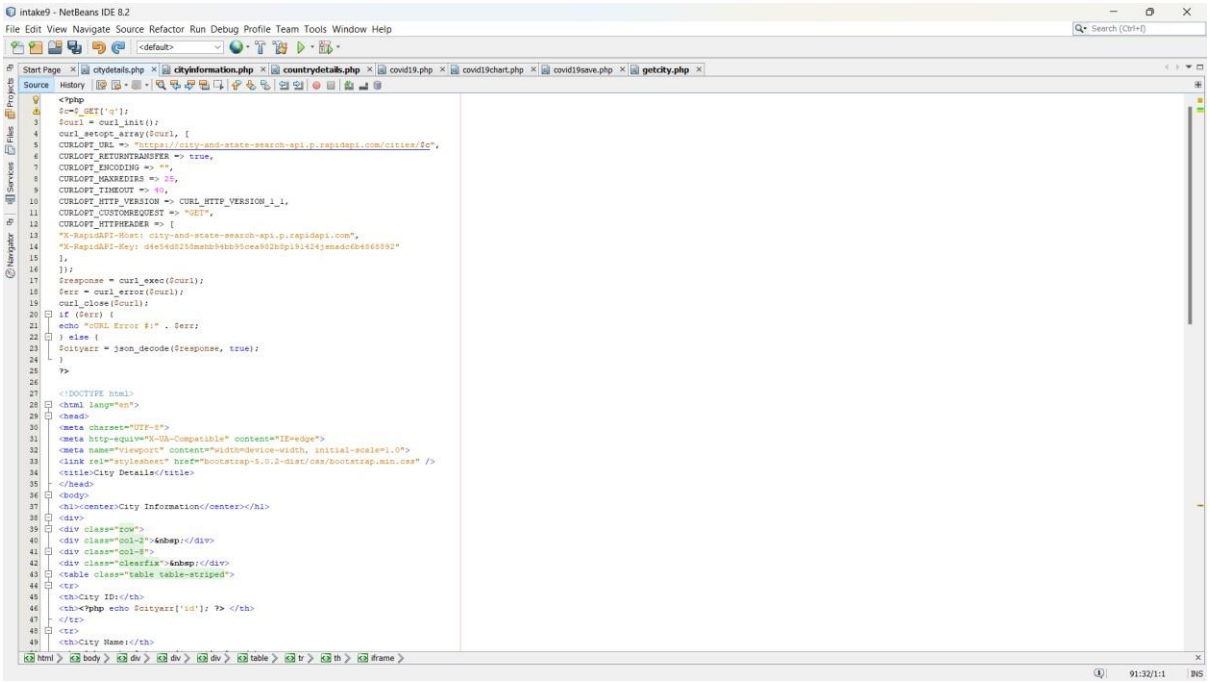


Figure 18citydetails.php code part-1

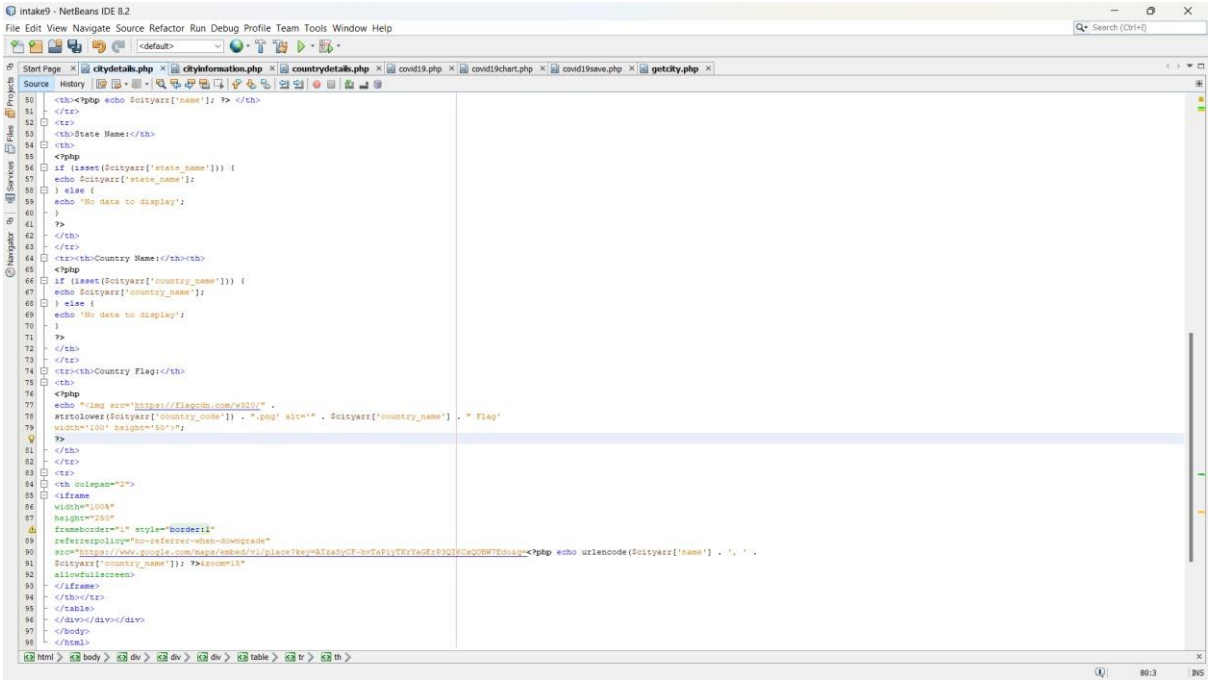


Figure 19citydetails.php code part-2

iii. Complete code of Citydetails.php as text.

<?php

```
$c=$_GET['q'];
$curl = curl_init(); curl_setopt_array($curl,
[
CURLOPT_URL => "https://city-and-state-search-api.p.rapidapi.com/cities/$c",
CURLOPT_RETURNTRANSFER => true,
CURLOPT_ENCODING => "",
CURLOPT_MAXREDIRS => 25,
CURLOPT_TIMEOUT => 40,
CURLOPT_HTTP_VERSION => CURL_HTTP_VERSION_1_1,
CURLOPT_CUSTOMREQUEST => "GET",
CURLOPT_HTTPHEADER => [
"X-RapidAPI-Host: city-and-state-search-api.p.rapidapi.com",
"X-RapidAPI-Key: d4e54d8258mshb94bb95cea982b8p191424jsnadc6b4868892"
],
]);
$response = curl_exec($curl);
$err = curl_error($curl);
curl_close($curl); if ($err) {
echo "cURL Error #:" . $err;
} else {
$cityarr = json_decode($response, true);
}
?>

<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta http-equiv="X-UA-Compatible" content="IE=edge">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<link rel="stylesheet" href="bootstrap-5.0.2-dist/css/bootstrap.min.css" />
<title>City Details</title>
```

```
</head>
<body>
<h1><center>City Information</center></h1>
<div>
<div class="row">
<div class="col-2"> </div>
<div class="col-8">
<div class="clearfix"> </div>
<table class="table table-striped">
<tr>
<th>City ID:</th>
<th><?php echo $cityarr['id']; ?> </th>
</tr>
<tr>
<th>City Name:</th>
<th><?php echo $cityarr['name']; ?> </th>
</tr>
<tr>
<th>State Name:</th>
<th> <?php
if (isset($cityarr['state_name'])) { echo
$cityarr['state_name'];
} else {
echo 'No data to display';
}
?>
</th>
</tr>
<tr><th>Country Name:</th><th>
<?php
if (isset($cityarr['country_name'])) { echo
$cityarr['country_name'];
```

```
} else {
echo 'No data to display';
}
?>
</th>
</tr>
<tr><th>Country Flag:</th>
<th> <?php echo "<img
src='https://flagcdn.com/w320/" .
strtolower($cityarr['country_code']) . ".png'
alt='" . $cityarr['country_name'] . " Flag'
width='100' height='50'>";
?>
</th>
</tr>
<tr>
<th colspan="2"> <iframe width="100%"
height="250" frameborder="1"
style="border:1" referrerpolicy="no-referrer-
when-downgrade"
src="https://www.google.com/maps/embed/v1/place?key=AIzaSyCFhvTaPiyTKrYaGErP3QI6CxQOBW
7Edo&q=<?php echo urlencode($cityarr['name'] . ', ' .
$cityarr['country_name']); ?>&zoom=15"
allowfullscreen> </iframe>
</th></tr>
</table>
</div></div></div>
</body>
</html>
```

1. Use COVID-19 API Documentation : COVID-19 API Documentation (api-sports) | RapidAPI
   URL: https://rapidapi.com/api-sports/api/covid-193/

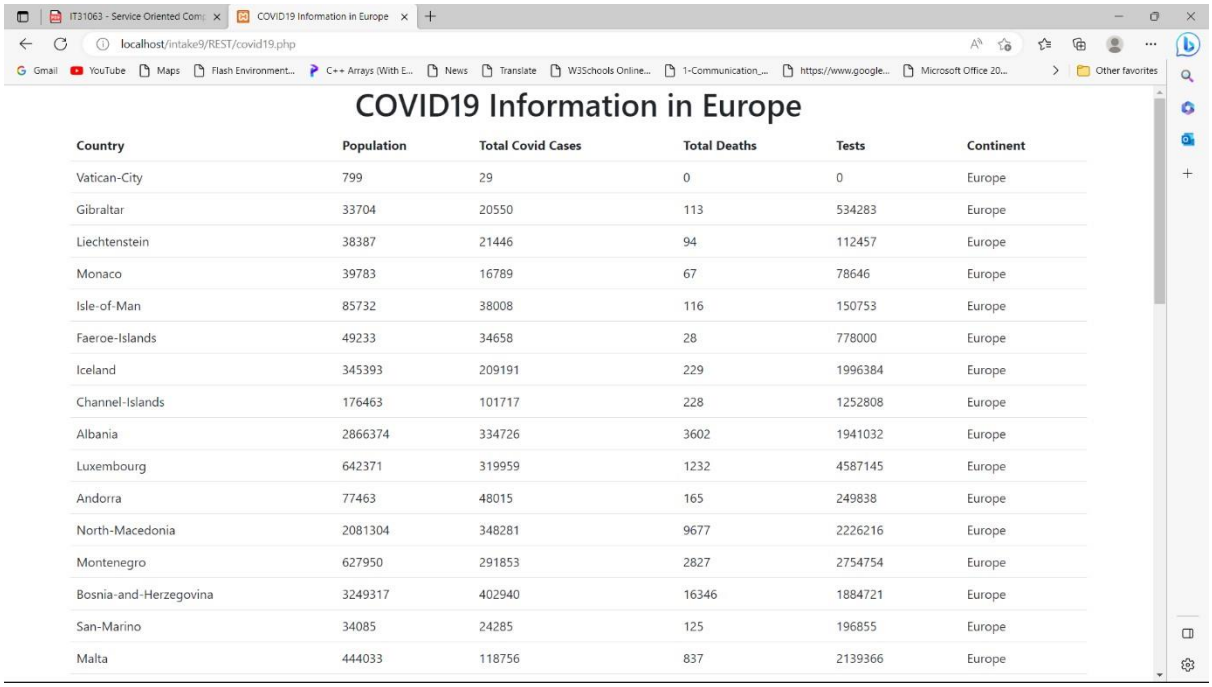
a) Display European countries COVID-19 information (Country, Population, Total Covid Cases, Total Deaths, Tests, Continent) on "covid19.php" page. Example as follows.

COVID19 Information in Europe

Country	Population	Total Covid Cases	Total Deaths	Tests	Continent
Vatican-City	799	29	0	0	Europe
Isle-of-Man	85,732	38,008	116	150,753	Europe
Faeroe-Islands	49,233	34,658	28	778,000	Europe
Liechtenstein	38,387	21,437	91	112,457	Europe
Gibraltar	33,704	20,550	113	534,283	Europe
Monaco	39,783	16,178	67	78,646	Europe
San-Marino	34,085	23,961	123	196,855	Europe
Andorra	77,463	47,945	165	249,838	Europe
Belarus	9,432,800	994,037	7,118	13,646,641	Europe
Luxembourg	642,371	297,757	1,133	4,412,567	Europe
Iceland	345,393	209,191	229	1,996,384	Europe
Channel-Islands	176,463	101,717	228	1,252,808	Europe
Moldova	4,013,171	619,510	12,100	3,216,305	Europe

Figure 20 Example for covid19.php

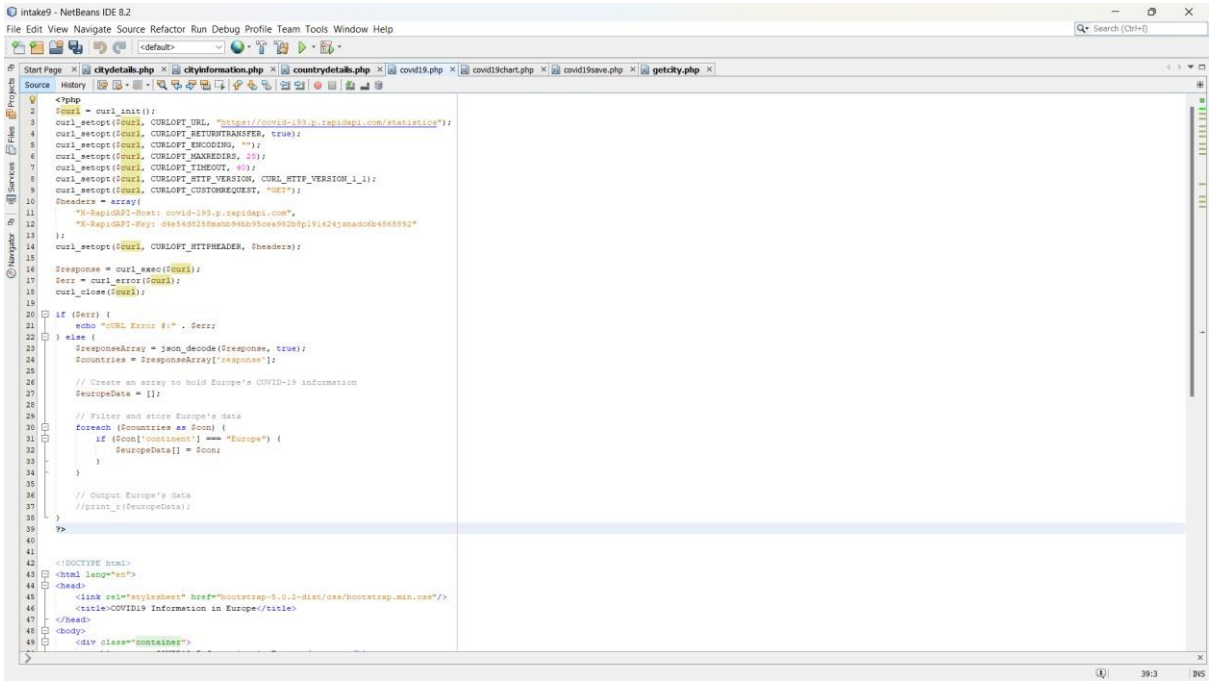
i. Output of covid19.php



COVID19 Information in Europe

Country	Population	Total Covid Cases	Total Deaths	Tests	Continent
Vatican-City	799	29	0	0	Europe
Gibraltar	33704	20550	113	534283	Europe
Liechtenstein	38387	21446	94	112457	Europe
Monaco	39783	16789	67	78646	Europe
Isle-of-Man	85732	38008	116	150753	Europe
Faeroe-Islands	49233	34658	28	778000	Europe
Iceland	345393	209191	229	1996384	Europe
Channel-Islands	176463	101717	228	1252808	Europe
Albania	2866374	334726	3602	1941032	Europe
Luxembourg	642371	319959	1232	4587145	Europe
Andorra	77463	48015	165	249838	Europe
North-Macedonia	2081304	348281	9677	2226216	Europe
Montenegro	627950	291853	2827	2754754	Europe
Bosnia-and-Herzegovina	3249317	402940	16346	1884721	Europe
San-Marino	34085	24285	125	196855	Europe
Malta	444033	118756	837	2139366	Europe

ii. Complete code of covid19.php



```
<?php
$curl = curl_init();
curl_setopt($curl, CURLOPT_URL, "https://covid-193.p.rapidapi.com/statistics");
curl_setopt($curl, CURLOPT_RETURNTRANSFER, true);
curl_setopt($curl, CURLOPT_ENCODING, "");
curl_setopt($curl, CURLOPT_MAXREDIRS, 25);
curl_setopt($curl, CURLOPT_TIMEOUT, 40);
curl_setopt($curl, CURLOPT_HTTP_VERSION, CURL_HTTP_VERSION_1_1);
curl_setopt($curl, CURLOPT_CUSTOMREQUEST, "GET");
$headers = array(
    "X-RapidAPI-Host: covid-193.p.rapidapi.com",
    "X-RapidAPI-Key: d4e54d8258ma4b94bb95cea982b8p191424jsnadc0b4868892"
);
curl_setopt($curl, CURLOPT_HTTPHEADER, $headers);

$response = curl_exec($curl);
$err = curl_error($curl);
curl_close($curl);

if ($err) {
    echo "cURL Error #:" . $err;
} else {
    $responseArray = json_decode($response, true);
    $countries = $responseArray['response'];

    // Create an array to hold Europe's COVID-19 information
    $europeData = [];

    // Filter and store Europe's data
    foreach ($countries as $con) {
        if ($con['continent'] == "Europe") {
            $europeData[] = $con;
        }
    }

    // Output Europe's data
    //print_r($europeData);
}
?>


<!DOCTYPE html>
<html lang="en">
<head>
    <link rel="stylesheet" href="bootstrap-5.0.2-dist/css/bootstrap.min.css"/>
    <title>COVID19 Information in Europe</title>
</head>
<body>
    <div class="container">
```

Figure 21covid19.php code part-1

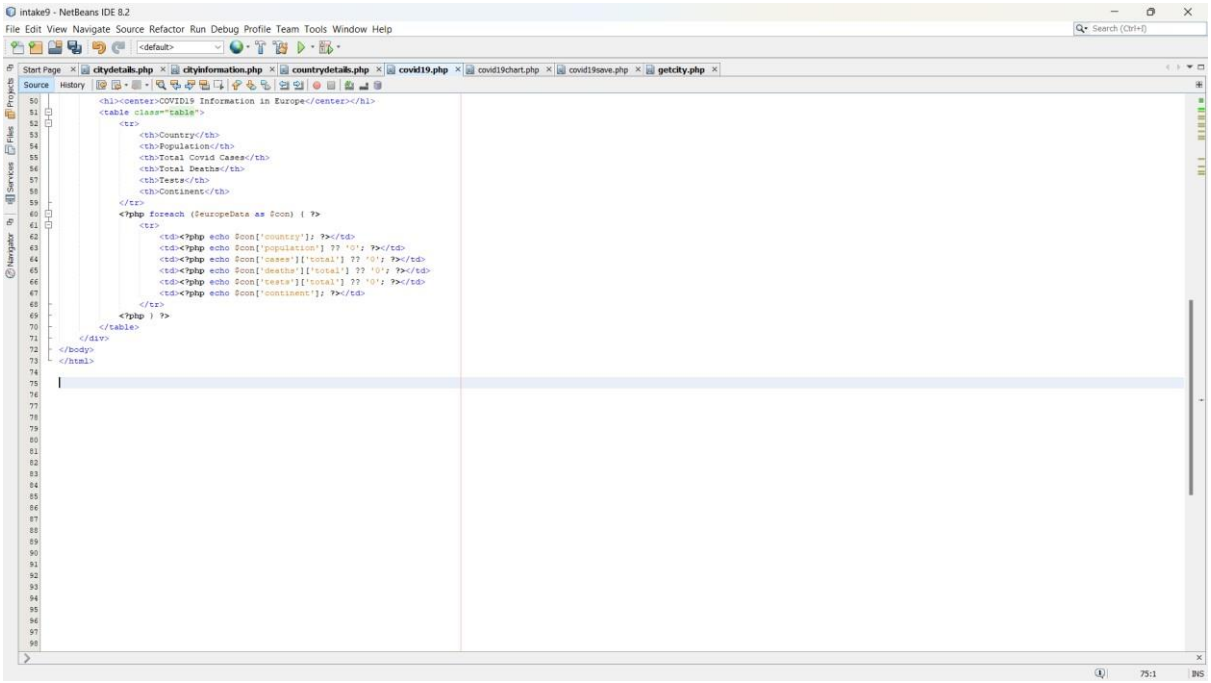


Figure 22covid19.php code part-2

iii. Complete code of covid19.php as a text.

```
<?php
$curl = curl_init();
curl_setopt($curl, CURLOPT_URL, "https://covid-193.p.rapidapi.com/statistics");
curl_setopt($curl, CURLOPT_RETURNTRANSFER, true); curl_setopt($curl,
CURLOPT_ENCODING, ""); curl_setopt($curl, CURLOPT_MAXREDIRS, 25);
curl_setopt($curl, CURLOPT_TIMEOUT, 40); curl_setopt($curl,
CURLOPT_HTTP_VERSION, CURL_HTTP_VERSION_1_1); curl_setopt($curl,
CURLOPT_CUSTOMREQUEST, "GET");
$headers = array(
   "X-RapidAPI-Host: covid-193.p.rapidapi.com",
   "X-RapidAPI-Key: d4e54d8258mshb94bb95cea982b8p191424jsnadc6b4868892"
);
curl_setopt($curl, CURLOPT_HTTPHEADER, $headers);
```

```
$response = curl_exec($curl); $err
= curl_error($curl);
curl_close($curl);

if ($err) {
   echo "cURL Error #:" . $err;
} else {
   $responseArray = json_decode($response, true);
   $countries = $responseArray['response'];

   // Create an array to hold Europe's COVID-19 information
   $europeData = [];

   // Filter and store Europe's data
foreach ($countries as $con) {        if
($con['continent'] === "Europe") {
          $europeData[] = $con;
      }
   }

   // Output Europe's data
   //print_r($europeData);
}
?>



<!DOCTYPE html>
<html lang="en">
<head>
   <link rel="stylesheet" href="bootstrap-5.0.2-dist/css/bootstrap.min.css"/>
   <title>COVID19 Information in Europe</title>
```

```
</head>
<body>
  <div class="container">
    <h1><center>COVID19 Information in Europe</center></h1>
    <table class="table">
      <tr>
        <th>Country</th>
        <th>Population</th>
        <th>Total Covid Cases</th>
        <th>Total Deaths</th>
        <th>Tests</th>
        <th>Continent</th>
      </tr>
      <?php foreach ($europeData as $con) { ?>
        <tr>
          <td><?php echo $con['country']; ?></td>
          <td><?php echo $con['population'] ?? '0'; ?></td>
          <td><?php echo $con['cases']['total'] ?? '0'; ?></td>
          <td><?php echo $con['deaths']['total'] ?? '0'; ?></td>
          <td><?php echo $con['tests']['total'] ?? '0'; ?></td>
          <td><?php echo $con['continent']; ?></td>
        </tr>
      <?php } ?>
    </table>
  </div>
</body>
</html>
```

b) Use Google Charts: Charts | Google Developers URL: https://developers.google.com/chart Display European COVID cases vs. countries in the bar chart on the “covid19chart.php” page. Example as follows.

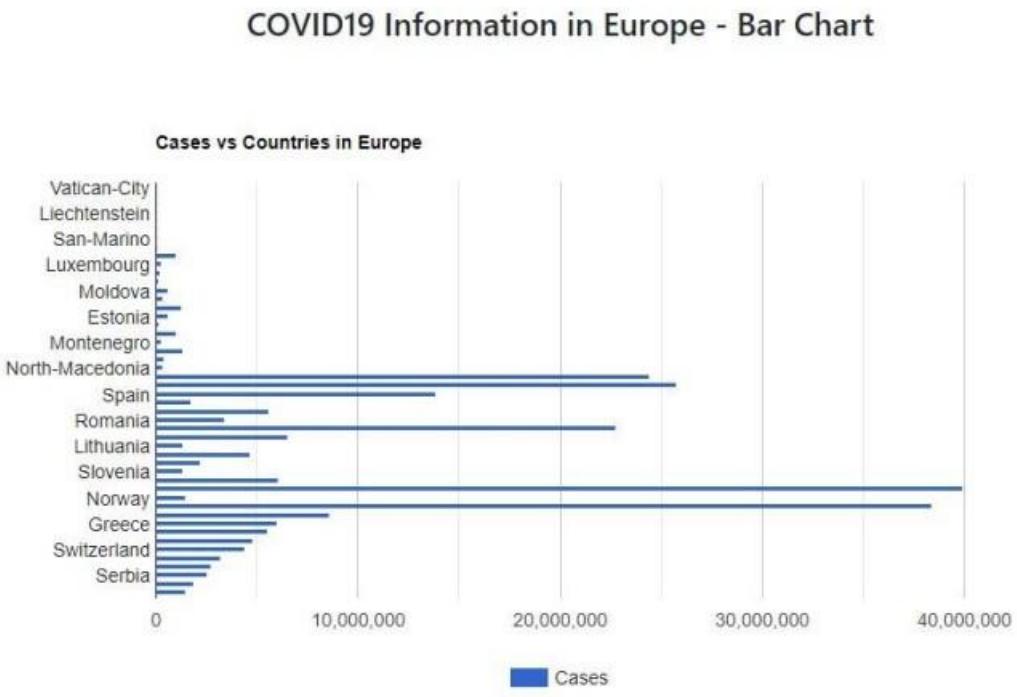


Figure 23Example of covid19chart.php

i. Output of Covid19chart.php

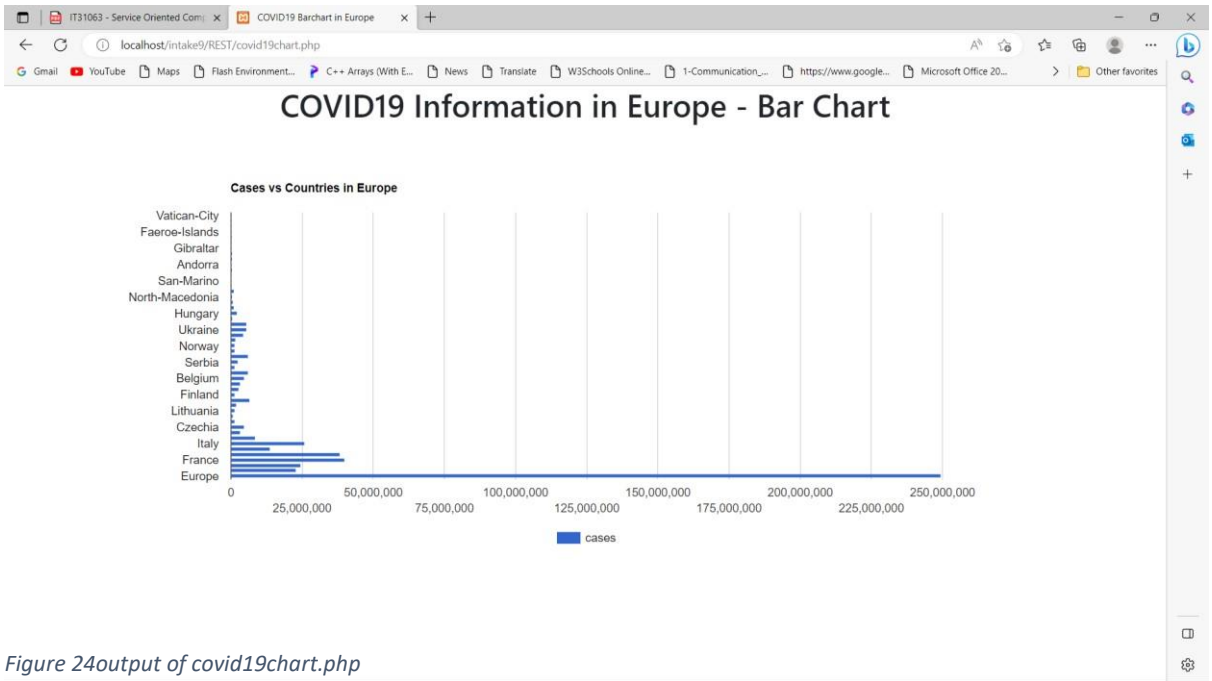


Figure 24output of covid19chart.php

ii. Complete code of covid19chart.php

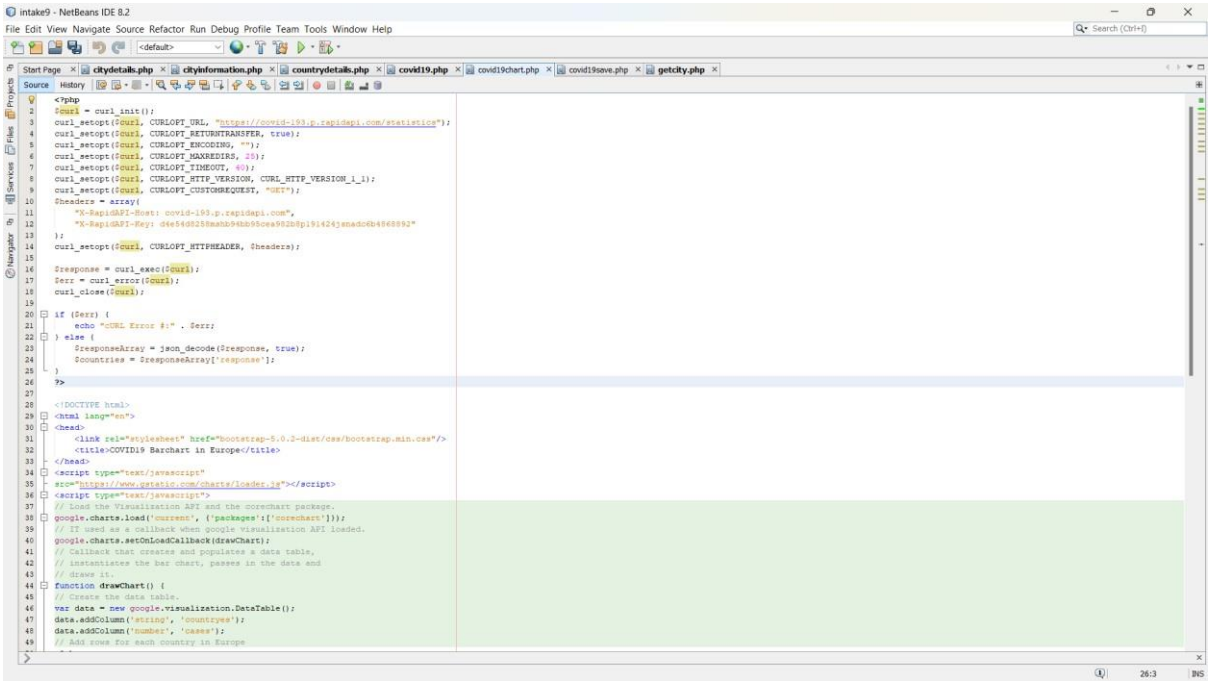


Figure 25 covid19chart code part-1

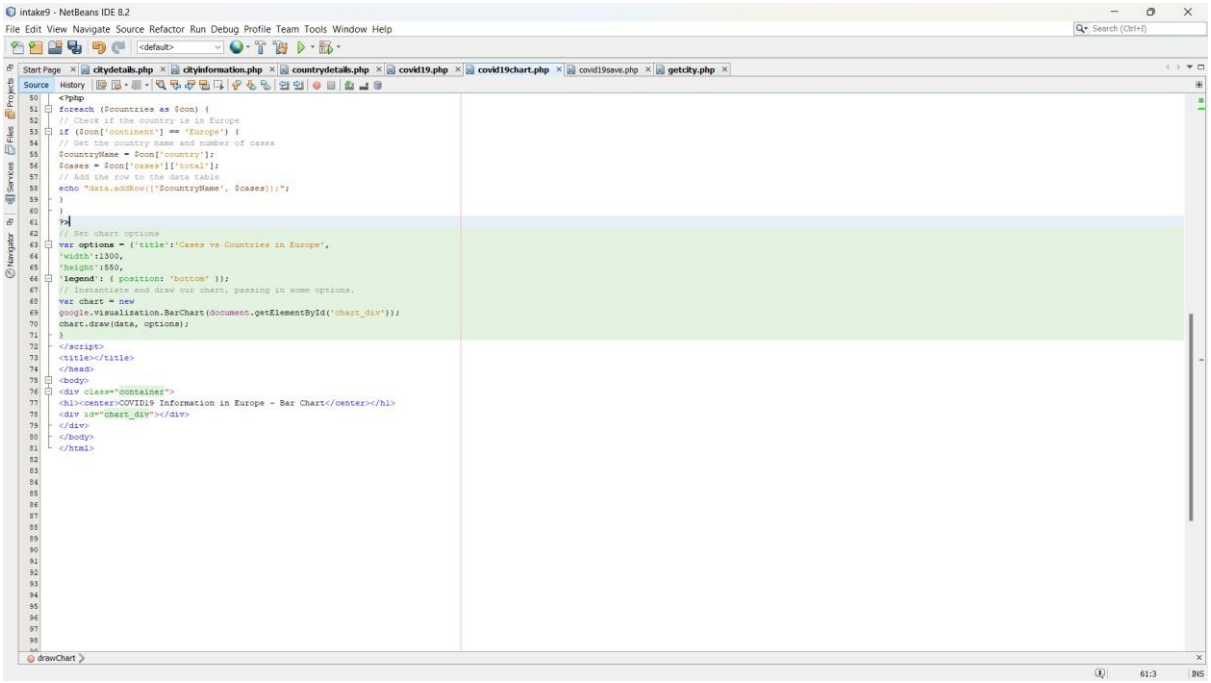


Figure 26covid19chart code part-2

iii. Complete code of covid19chart.php as text.

```
<?php
$curl = curl_init(); curl_setopt($curl, CURLOPT_URL, "https://covid-
193.p.rapidapi.com/statistics"); curl_setopt($curl, CURLOPT_RETURNTRANSFER,
true); curl_setopt($curl, CURLOPT_ENCODING, ""); curl_setopt($curl,
CURLOPT_MAXREDIRS, 25); curl_setopt($curl, CURLOPT_TIMEOUT, 40);
curl_setopt($curl, CURLOPT_HTTP_VERSION, CURL_HTTP_VERSION_1_1);
curl_setopt($curl, CURLOPT_CUSTOMREQUEST, "GET");
$headers = array(
   "X-RapidAPI-Host: covid-193.p.rapidapi.com",
   "X-RapidAPI-Key: d4e54d8258mshb94bb95cea982b8p191424jsnadc6b4868892"
);
curl_setopt($curl, CURLOPT_HTTPHEADER, $headers);

$response = curl_exec($curl); $err
= curl_error($curl);
curl_close($curl);

if ($err) {     echo "cURL Error
#:" . $err;
} else {
   $responseArray = json_decode($response, true);
   $countries = $responseArray['response'];
}
?>

<!DOCTYPE html>
<html lang="en">
<head>
   <link rel="stylesheet" href="bootstrap-5.0.2-dist/css/bootstrap.min.css"/>
   <title>COVID19 Barchart in Europe</title>
</head>
<script type="text/javascript" src="https://www.gstatic.com/charts/loader.js"></script>
```

```
<script type="text/javascript">
// Load the Visualization API and the corechart package.
google.charts.load('current', {'packages':['corechart']}); // IT
used as a callback when google visualization API loaded.
google.charts.setOnLoadCallback(drawChart);
// Callback that creates and populates a data table, //
instantiates the bar chart, passes in the data and
// draws it.
function drawChart() { // Create the data table.
var data = new google.visualization.DataTable();
data.addColumn('string', 'countryes');
data.addColumn('number', 'cases');
// Add rows for each country in Europe
<?php foreach ($countries as
$con) { // Check if the country is in
Europe if ($con['continent'] ==
'Europe') {
// Get the country name and number of cases
$countryName = $con['country'];
$cases = $con['cases']['total']; // Add the row to
the data table echo
"data.addRow(['$countryName', $cases]);";
}
}
?>
// Set chart options var options = {'title':'Cases vs
Countries in Europe',
'width':1300,
'height':550,
'legend': { position: 'bottom' }};
// Instantiate and draw our chart, passing in some options. var chart =
new
```

```
google.visualization.BarChart(document.getElementById('chart_div'));
chart.draw(data, options);
}
</script>
<title></title>
</head>
<body>
<div class="container">
<h1><center>COVID19 Information in Europe - Bar Chart</center></h1>
<div id="chart_div"></div>
</div>
</body>
</html>
```

c) Write a code to save COVID-19 global information into a database using PHP and MySQL on the covid19save.php page Database: covid2023 Table: covidcases Fields: id, countryName, population, totalcases, deaths, tests, continent, date.

i. Database: Covid2023 & Table: covidcases.

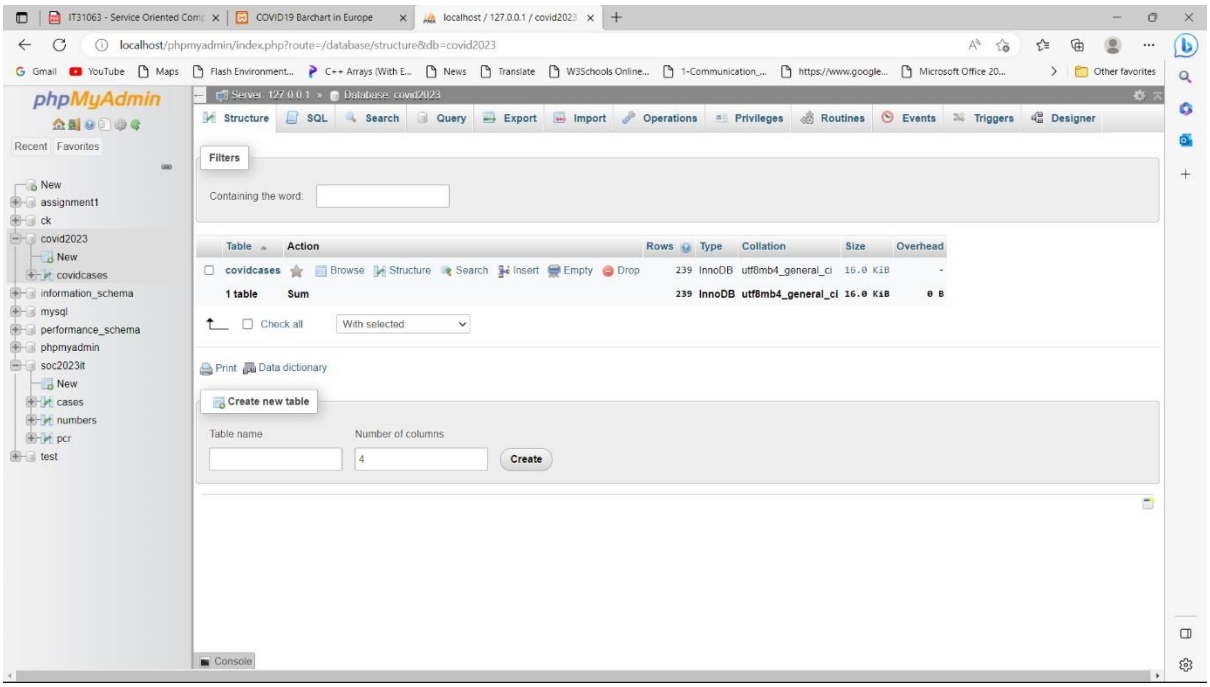


Figure 27database; covid2023 and the table; covidcases

ii. Complete code of Covid19save.php

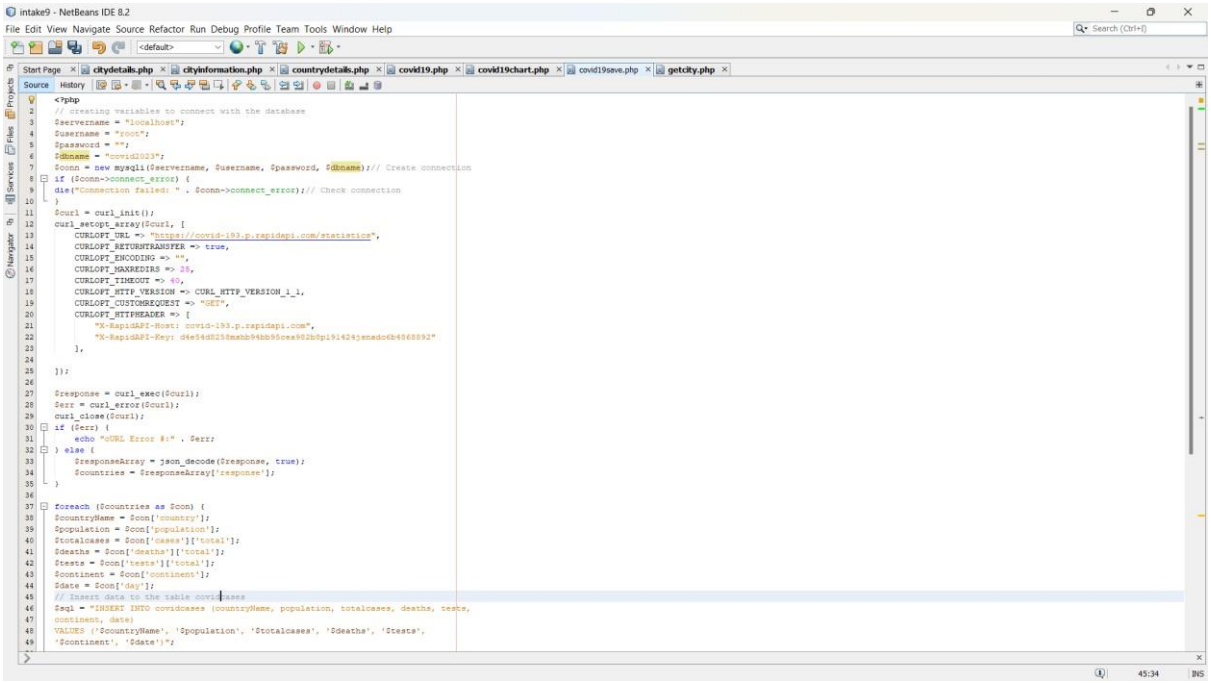


Figure 28covid19save.php code part-1

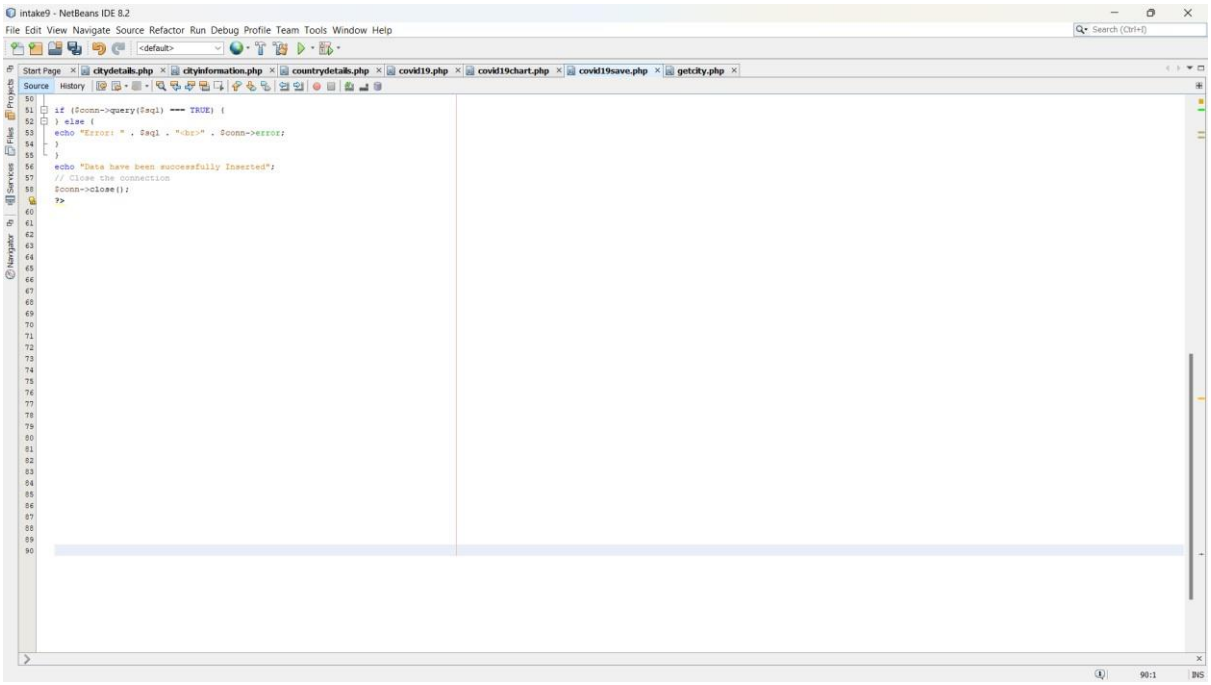


Figure 29covid19save.php code part-2

iii. Complete code of Covid19save.php as text.

```
<?php

// creating variables to connect with the database

$servername = "localhost";
```

```
$username = "root";
$password = "";
$dbname = "covid2023";
$conn = new mysqli($servername, $username, $password, $dbname);// Create connection
if ($conn->connect_error) { die("Connection failed: " . $conn->connect_error);// Check
connection
}
$curl = curl_init(); curl_setopt_array($curl,
[
   CURLOPT_URL => "https://covid-193.p.rapidapi.com/statistics",
   CURLOPT_RETURNTRANSFER => true,
   CURLOPT_ENCODING => "",
   CURLOPT_MAXREDIRS => 25,
   CURLOPT_TIMEOUT => 40,
   CURLOPT_HTTP_VERSION => CURL_HTTP_VERSION_1_1,
   CURLOPT_CUSTOMREQUEST => "GET",
   CURLOPT_HTTPHEADER => [
      "X-RapidAPI-Host: covid-193.p.rapidapi.com",
      "X-RapidAPI-Key: d4e54d8258mshb94bb95cea982b8p191424jsnadc6b4868892"
   ],

]);

$response = curl_exec($curl); $err
= curl_error($curl);
curl_close($curl);

if ($err) {
   echo "cURL Error #:" . $err;
} else {
   $responseArray = json_decode($response, true);
   $countries = $responseArray['response'];
}
```

```
foreach ($countries as $con) {
$countryName = $con['country'];
$population = $con['population'];
$totalcases = $con['cases']['total'];
$deaths = $con['deaths']['total'];
$tests = $con['tests']['total'];
$continent = $con['continent'];
$date = $con['day'];
// Insert data to the table covidcases
$sql = "INSERT INTO covidcases (countryName, population, totalcases, deaths, tests,  continent,
date)
VALUES ('$countryName', '$population', '$totalcases', '$deaths', '$tests',
'$continent', '$date')";

if ($conn->query($sql) === TRUE) {
} else { echo "Error: " . $sql . "<br>" .
$conn->error;
}
}
echo "Data have been successfully Inserted";
// Close the connection
$conn->close();
?>
```

Covid19.php code explanation

- The script initializes a cURL session using curl_init() and sets various cURL options using curl_setopt().
- The cURL options include the URL of the RapidAPI endpoint for COVID-19 statistics ("https://covid-193.p.rapidapi.com/statistics"), enabling the return of the response as a string (CURLOPT_RETURNTRANSFER => true), and setting necessary headers including the RapidAPI host and key.
- The script executes the cURL request using curl_exec() and stores the response in the variable $response. It also checks for any cURL errors using curl_error() and assigns the error message to the variable $err. Finally, it closes the cURL session using curl_close($curl).

.

Covid19chart.php code explanation

- PHP code uses the Google Visualization API to load the necessary packages ('corechart') and sets a callback function drawChart() to be executed when the API is loaded.Inside the drawChart() function, a data table is created using google.visualization.DataTable(). It has two columns: 'countryes' (string) and 'cases' (number).
- Finally, the chart is instantiated using google.visualization.BarChart() and drawn in the element with the id "chart_div" using chart.draw(data, options)

Covid19save.php code explanation

- It establishes a connection to the MySQL database using the mysqli class and the new mysqli() constructor.
- Inside the for each loop, it extracts various data points for each country, such as the country name, population, total cases, deaths, tests, continent, and date.
- It constructs an SQL INSERT statement to insert the data into the covidcases table, using the extracted data as values for the respective columns in the table.
- The INSERT INTO statement is executed using $conn->query($sql) to insert the data into the table. If there is an error in the query, it is displayed using echo.
- After the loop completes, the code outputs a success message indicating that the data has been successfully inserted into the table.
- Finally, the script closes the database connection using $conn->close().

iv. Output of the covid19save.php

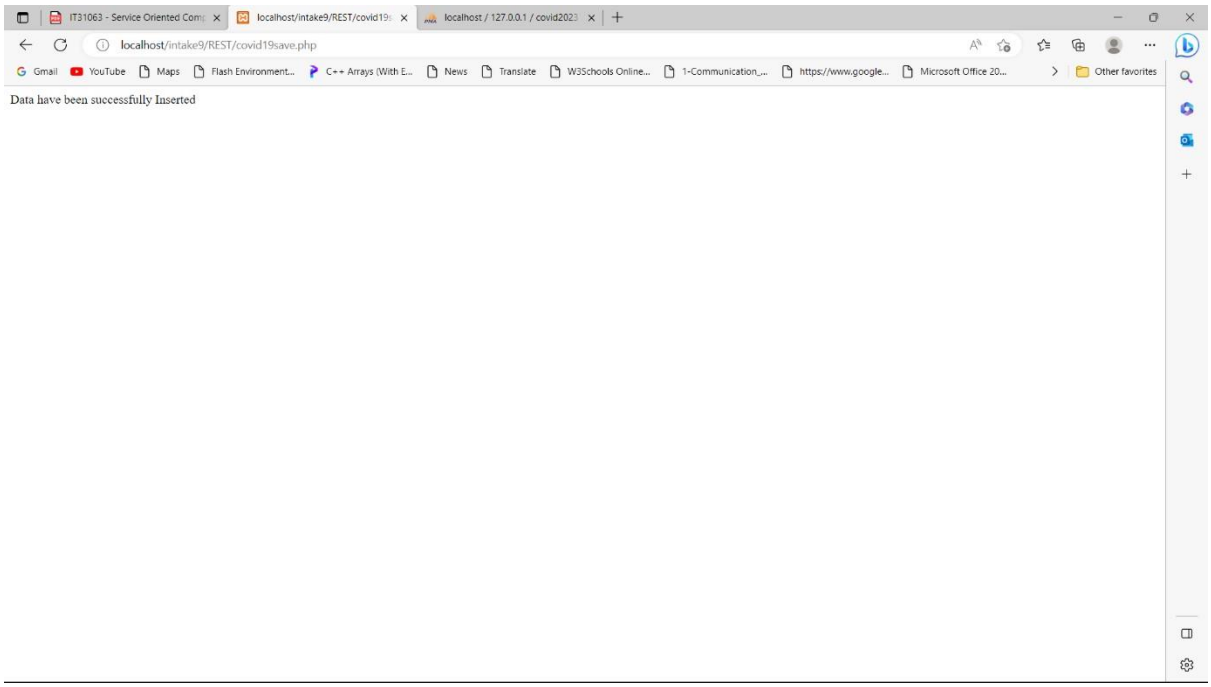


Figure 30output of the covid19save.php

v. Stored data through covid19save.php to the database: covid2023.

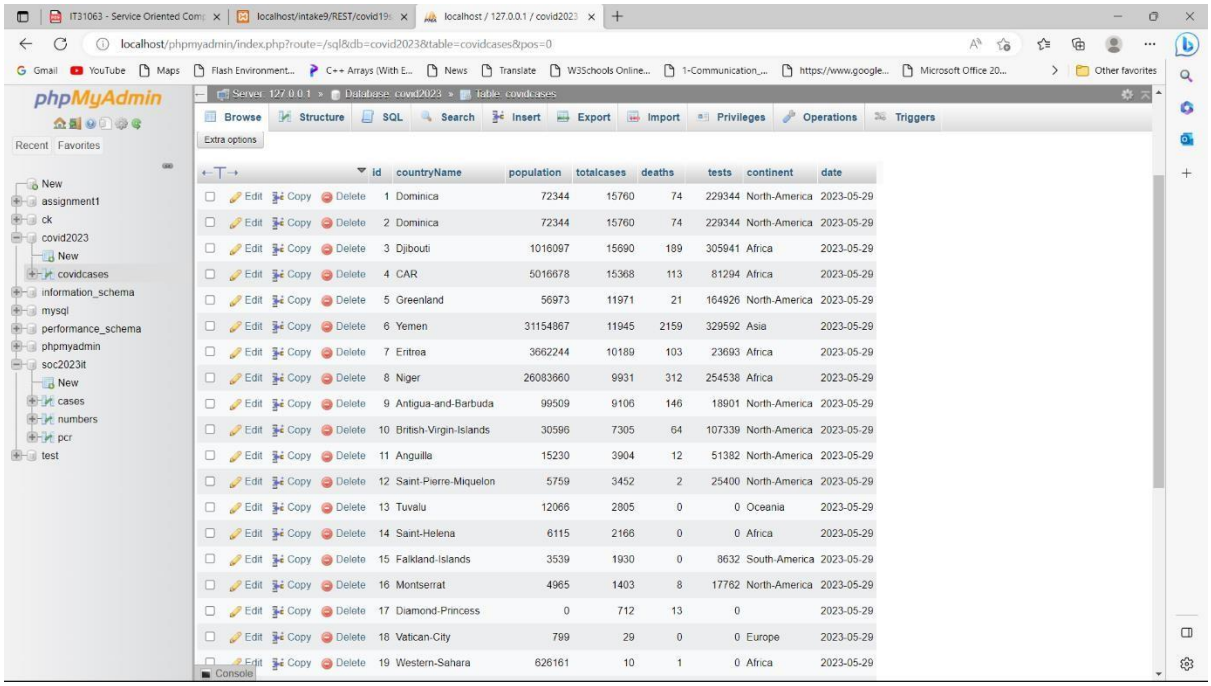


Figure 31v.Stored data through covid19save.php to the database: covid2023.