
# Service-Oriented Computing

R . P . C . Thenuka

12/2/23

Mini Project

# Table of Contents

# Question 01

1. **Read the following API and use HTML, CSS, Bootstrap, and PHP to display province names, latitudes, and longitudes in China.**

   **URL: https://rapidapi.com/axisbits-axisbits-default/api/covid-19-statistics**

   - First, I will show you the source code I created for the above question. You can see it below:

```php
<?php

$curl = curl_init();

curl_setopt_array($curl, [
    CURLOPT_URL => "https://covid-19-
statistics.p.rapidapi.com/provinces?iso=CHN",
    CURLOPT_RETURNTRANSFER => true,
    CURLOPT_ENCODING => "",
    CURLOPT_MAXREDIRS => 10,
    CURLOPT_TIMEOUT => 30,
    CURLOPT_HTTP_VERSION => CURL_HTTP_VERSION_1_1,
    CURLOPT_CUSTOMREQUEST => "GET",
    CURLOPT_HTTPHEADER => [
        "X-RapidAPI-Host: covid-19-statistics.p.rapidapi.com",
        "X-RapidAPI-Key: 4034e2c397msh27430ace6ae51e4p17f74ejsn911be8a1ae04"
    ],
]);

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

curl_close($curl);

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

?>
```

```
<!DOCTYPE html>
<html lang="en">
<head>


<meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Provinces of China</title>

    <!-- add Bootstrap -->
    <link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css
" rel="stylesheet" integrity="sha384-
EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOmLASjC"
crossorigin="anonymous">

    <style>

        h1{
            color:rgb(234,25,100);
            font-weight: bold;
            position: fixed;
            margin-bottom: 100px;
            background-color: white;
            width: 100%;
            height: 100px;
        }

        td{
            font-weight: bold;
        }

        th{
            font-size: 1.5rem;
            position:sticky;
            top:60px;
        }

        table{
            margin-top: 50px;
        }

    </style>
</head>
<body>
```

```
<h1>Provinces names, latitudes, and longitudes in China...</h1>
    <br>



 <div class="container">

        <table border="1" width="100%" class="table table-striped">

            <tr class="table-dark">
                <th>province Names</th>
                <th>latitudes</th>
                <th>longitudes</th>
            </tr>

            <?php foreach($details as $detail){ ?>

                <tr>
                    <td> <?php echo $detail['province']; ?> </td>
                    <td> <?php echo $detail['lat']; ?> </td>
                    <td> <?php echo $detail['long']; ?> </td>

                </tr>

            <?php
            }
             ?>

        </table>
    </div>
</body>
</html>
```

- Now I will show you the output of this source code. You can see it below,

## Provinces names, latitudes, and longitudes in China...

| province Names | latitudes | longitudes |
|---|---|---|
| Anhui | 31.8257 | 117.2264 |
| Beijing | 40.1824 | 116.4142 |
| Chongqing | 30.0572 | 107.8740 |
| Fujian | 26.0789 | 117.9874 |
| Gansu | 36.0611 | 103.8343 |
| Guangdong | 23.3417 | 113.4244 |
| Guangxi | 23.8298 | 108.7881 |
| Guizhou | 26.8154 | 106.8748 |
| Hainan | 19.1959 | 109.7453 |
| Hebei | 38.0428 | 114.5149 |
| Heilongjiang | 47.8620 | 127.7615 |
| Henan | 33.8820 | 113.6140 |

## Provinces names, latitudes, and longitudes in China...

| province Names | latitudes | longitudes |
|---|---|---|
| Hong Kong | 22.3000 | 114.2000 |
| Hong Kong SAR | 22.3 | 114.2 |
| Hubei | 30.9756 | 112.2707 |
| Hunan | 27.6104 | 111.7088 |
| Inner Mongolia | 44.0935 | 113.9448 |
| Jiangsu | 32.9711 | 119.4550 |
| Jiangxi | 27.6140 | 115.7221 |
| Jilin | 43.6661 | 126.1923 |
| Liaoning | 41.2956 | 122.6085 |
| Macau | 22.1667 | 113.5500 |
| Macau SAR | 22.1667 | 113.55 |
| Ningxia | 37.2692 | 106.1655 |
| Qinghai | 35.7452 | 95.9956 |

## Provinces names, latitudes, and longitudes in China...

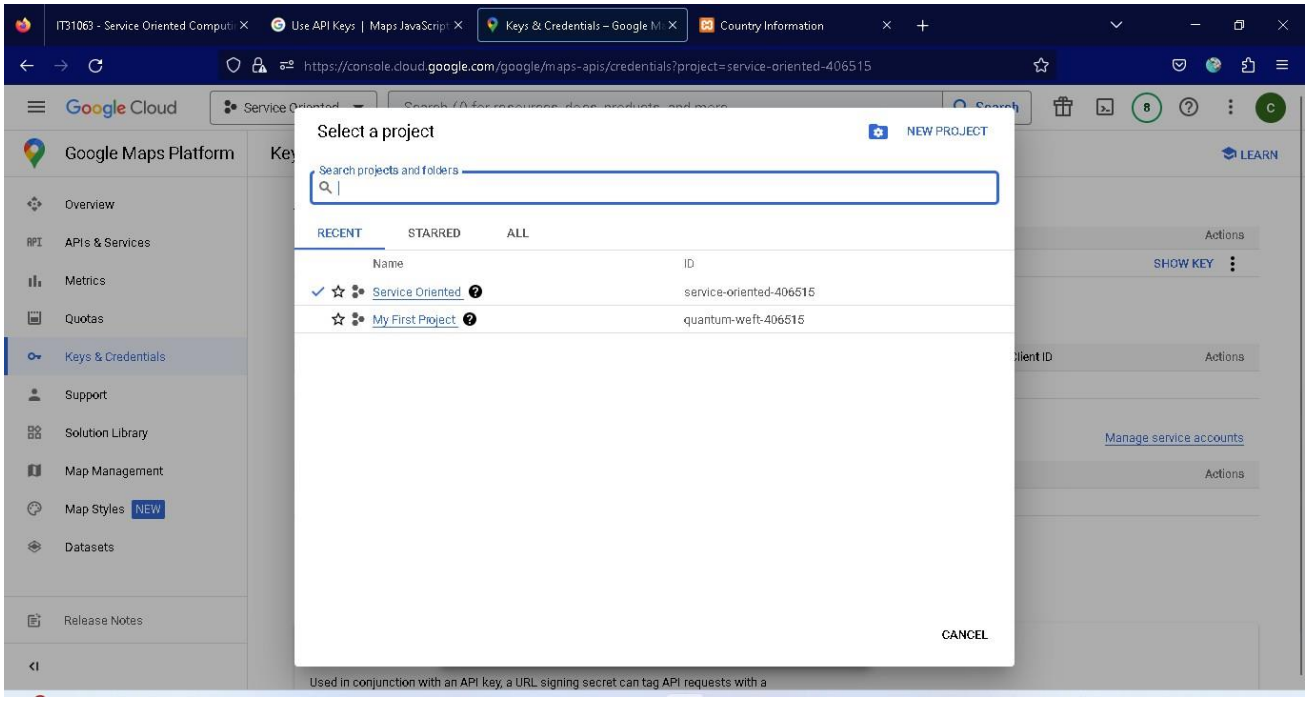
| province Names | latitudes | longitudes |
|---|---|---|
| Qinghai | 35.7452 | 95.9956 |
| Shaanxi | 35.1917 | 108.8701 |
| Shandong | 36.3427 | 118.1498 |
| Shanghai | 31.2020 | 121.4491 |
| Shanxi | 37.5777 | 112.2922 |
| Sichuan | 30.6171 | 102.7103 |
| Tianjin | 39.3054 | 117.3230 |
| Tibet | 31.6927 | 88.0924 |
| Unknown | | |
| Xinjiang | 41.1129 | 85.2401 |
| Yunnan | 24.9740 | 101.4870 |
| Zhejiang | 29.1832 | 120.0934 |

# Question 2

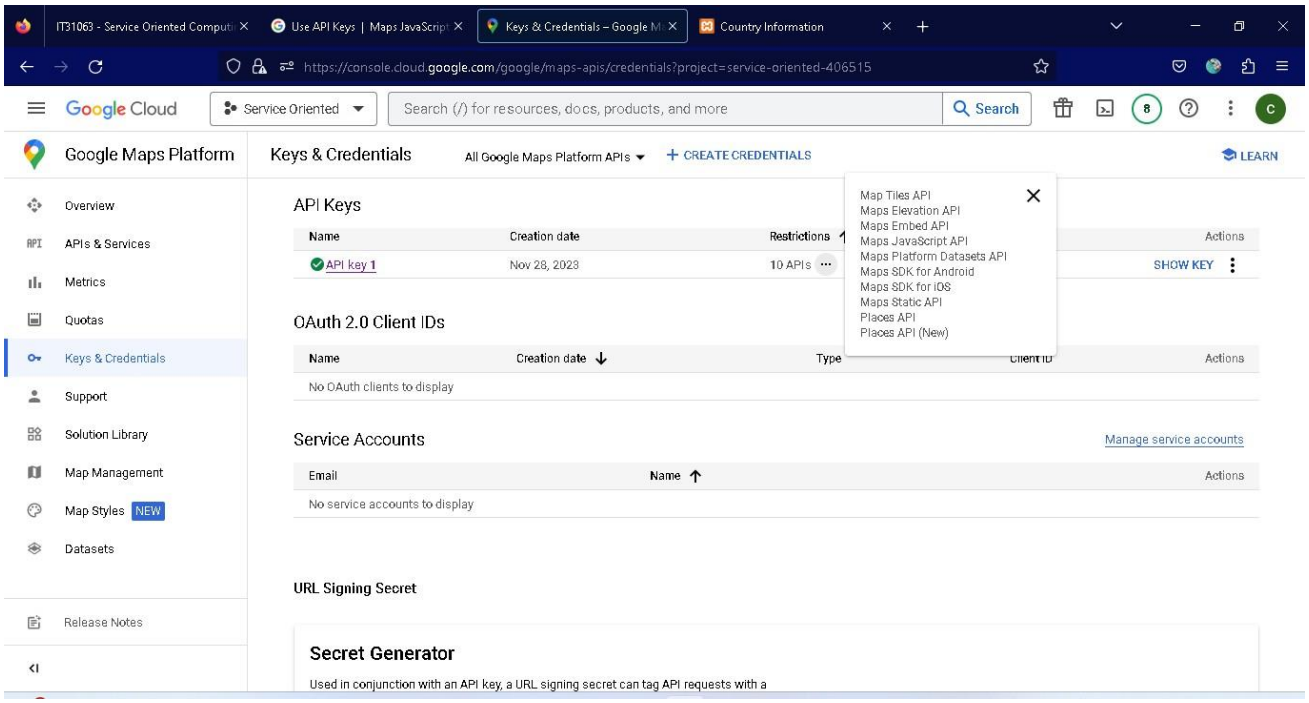
2. **Use the REST Countries API documentation https://restcountries.com/ to get all countries in a dropdown list, then select one and display the following information: flag, country official name, capital city, region, subregion, currencies, country code, population, area, borders, and Google Map. (Use HTML, CSS, Bootstrap, PHP, and AJAX.)**

   - First, I created my own Google Maps API key using Google Cloud. I started by creating a new project called 'Service Oriented'. Then, I followed the necessary steps to generate my API key. I restricted the key to 10 API services, including the Maps JavaScript API. You can see my project name, API restrictions, and Google Maps API key below:

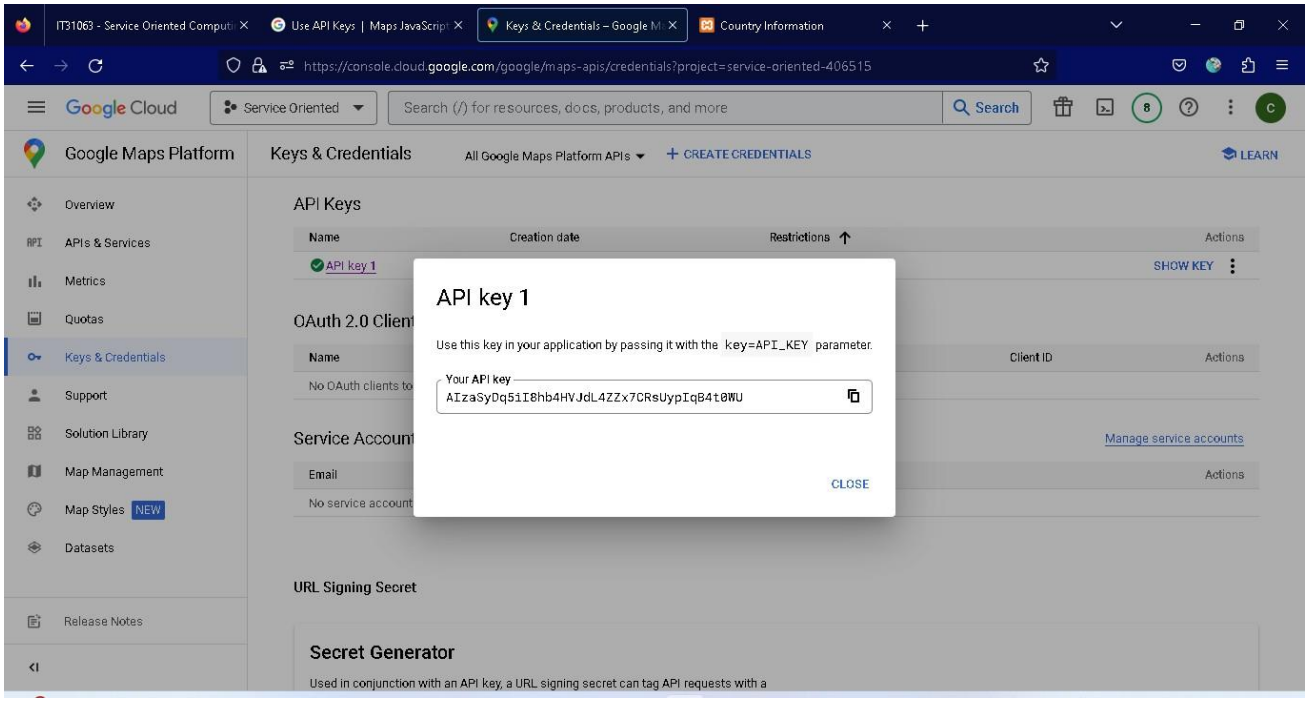
   - **Create a new project!**



- **Added restrictions.**




- **Google Map API key**



- Next, I created a file named question2.php to populate a dropdown menu with all country names. You can see the source code below

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Country Information</title>
    <link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css
" rel="stylesheet" integrity="sha384-
EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOmLASjC"
crossorigin="anonymous">

    <style>

       .container h1{
            color:rgb(234,25,100);
            font-weight: bold;

        }

        label{

            font-weight: bold;
            font-size: 1.5rem;
        }

        option{

            font-weight: bold;
        }

        option :hover{
            color: red;
        }
```

```
      select{
           width: 100%;
           color: black;
           background-color: white;
           font-weight: bold;
           border: 1px solid black;
           border-radius: 5px;
           height: 40px;
       }

       select:hover{
           color: red;
       }

       table tr{
           border: 2px solid gray;
       }

       table tr td{
           font-weight: bold;
       }

       table tr td h5{
           font-weight: bold;
       }

       hr{
           border: 2px solid  gray;

       }

    </style>
</head>
<body>

    <div class="container p-5 my-5 border">

        <h1>Country Informations</h1>
        <br>
```

```
      <form>
          <div>
              <label for="countrySelect">Select a country :</label>
              <select id="countrySelect">

              <?php
                  $url = "https://restcountries.com/v3.1/all";
                  $data = file_get_contents($url);
                  $data = json_decode($data, true);

                  if(is_array($data)){
                      foreach($data as $country){
                          echo '<option value="' . $country['cca3'] . '">'
.$country['name']['common'] .'</option>';
                      }
                  }
              ?>
              </select>
          </div>
      </form>

      <hr>

      <div id="countryInformation"></div>

  </div>

  <script src="https://code.jquery.com/jquery-3.6.4.min.js"></script>
  <script>
      $('#countrySelect').change(function(){
          var SelectedcountryCode = $(this).val();
          $.ajax({
              url:'getcountry.php',
              type:'POST',
              data: {countryCode:SelectedcountryCode },
              success: function(response){
                  $('#countryInformation').html(response);
              }

          });
      });
  </script>

</body>
</html>
```

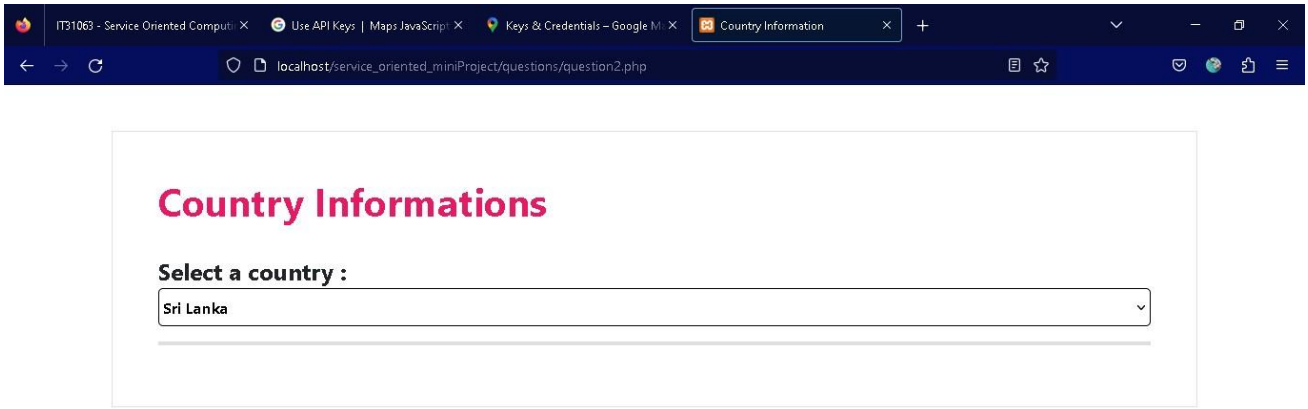
- After completing “question2.php” file I created “getcountry.php” file to display selected country Informations, in below you can see source code of the “getcountry.php” file.

```
<?php
    if(isset($_POST['countryCode'])){

        $SelectedcountryCode = $_POST['countryCode'];

        $url="https://restcountries.com/v3.1/alpha/$SelectedcountryCode";
        $data = file_get_contents($url);
        $data = json_decode($data , true);

        if(is_array($data) && !empty($data)){
            $country = $data[0];

            echo '<table class="table table-bordered table-striped">

            <tr><td><h5>Flag</h5><td><img src="'.($country['flags']['png']??
'Data Not Available').'"/></td></td></tr>

            <tr><td><h5>Official
Name</h5><td>'.($country['name']['official']?? 'Data Not
Available').'</td></td></tr>

            <tr><td><h5>Capital City</h5><td>'.($country['capital'][0]??
'Data Not Available').'</td></td></tr>

            <tr><td><h5>Region</h5><td>'.($country['region']?? 'Data Not
Available').'</td></td></tr>

            <tr><td><h5>Subregion</h5><td>'.($country['subregion'] ?? 'Data
Not Available').'</td></td></tr>

            <tr><td><h5>Currency</h5><td>'.implode(', ',
array_column($country['currencies'], 'name')).'</td></td></tr>

            <tr><td><h5>Country Code</h5><td>'.($country['tld'][0]?? 'Data
Not Available').'</td></td></tr>

            <tr><td><h5>Population</h5><td>'.(number_format($country['populat
ion'])?? 'Data Not Available').'</td></td></tr>

            <tr><td><h5>Area</h5><td>'.(number_format($country['area'])??
'Data Not Available').'</td></td></tr>
```

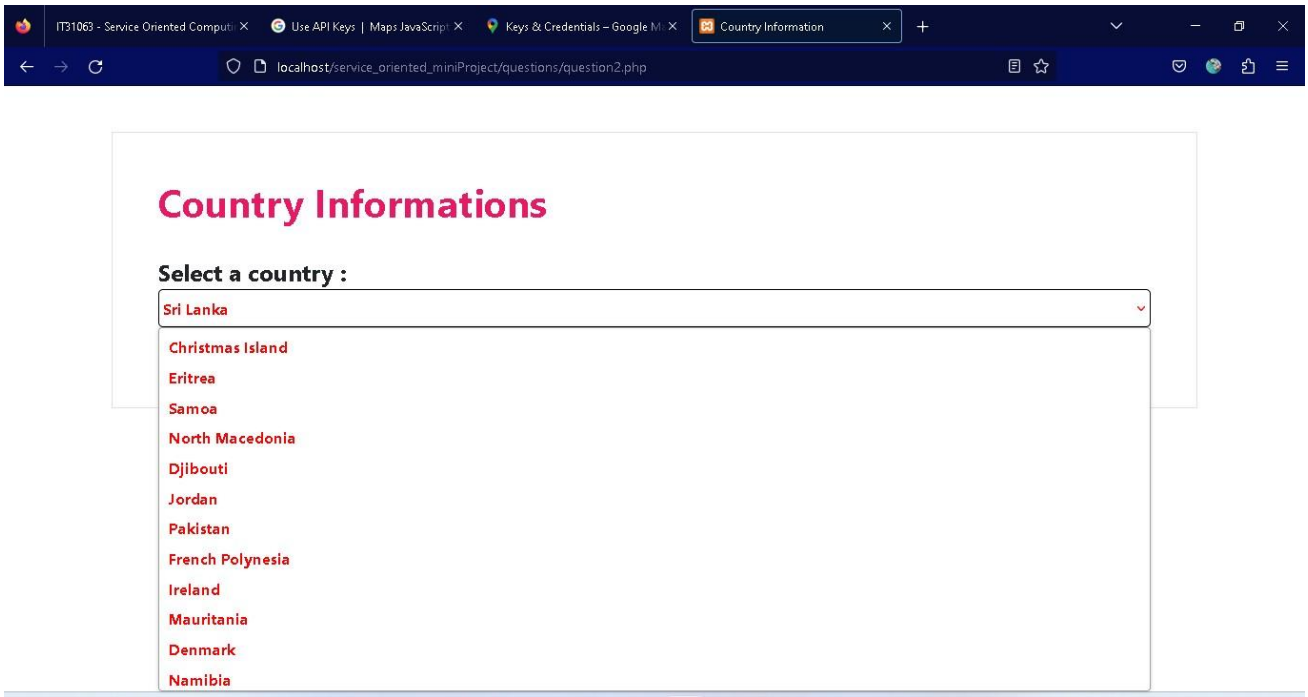
```
            <tr><td><h5>Borders</h5><td>'.(isset($country['borders']) ?
implode("," , $country['borders']) :'data not availabe').'</td></td></tr>

            <tr><td><h5>Google Map</h5><td>

            <iframe width="100%" height="200"
            frameborder="1" style="border:1"
            referrerpolicy="no-referrer-when-downgrade"
            src="https://www.google.com/maps/embed/v1/place?key=AIzaSyDq5iI8h
b4HVJdL4ZZx7CRsUypIqB4t0WU&q='
            .($country['name']['common']?? 'Data Not Available').'&zoom=7"
            allowfullscreen>
            </iframe>

            </td></td></tr>

            </table>';
        }
        else{
            echo 'not found';
        }
    }else{
        echo 'invalid';
    }

?>
```

- Now, I will show you screenshots of the outputs:

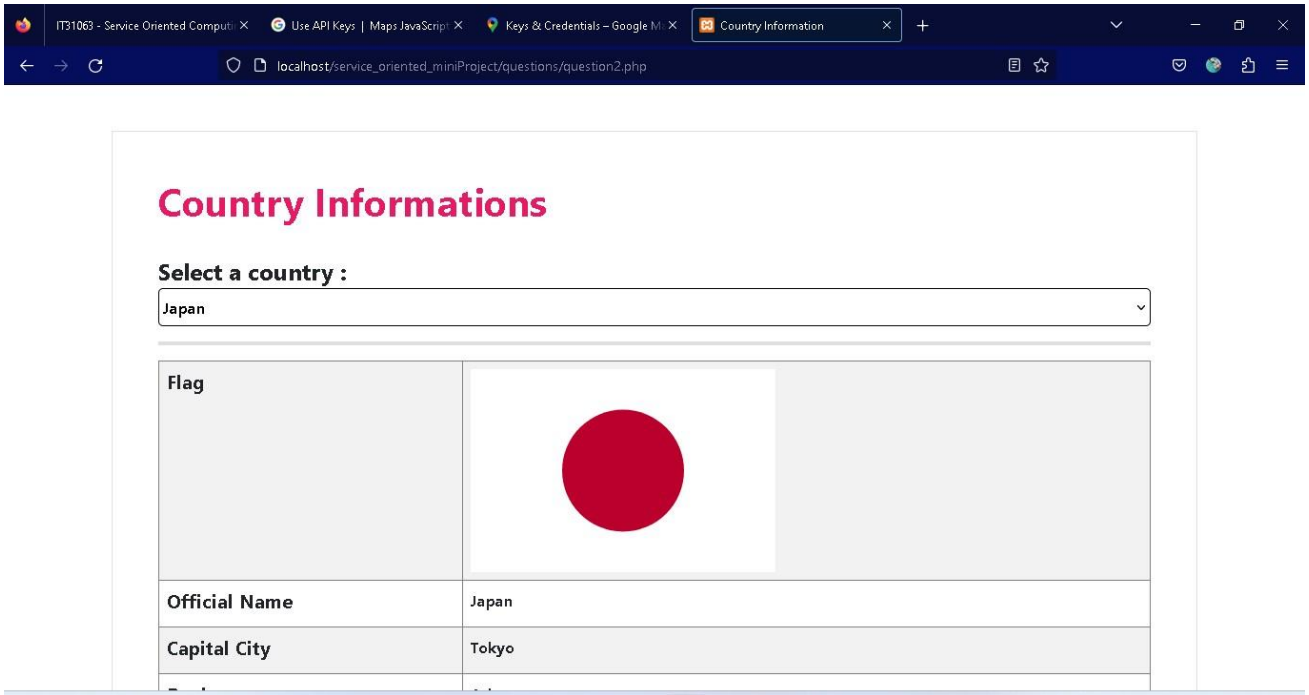
- **My drop-down menu**

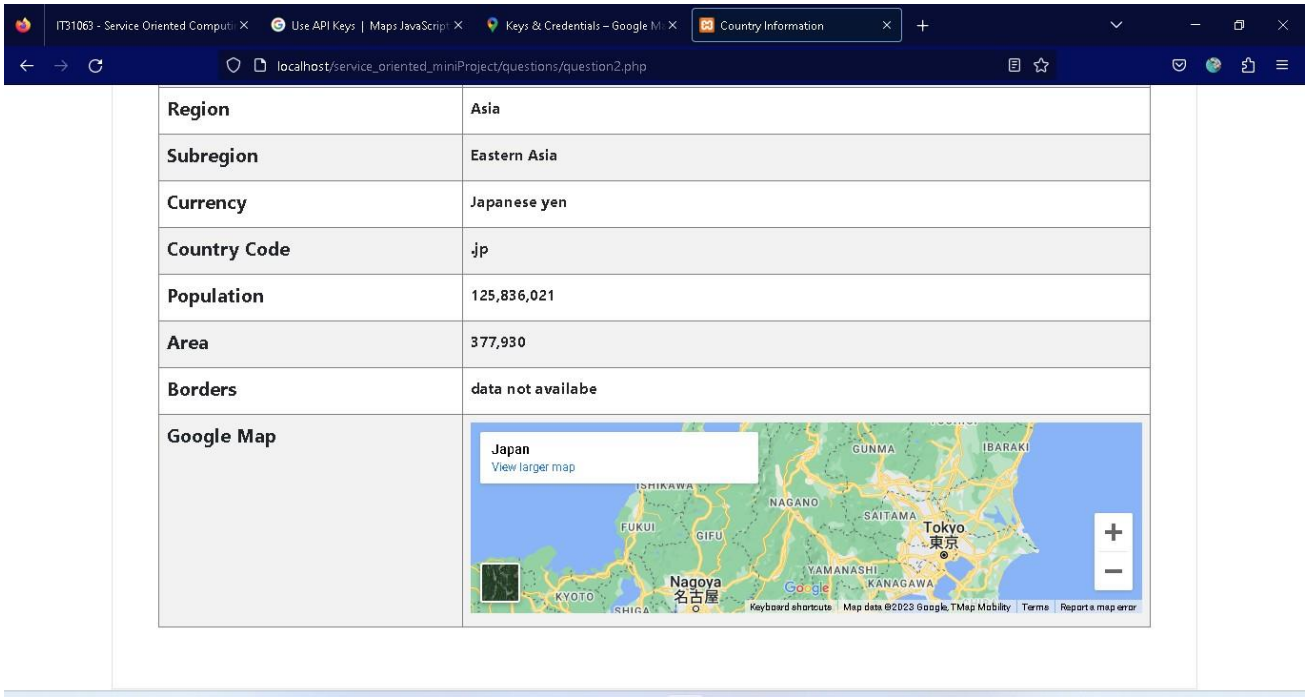



- **All country names within the dropdown menu (note: this screenshot shows only a few country names, as there are too many to capture in one screenshot):**

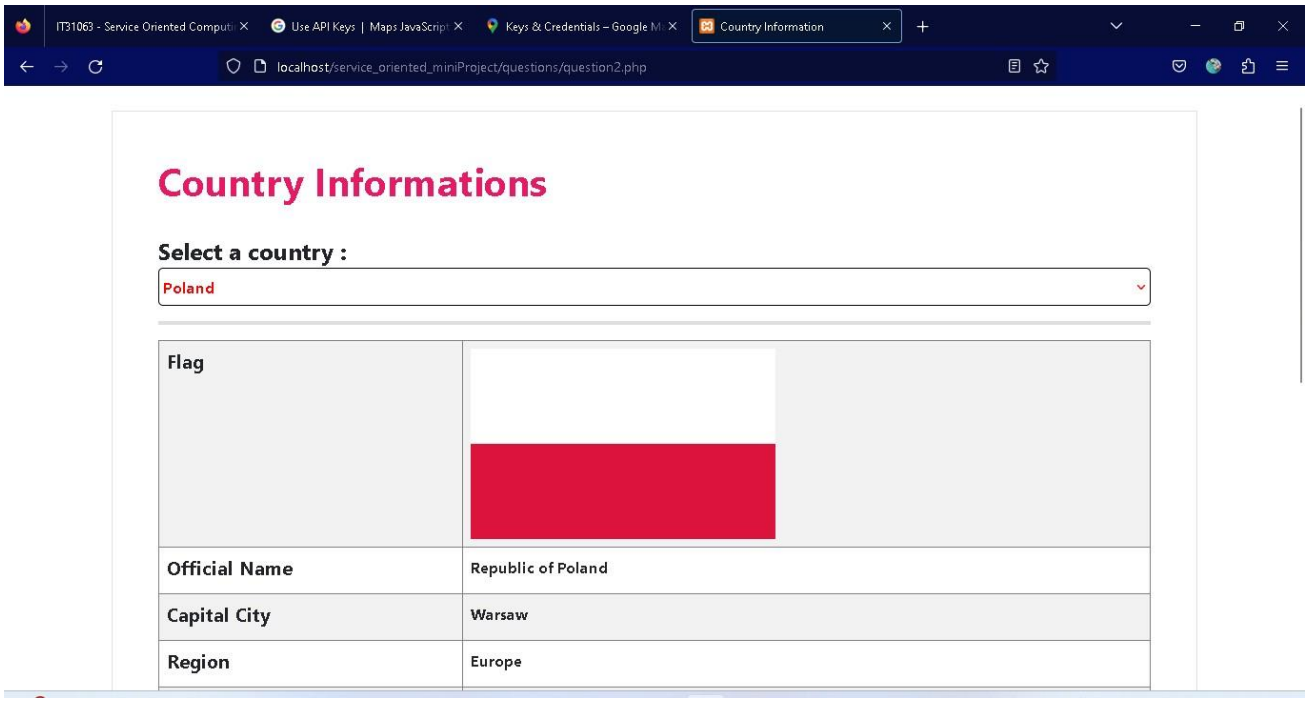


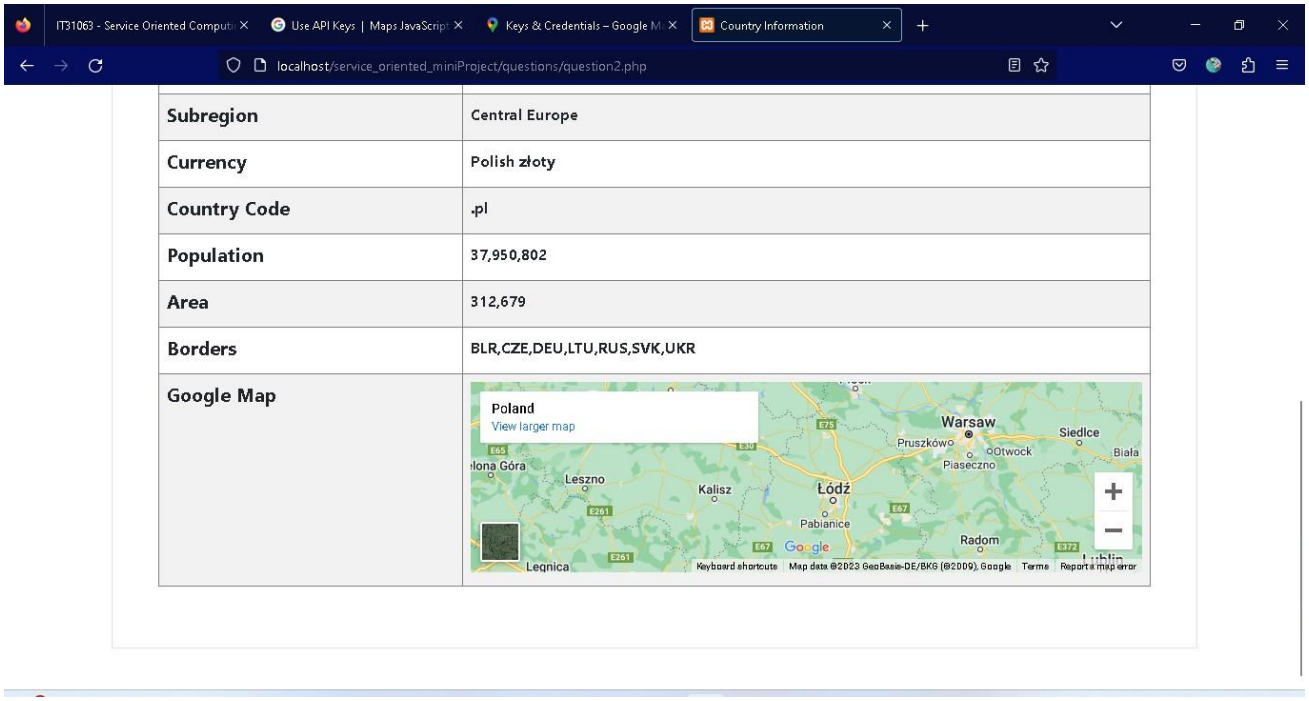
- **When I select the country name ‘Japan’ from the dropdown menu**



- **When I select another country ,**



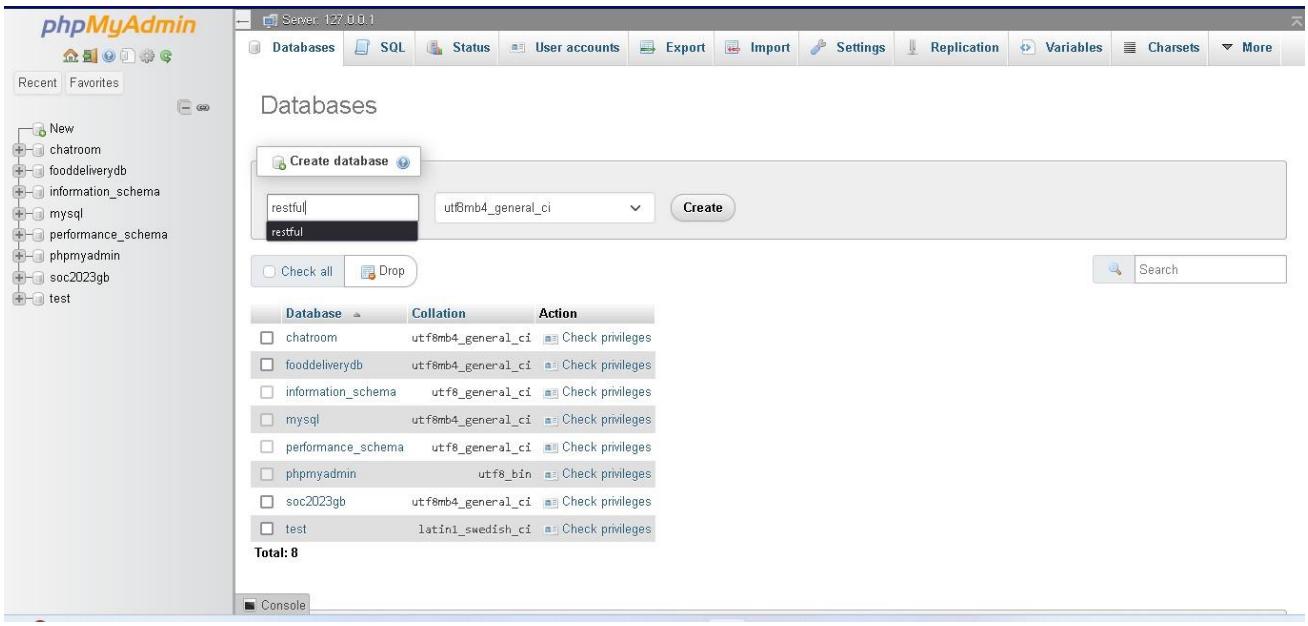



# Question 3

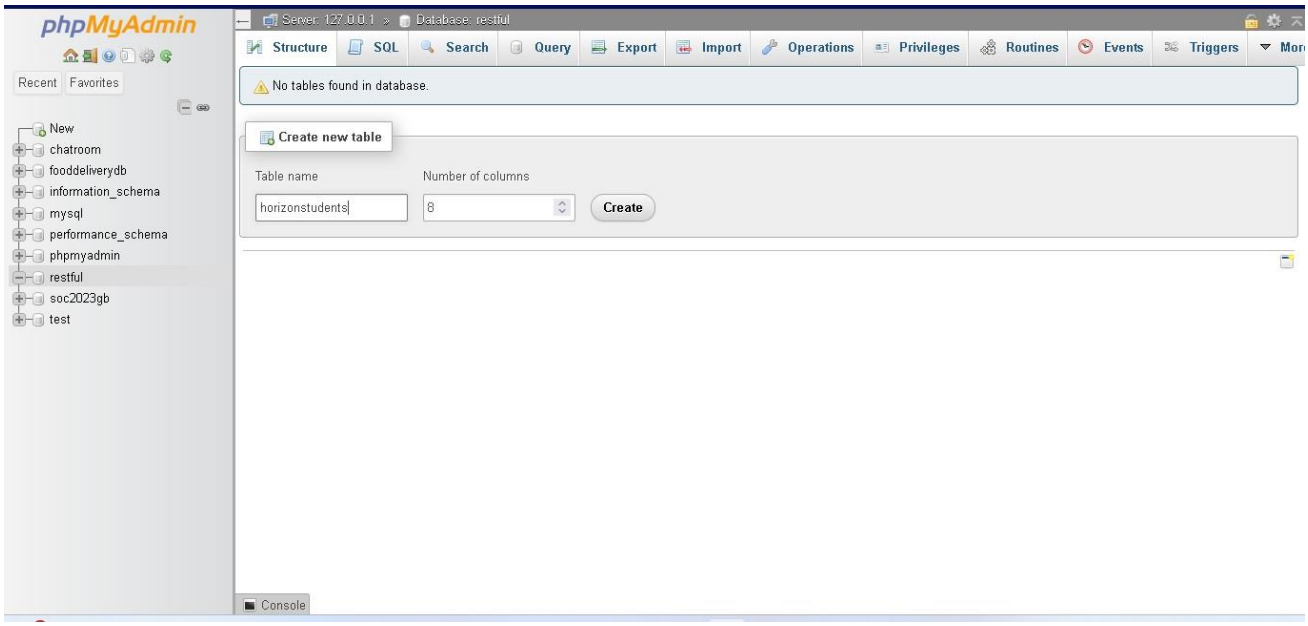
3. **Develop RestFul API using PHP - Object Oriented Programming(OOP) and PDO – MySQL**

## a. Create a database and database table.

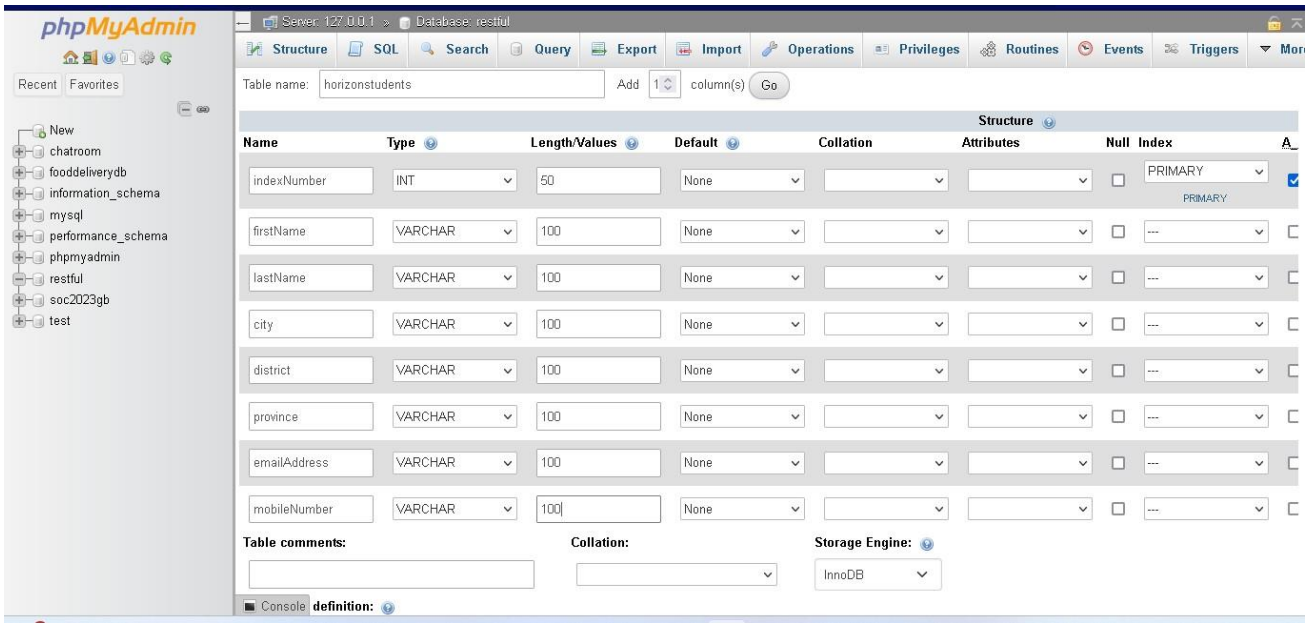
- Create a database called **"restful."**



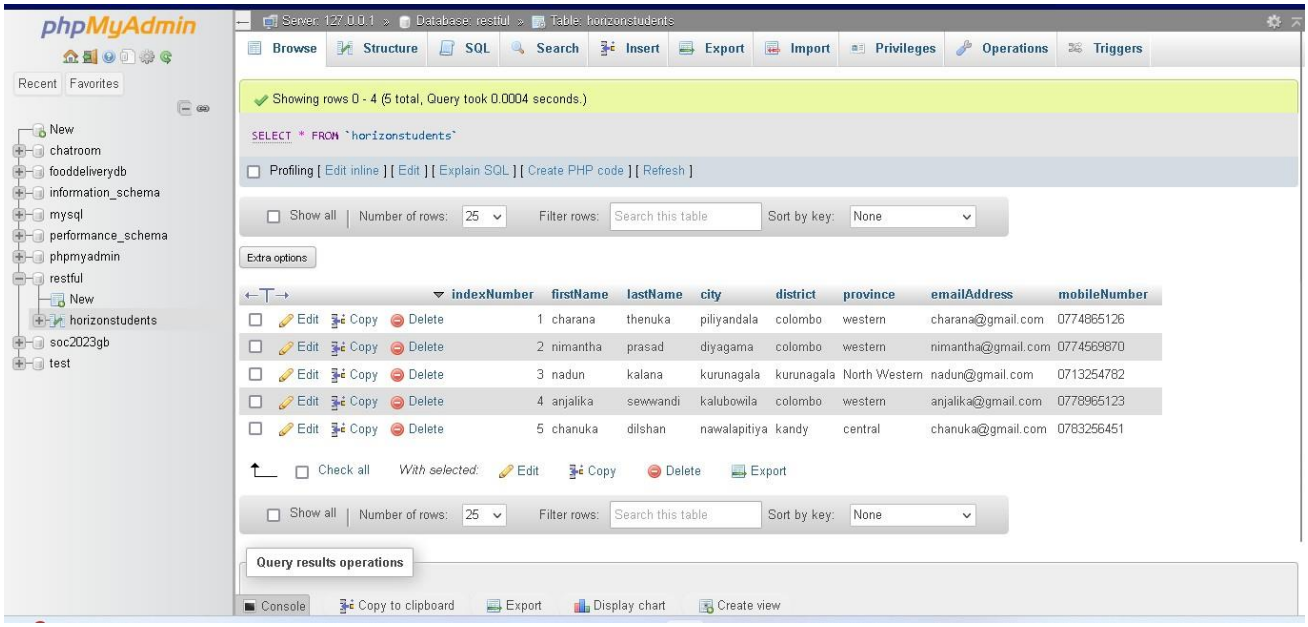

- Create a table named **"horizonstudents"** inside the database.



- Add eight (8) fields named **"Index No., First Name, Last Name, City, District, Province, Email Address, and Mobile Number."**




- Insert 5 rows into the table.



## b. Create a RestFul web service to perform CURD operations with MySQL database.

- Write RestFul API for the popular HTTP verbs **GET, POST, PUT, and DELETE**

  - First, I created a folder inside the htdocs directory called restfull. Inside this folder, I created another folder called include. Within this folder, I created a connection.php file to establish the database connection. You can see the source code below.

```php
<?php

    $host = "localhost";
    $username = "root";
    $password ="";
    $dbname = "restful";

    $connection = mysqli_connect($host , $username , $password , $dbname);

    if(!$connection){
        die("connection Failed " . mysqli_connect_error());

    }

?>
```

- Then I created **“horizonstudents.php”** file inside the **”restfull”** folder. I will show to you source code of the “**horizonstudents.php**” file in below,

```php
<?php

error_reporting(0); // to use hide the unnesserory errors

header('Access-Control-Allow-Origin: *');
header('Content-Type: application/json');

include('function.php');

$requestMethod = $_SERVER["REQUEST_METHOD"];

switch ($requestMethod) {
    case 'GET':
        $studentList = getStudentlist();
        echo $studentList;
        break;

    case 'POST':
        $inputData = file_get_contents("php://input");
        $inputData = json_decode($inputData, true);
        $insertStudent = insertStudent($inputData);
        echo $insertStudent;
        break;

    case 'PUT':
        $inputData = file_get_contents("php://input");
        $inputData = json_decode($inputData, true);
        $updateStudent = updateStudent($inputData, $_GET);
        echo $updateStudent;
        break;

    case 'DELETE':
        $deleteStudent = deleteStudent($_GET);
        echo $deleteStudent;
        break;
```

```
 default:
        $data = [
            'status' => 405,
            'message' => $requestMethod . " Method Not Allowed",
        ];

        header("HTTP/1.0 405 Method Not Allowed");
        echo json_encode($data);
        break;
}
?>
```

- After that, I created a .htaccess file to remove the .php extension from the horizonstudents.php file, as the API URL should not include the extension. I will show you the source code of this .htaccess file below

```
<IfModule mod_rewrite.c>
    RewriteEngine On
    RewriteCond %{REQUEST_FILENAME} !-d
    RewriteCond %{REQUEST_FILENAME} !-f
    RewriteRule ^([^\.]+)$ $1.php [NC,L]
</IfModule>
```

- Finally, I created the function.php file. I used functions for each HTTP verb (GET, POST, PUT, DELETE). This file includes all database queries, response messages (error messages), and validation parts for when users request services. I will show you the function.php file below.

```php
<?php

require './include/connection.php';

    function getStudentlist(){

        global $connection;

        $query = "SELECT * FROM horizonstudents";
        $query_run = mysqli_query($connection , $query);

        if($query_run){

            if(mysqli_num_rows($query_run) > 0){

                $res = mysqli_fetch_all($query_run , MYSQLI_ASSOC);

                $data = [

                    'status' =>200,
                    'message' => "Successfully fetch students" ,
                    'data' => $res

                ];
                header("HTTP/1.0 200 OK ");
                return json_encode($data);

            }else{

                $data = [

                    'status' =>404,
                    'message' => "No student Found" ,

                ];
                header("HTTP/1.0 404 No student Found");
                return json_encode($data);

            }
```

```
      }else{

            $data = [

                'status' =>500,
                'message' => "Internal Server Error" ,

            ];
            header("HTTP/1.0 500 Internal Server Error");
            return json_encode($data);
        }
    }

    function error422($message){

        $data = [

            'status' =>422,
            'message' => $message,

        ];
        header("HTTP/1.0 422 Unprosessable entitry");
        echo json_encode($data);
        exit();

    }

    function insertStudent($studentInput){

        global $connection;

        $firstName = mysqli_real_escape_string($connection ,
$studentInput['firstName']);
        $lastName = mysqli_real_escape_string($connection ,
$studentInput['lastName']);
        $city = mysqli_real_escape_string($connection ,
$studentInput['city']);
        $district = mysqli_real_escape_string($connection ,
$studentInput['district']);
        $province = mysqli_real_escape_string($connection ,
$studentInput['province']);
        $emailAddress = mysqli_real_escape_string($connection ,
$studentInput['emailAddress']);
        $mobileNumber = mysqli_real_escape_string($connection ,
$studentInput['mobileNumber']);
```

```
        if(empty(trim($firstName))){

            return error422('enter your first Name');
        }elseif(empty(trim($lastName))){

            return error422('enter your last name');

        }elseif(empty(trim($city))){
            return error422('enter your city');

        }elseif(empty(trim($district))){
            return error422('enter your district');

        }elseif(empty(trim($province))){
            return error422('enter your province');

        }elseif(empty(trim($emailAddress))){
            return error422('enter your email address');

        }elseif(empty(trim($mobileNumber))){
            return error422('enter your mobile number');

        }else{

            $query = "INSERT INTO horizonstudents (firstName , lastName ,
city , district , province , emailAddress , mobileNumber)
            VALUES ('$firstName' , '$lastName' , '$city' , '$district' ,
'$province' , '$emailAddress' , '$mobileNumber')" ;

            $result = mysqli_query($connection , $query);

            if($result){
                $data = [

                    'status' =>201,
                    'message' => "student Insert Sucessfully" ,

                ];
                header("HTTP/1.0 201 Created");
                return json_encode($data);
```

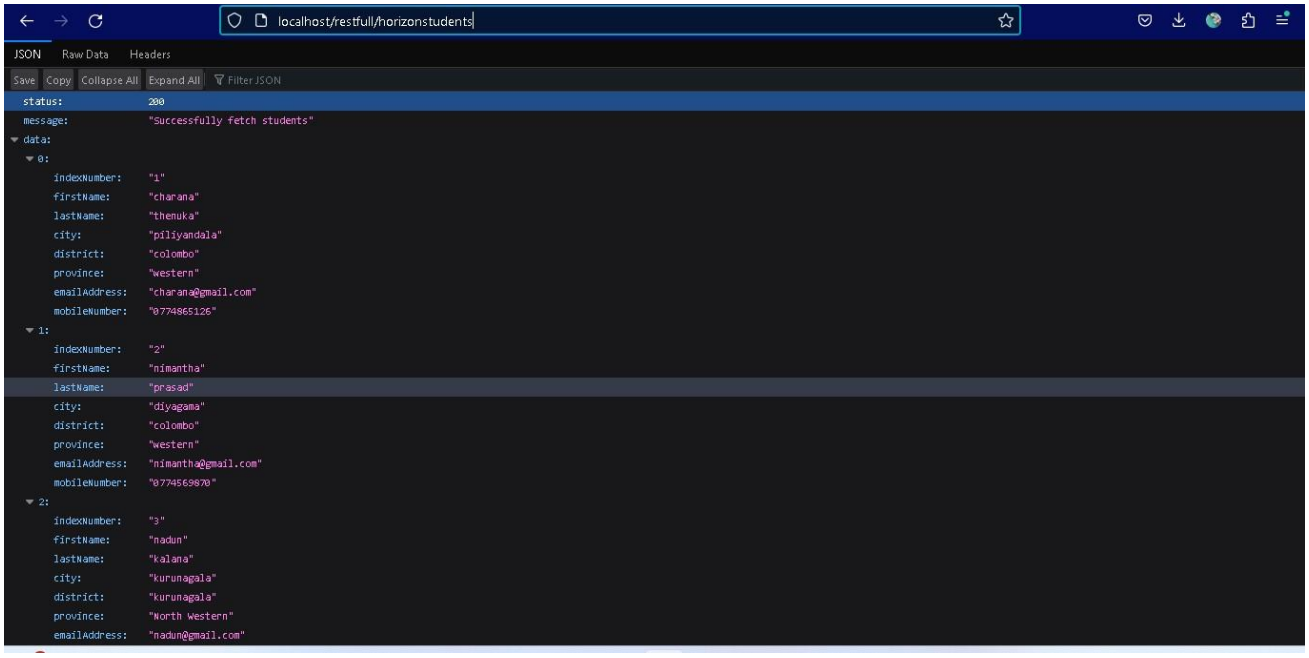
```
        }else{
                $data = [

                    'status' =>500,
                    'message' => "Internal Server Error" ,

                ];
                header("HTTP/1.0 500 Internal Server Error");
                return json_encode($data);

            }
        }

    }

    function updateStudent($studentInput , $studentParams){

        global $connection;

        if(!isset($studentParams['indexNumber'])){

            return error422("student Index Number Not found in URL");
        }elseif($studentParams['indexNumber'] == null){
            return error422("Enter the Student Index Number");

        }

        $IndexNumber = mysqli_real_escape_string($connection ,
$studentParams['indexNumber']);

        $firstName = mysqli_real_escape_string($connection ,
$studentInput['firstName']);
        $lastName = mysqli_real_escape_string($connection ,
$studentInput['lastName']);
        $city = mysqli_real_escape_string($connection ,
$studentInput['city']);
        $district = mysqli_real_escape_string($connection ,
$studentInput['district']);
        $province = mysqli_real_escape_string($connection ,
$studentInput['province']);
        $emailAddress = mysqli_real_escape_string($connection ,
$studentInput['emailAddress']);
        $mobileNumber = mysqli_real_escape_string($connection ,
$studentInput['mobileNumber']);
```

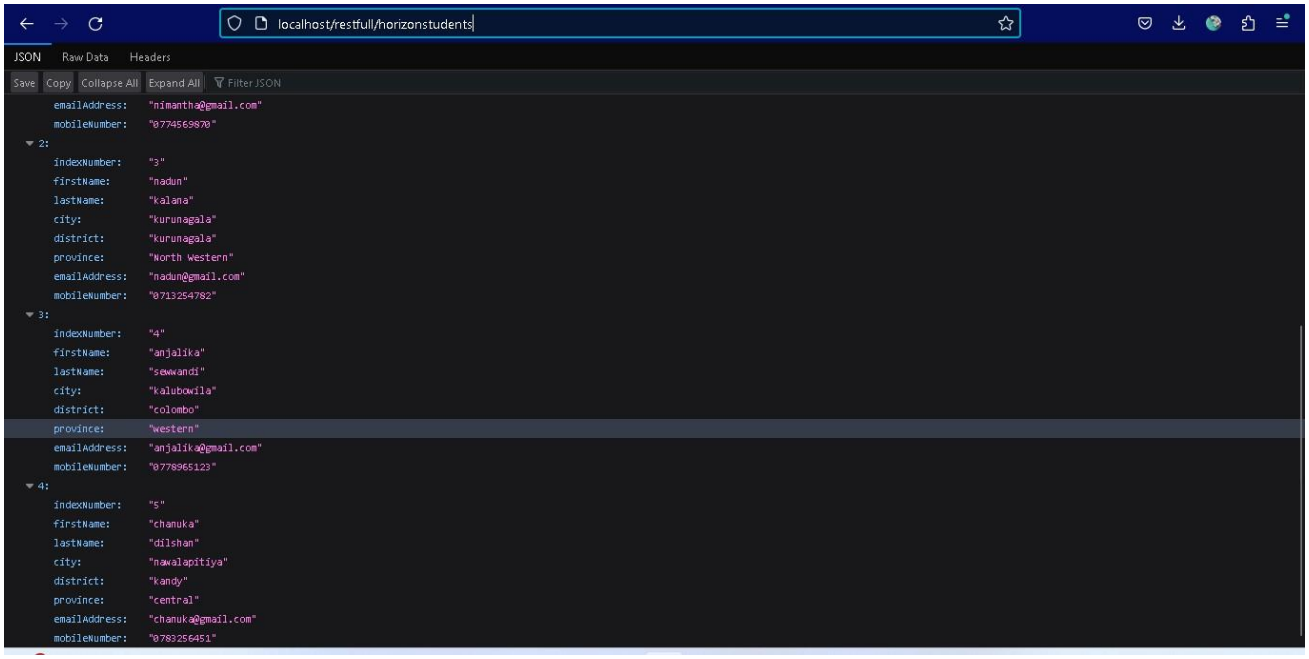
```
      if(empty(trim($firstName))){

            return error422('enter your first Name');
        }elseif(empty(trim($lastName))){

            return error422('enter your last name');

        }elseif(empty(trim($city))){
            return error422('enter your city');

        }elseif(empty(trim($district))){
            return error422('enter your district');

        }elseif(empty(trim($province))){
            return error422('enter your province');

        }elseif(empty(trim($emailAddress))){
            return error422('enter your email address');

        }elseif(empty(trim($mobileNumber))){
            return error422('enter your mobile number');

        }else{
            $query = "UPDATE horizonstudents SET firstName='$firstName' ,
lastName='$lastName' , city='$city' ,
             district='$district' , province='$province' ,
emailAddress='$emailAddress' , mobileNumber='$mobileNumber'
            WHERE indexNumber='$IndexNumber' LIMIT 1" ;

            $result = mysqli_query($connection , $query);

            if($result){
                $data = [

                    'status' =>200,
                    'message' => "student Updated Sucessfully" ,

                ];
                header("HTTP/1.0 200 success");
                return json_encode($data);
```

```
      }else{
                $data = [

                    'status' =>500,
                    'message' => "Internal Server Error" ,

                ];
                header("HTTP/1.0 500 Internal Server Error");
                return json_encode($data);

            }
        }

    }

    function deleteStudent($studentParams){

        global $connection;

        if(!isset($studentParams['indexNumber'])){

            return error422("student Index Number Not found in URL");
        }elseif($studentParams['indexNumber'] == null){
            return error422("Enter the Student Index Number");

        }

        $IndexNumber = mysqli_real_escape_string($connection ,
$studentParams['indexNumber']);

        $query = "DELETE FROM horizonstudents WHERE
indexNumber='$IndexNumber' LIMIT 1" ;
        $result = mysqli_query($connection , $query);

        if($result){

            $data = [

                'status' =>200,
                'message' => "student delete successfully" ,

            ];
            header("HTTP/1.0 200 OK");
            return json_encode($data);
```

```
    }else{

            $data = [

                'status' =>404,
                'message' => "student not found" ,

            ];
            header("HTTP/1.0 404 not found");
            return json_encode($data);
        }


    }

?>
```

- Now I show my API without the file extension(.php). You can see below,

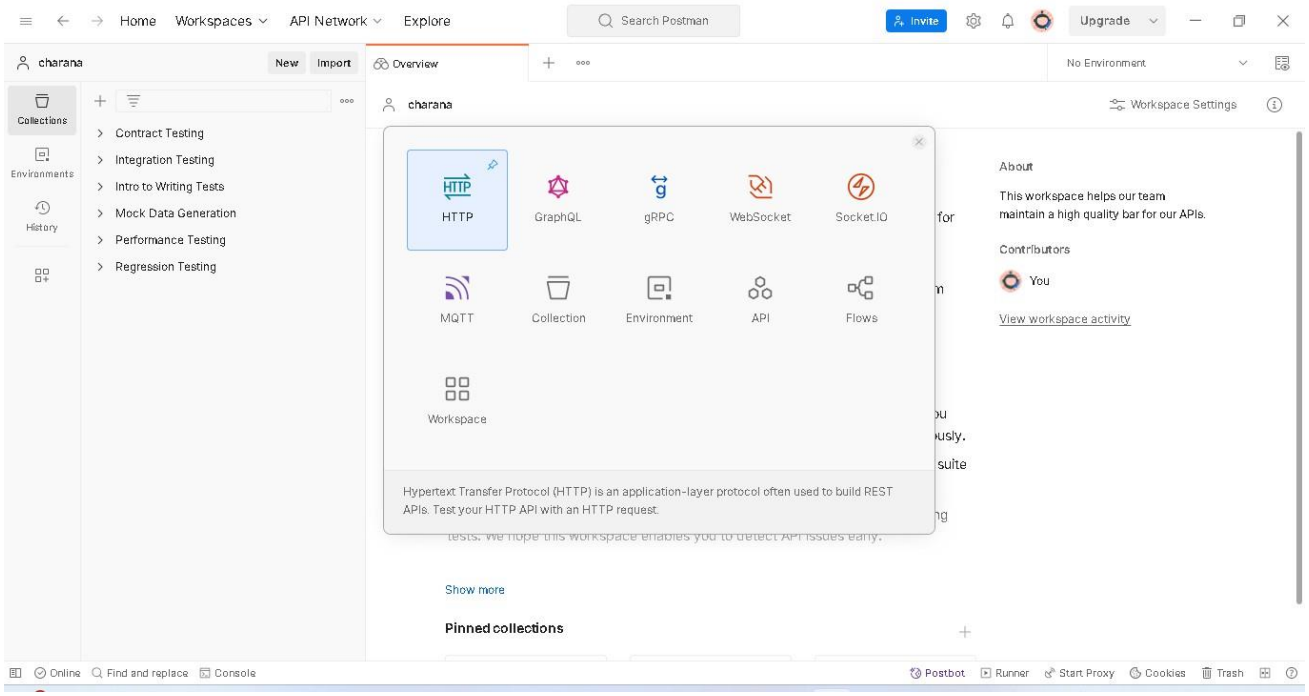


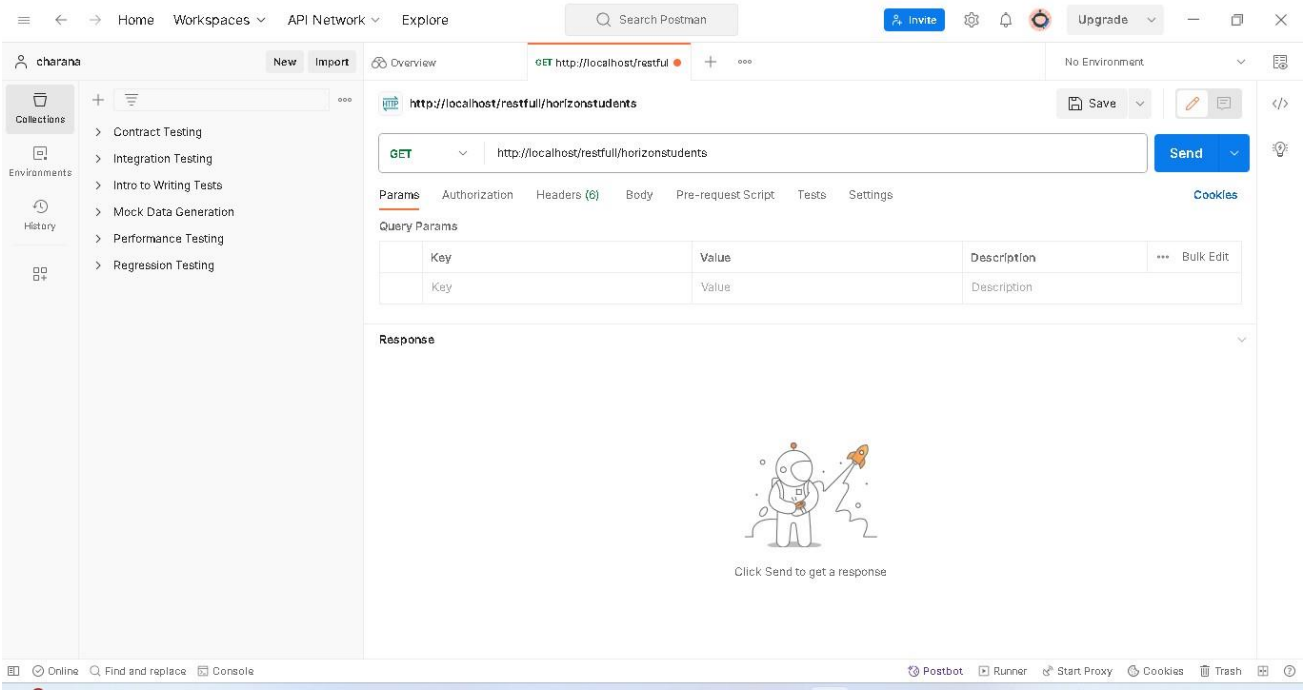



- My API url is **http://localhost/restfull/horizonstudent** by using this url only postman tool response the users requests.

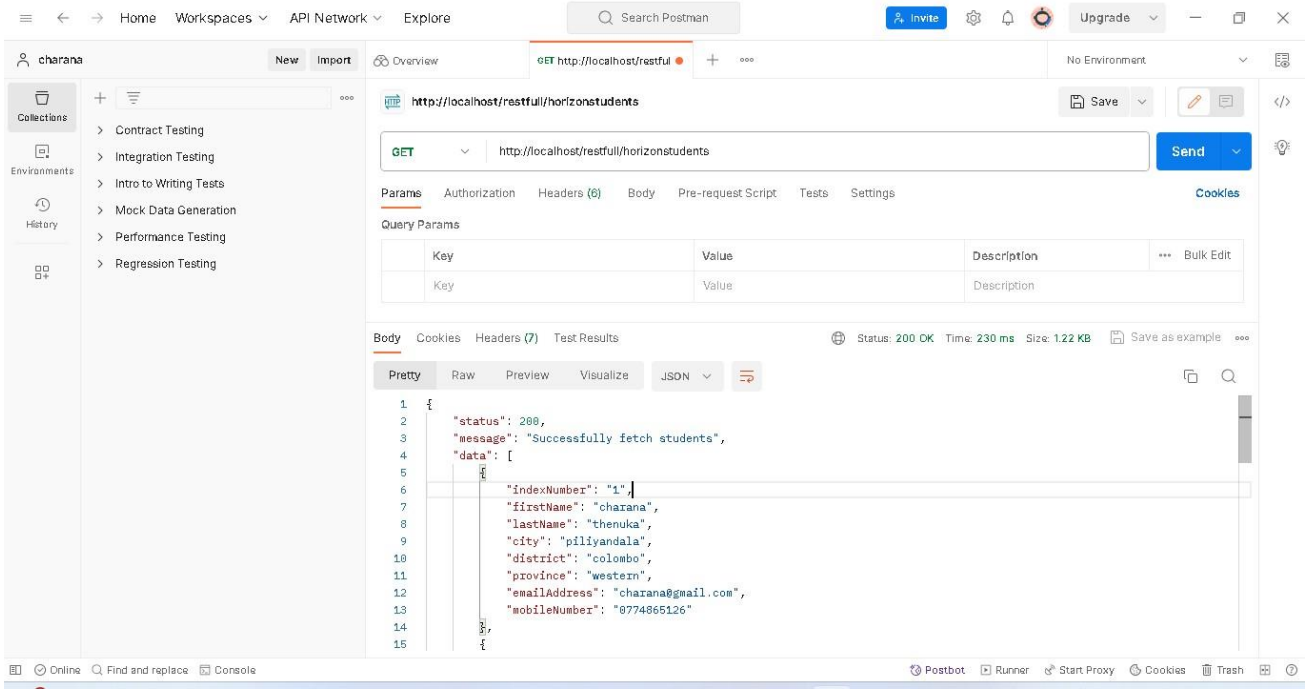
### c. Test I created API using the Postman tool.

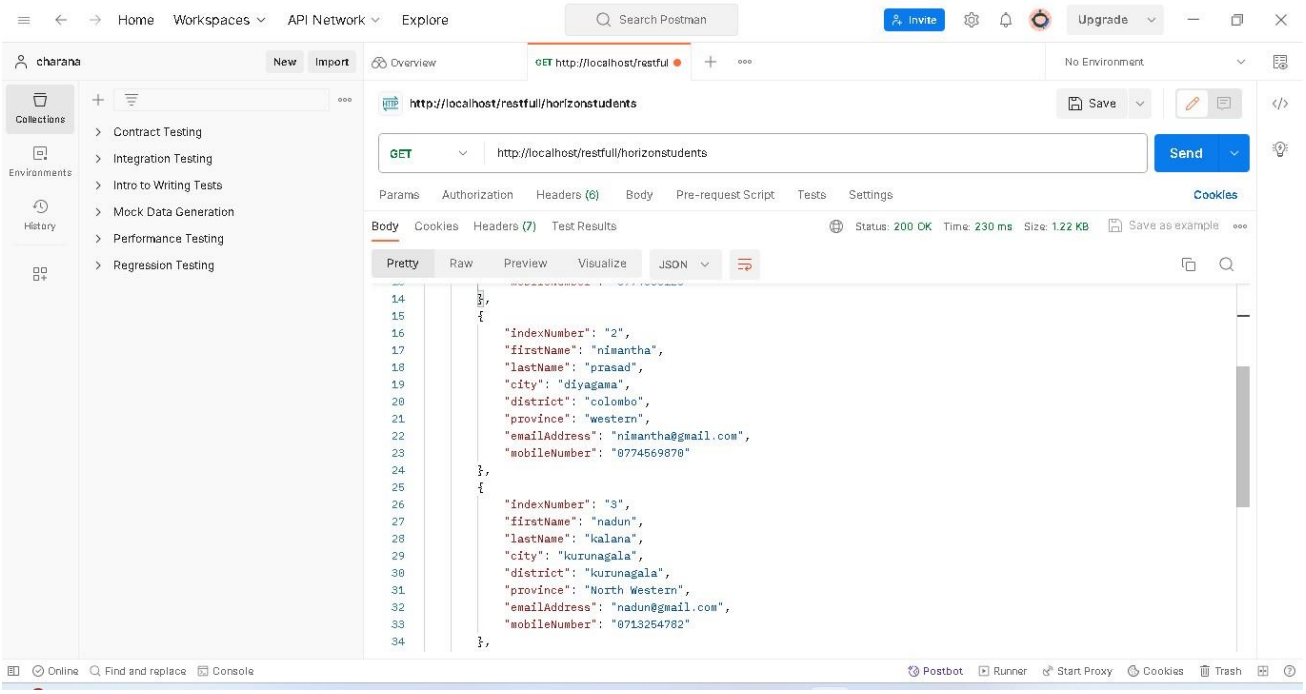
- To test my API, first I opened the Postman software tool and copied the URL from my browser's address bar. Then, I pasted it into Postman and selected the GET method to retrieve all details about the students from the database. You can see it below:

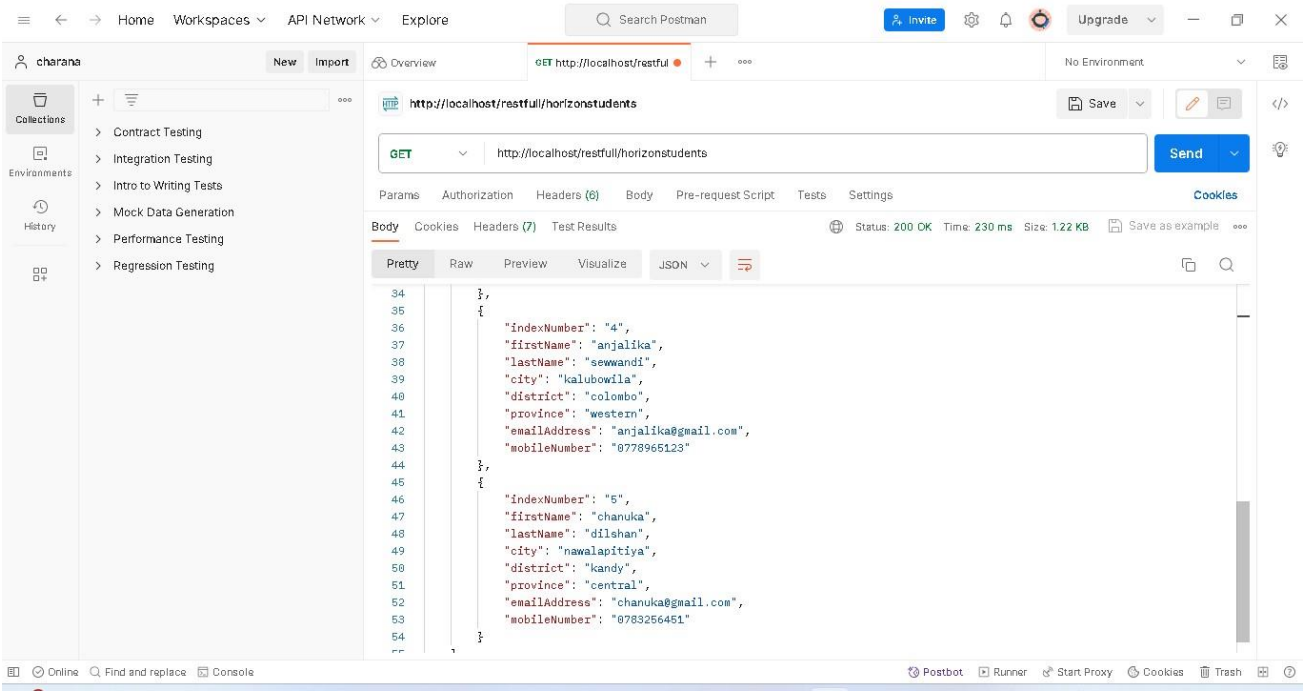




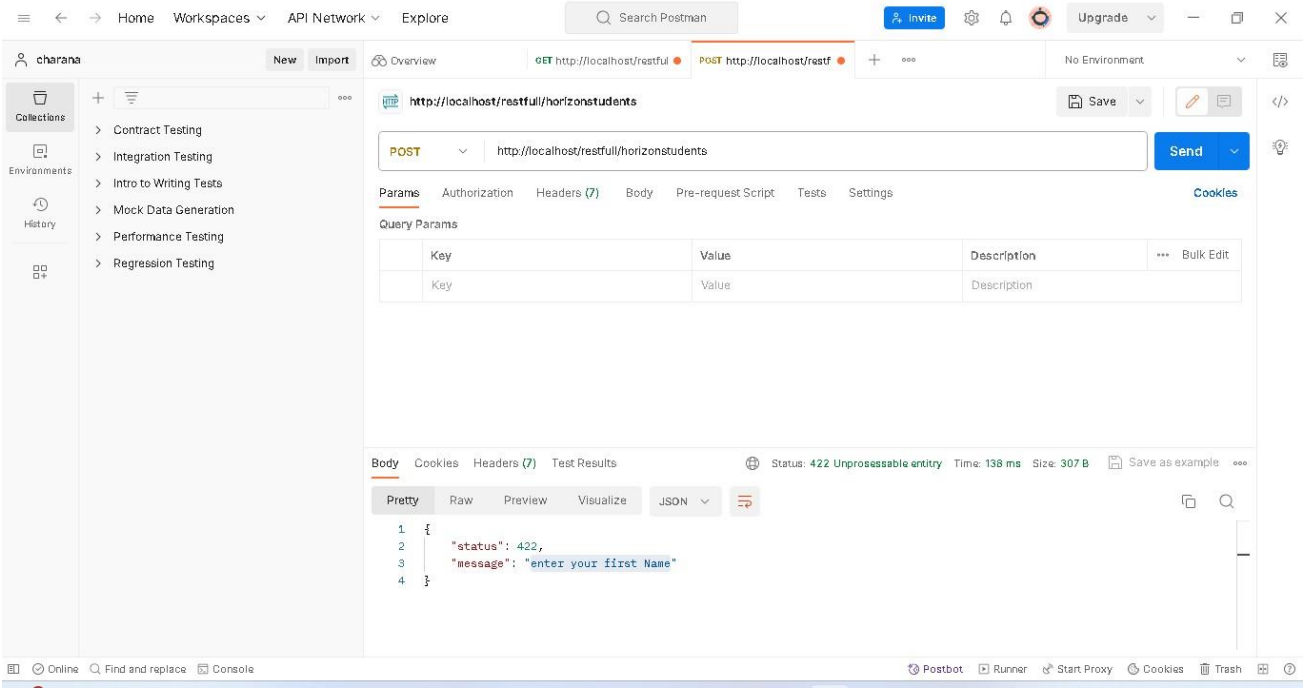

- Now I send the request. If the request is sent successfully, the tool will display the status as '200 OK' and the message as 'Successfully fetch students'. After that, the tool will display the results. I will show you below.



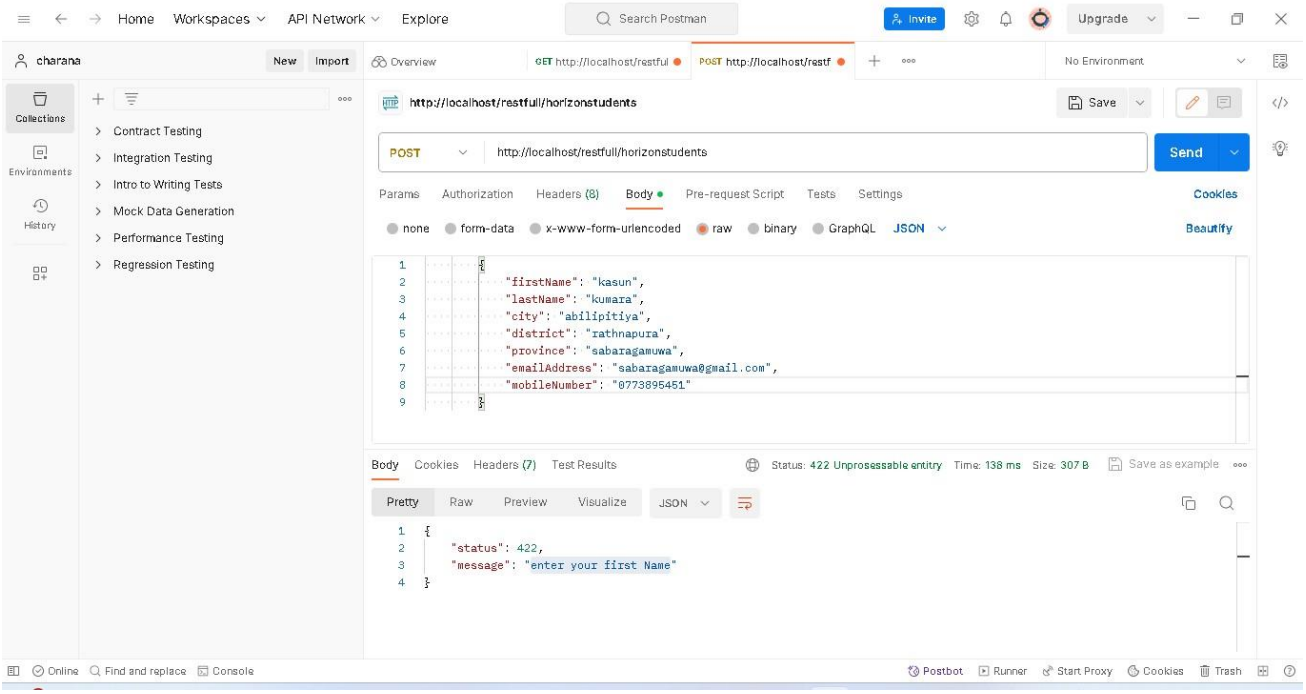

Home Workspaces API Network Explore
Search Postman
Invite
Upgrade
charana
New Import
Overview
GET http://localhost/restful
No Environment
Collections
Environments
History
Contract Testing
Integration Testing
Intro to Writing Tests
Mock Data Generation
Performance Testing
Regression Testing
http://localhost/restfull/horizonstudents
Save
GET
http://localhost/restfull/horizonstudents
Send
Params Authorization Headers (6) Body Pre-request Script Tests Settings
Cookies
Body Cookies Headers (7) Test Results
Status: 200 OK Time: 230 ms Size: 1.22 KB
Save as example
Pretty Raw Preview Visualize JSON
14 },
15 {
16 "indexNumber": "2",
17 "firstName": "nimantha",
18 "lastName": "prasad",
19 "city": "diyagama",
20 "district": "colombo",
21 "province": "western",
22 "emailAddress": "nimantha@gmail.com",
23 "mobileNumber": "0774569870"
24 },
25 {
26 "indexNumber": "3",
27 "firstName": "nadun",
28 "lastName": "kalana",
29 "city": "kurunagala",
30 "district": "kurunagala",
31 "province": "North Western",
32 "emailAddress": "nadun@gmail.com",
33 "mobileNumber": "0713254782"
34 },
Online Find and replace Console
Postbot Runner Start Proxy Cookies Trash


Home Workspaces API Network Explore
Search Postman
Invite
Upgrade
charana
New Import
Overview
GET http://localhost/restful
No Environment
Collections
Environments
History
Contract Testing
Integration Testing
Intro to Writing Tests
Mock Data Generation
Performance Testing
Regression Testing
http://localhost/restfull/horizonstudents
Save
GET
http://localhost/restfull/horizonstudents
Send
Params Authorization Headers (6) Body Pre-request Script Tests Settings
Cookies
Body Cookies Headers (7) Test Results
Status: 200 OK Time: 230 ms Size: 1.22 KB
Save as example
Pretty Raw Preview Visualize JSON
34 },
35 {
36 "indexNumber": "4",
37 "firstName": "anjalika",
38 "lastName": "sewwandi",
39 "city": "kalubowila",
40 "district": "colombo",
41 "province": "western",
42 "emailAddress": "anjalika@gmail.com",
43 "mobileNumber": "0778965123"
44 },
45 {
46 "indexNumber": "5",
47 "firstName": "chanuka",
48 "lastName": "dilshan",
49 "city": "nawalapitiya",
50 "district": "kandy",
51 "province": "central",
52 "emailAddress": "chanuka@gmail.com",
53 "mobileNumber": "0783256451"
54 }
Online Find and replace Console
Postbot Runner Start Proxy Cookies Trash

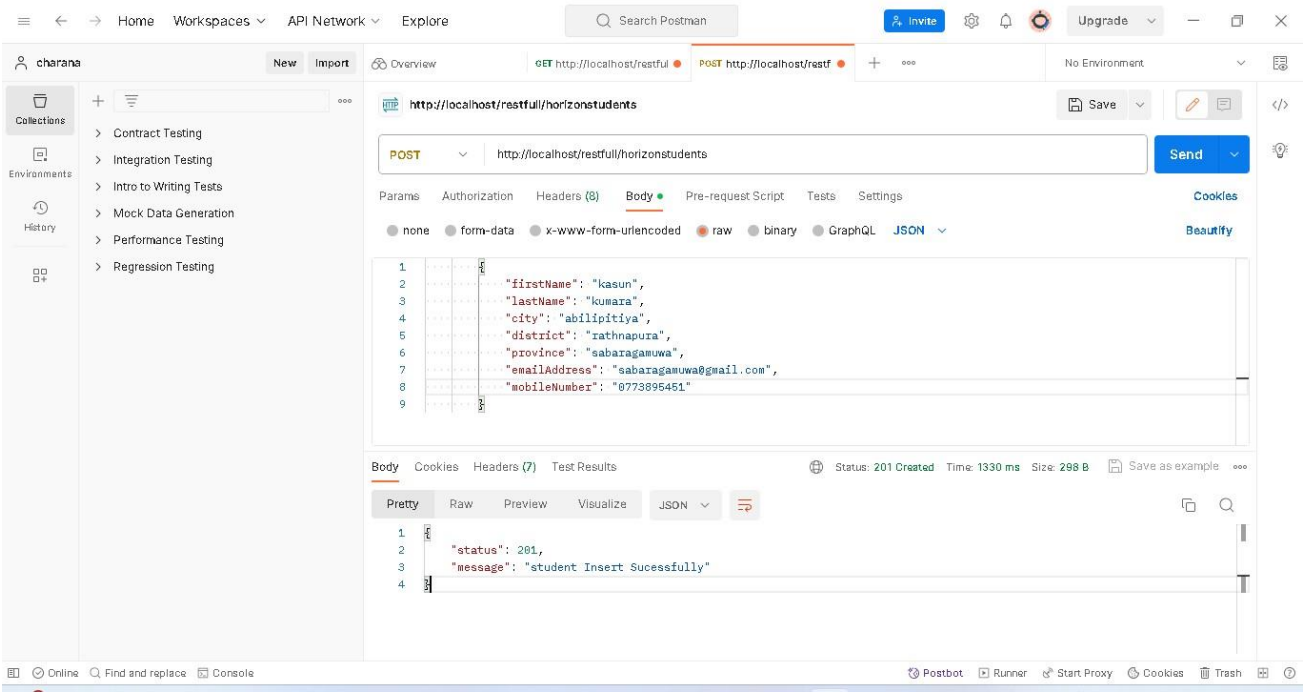
- After completing the GET method, I selected POST as the method and sent the request. Then, the tool displayed the message 'Enter your first name'. I will show you below,



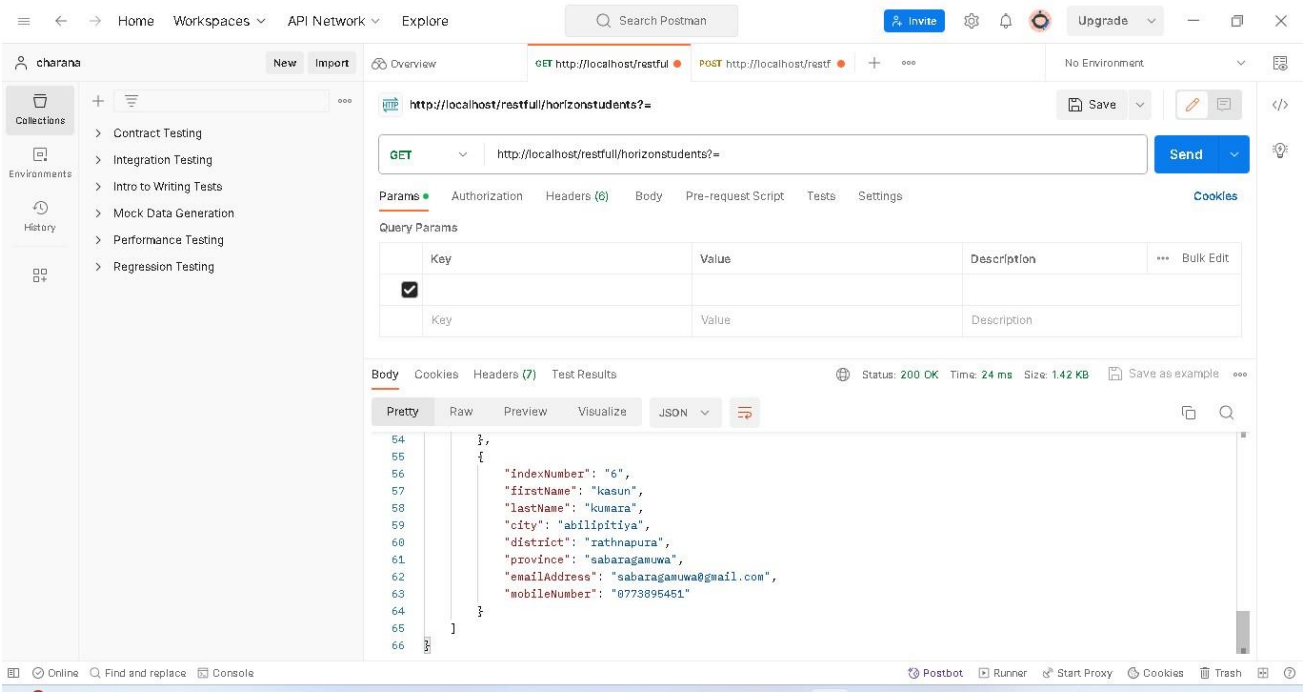

- Now I enter the details of a new student as raw data and select the text as JSON, because I am entering the data in JSON format.

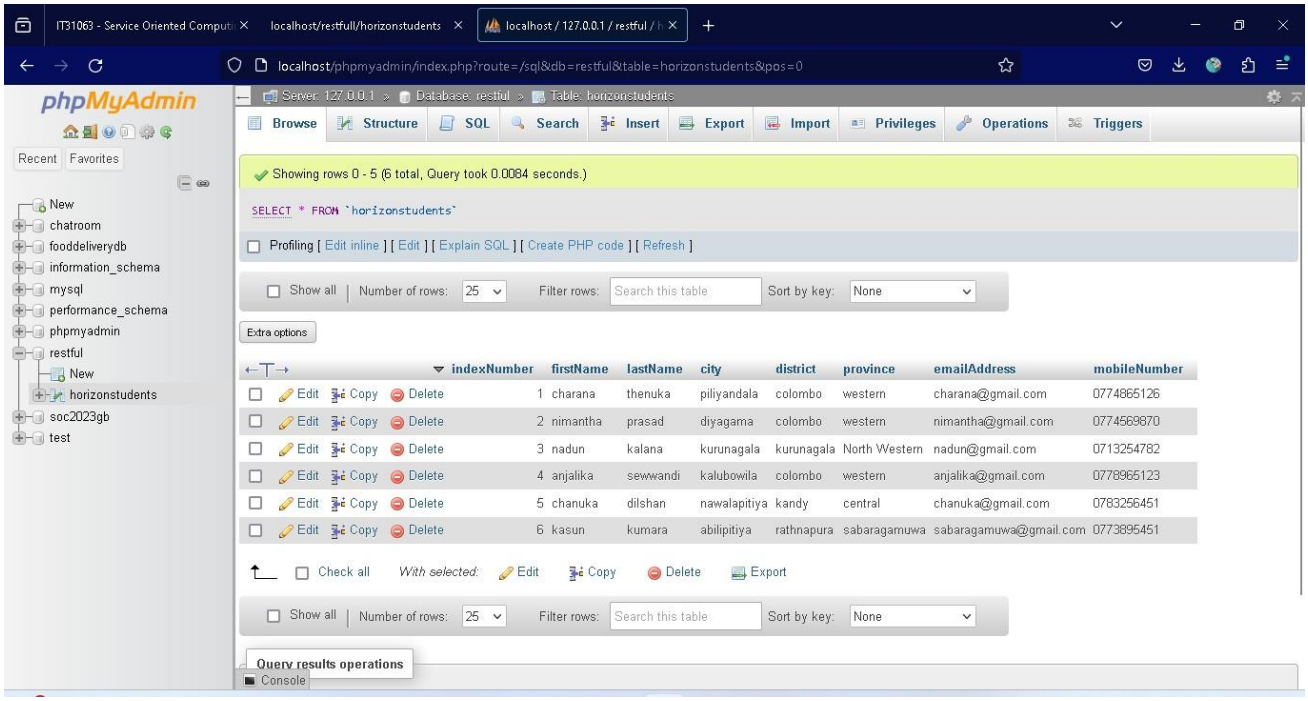


- After completing the add details as JSON format I sent the request, now the system displays message as **“student Insert Successfully”**, you can see below,

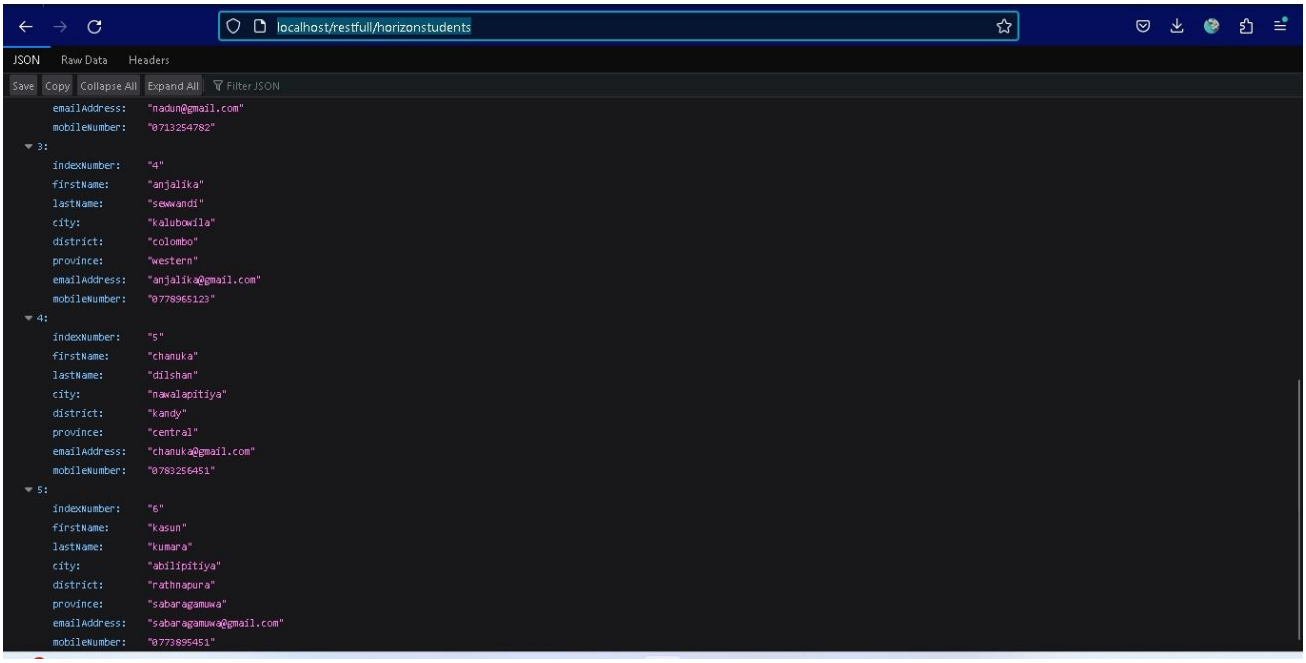



- Now I show you a newly created student. By using Postman tool and database. The newly created student’s index number is 6.

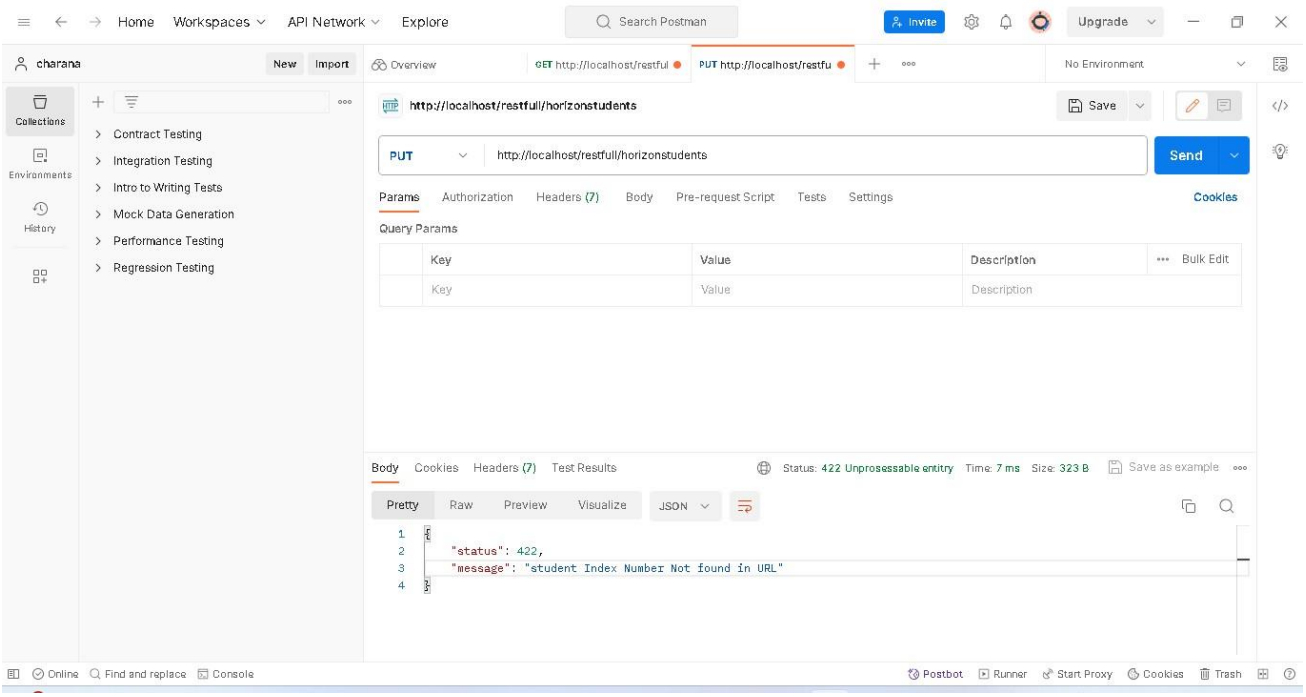




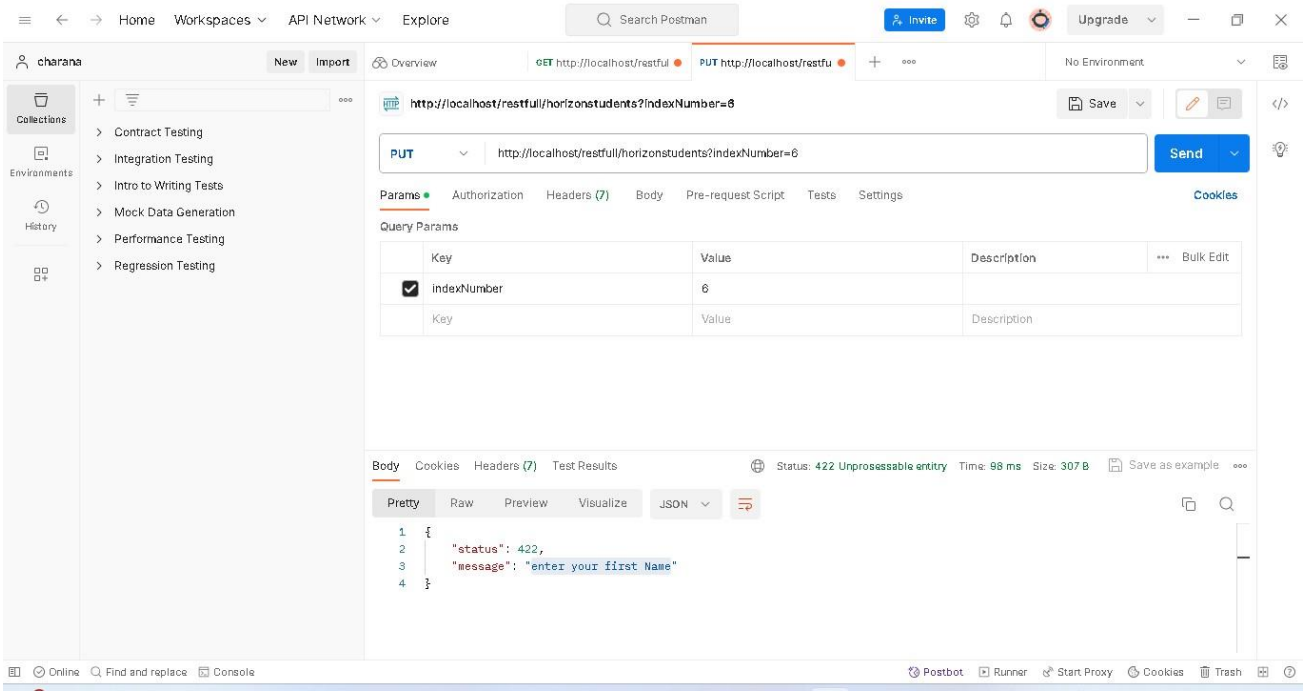

- it also inserts in API,



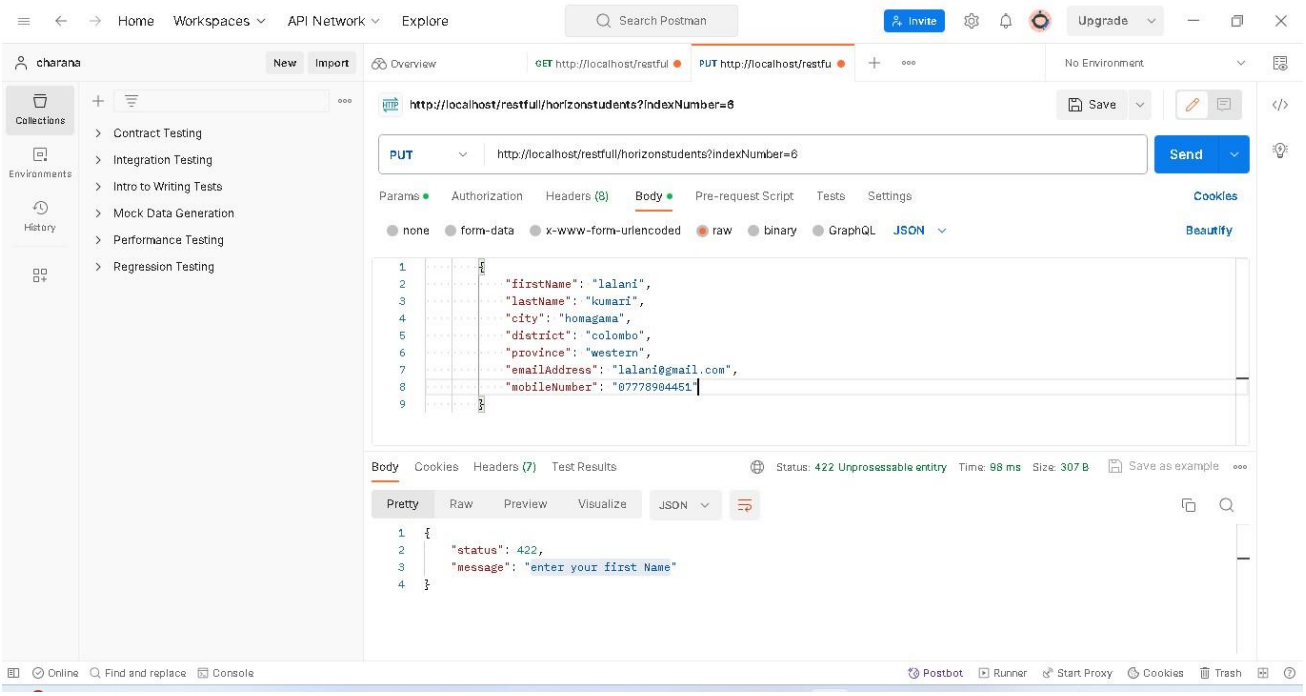
- Now I select **PUT** as the method and send the request. The Postman tool displays the message 'Student Index Number Not found in URL'. The PUT method is used to update the selected field, so I need to provide a student index number.



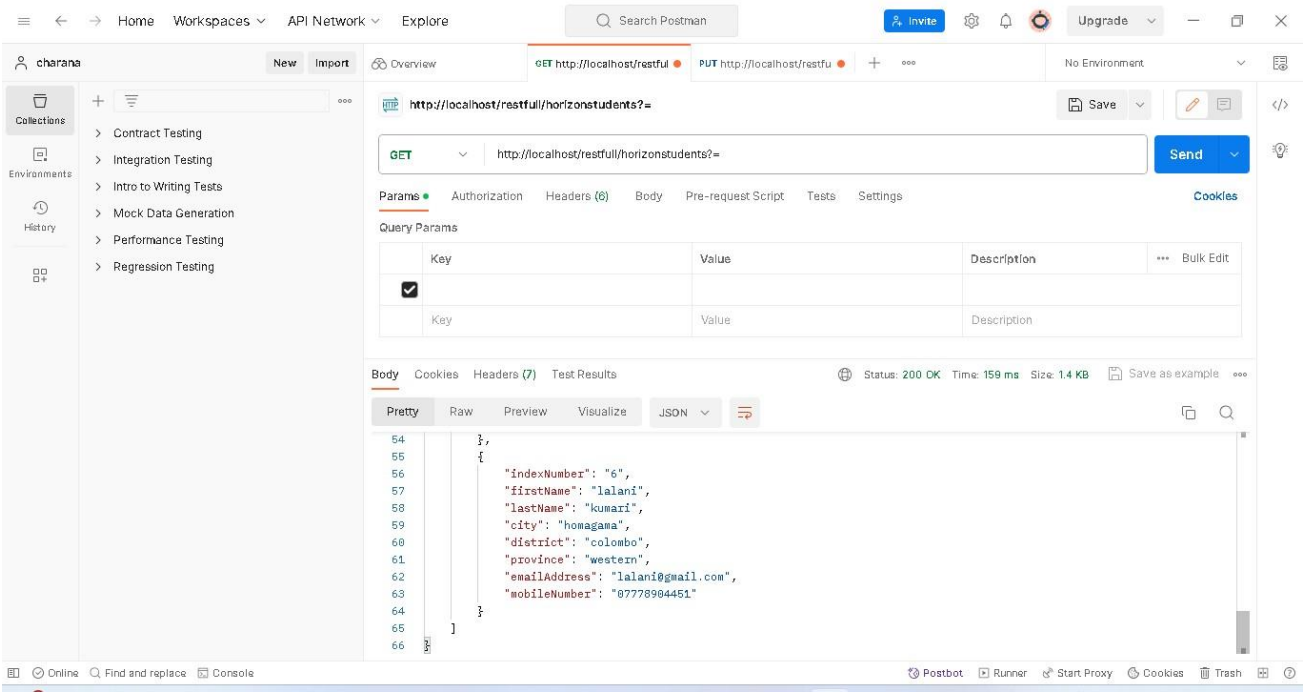

- When I provide a student index number as 6 ( newly created student ), then the Postman tool display the message **"enter your first Name".** you can see below,



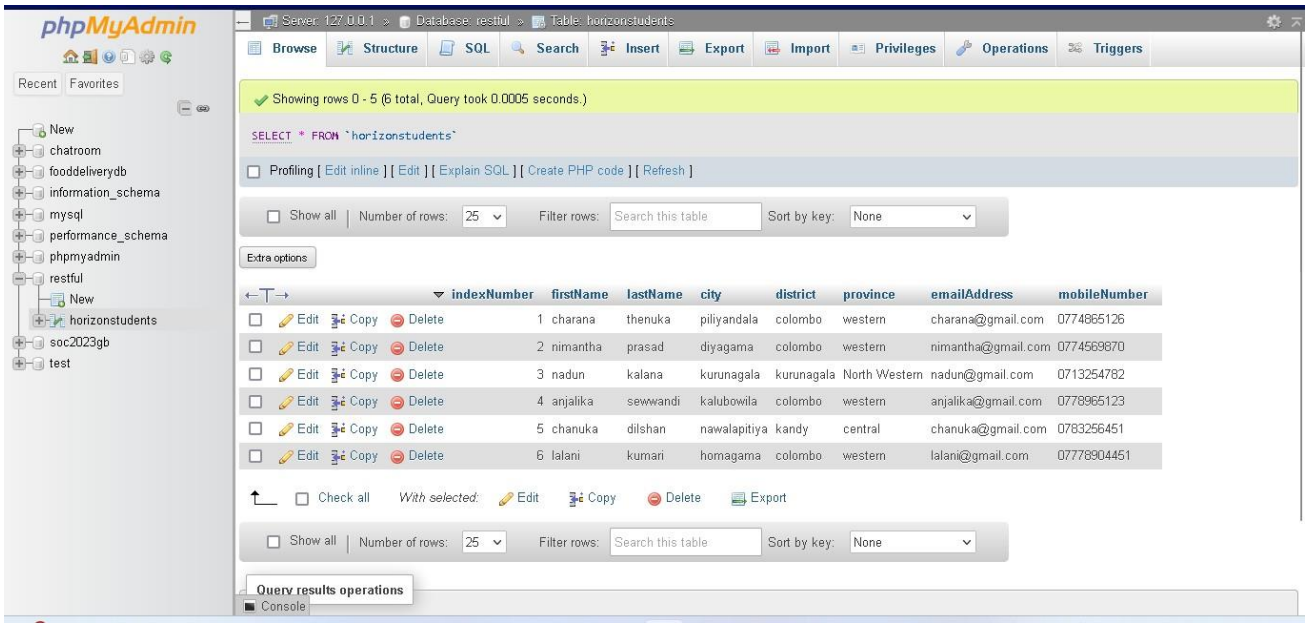
- Now I enter the new details for student 6 , you can see in below,

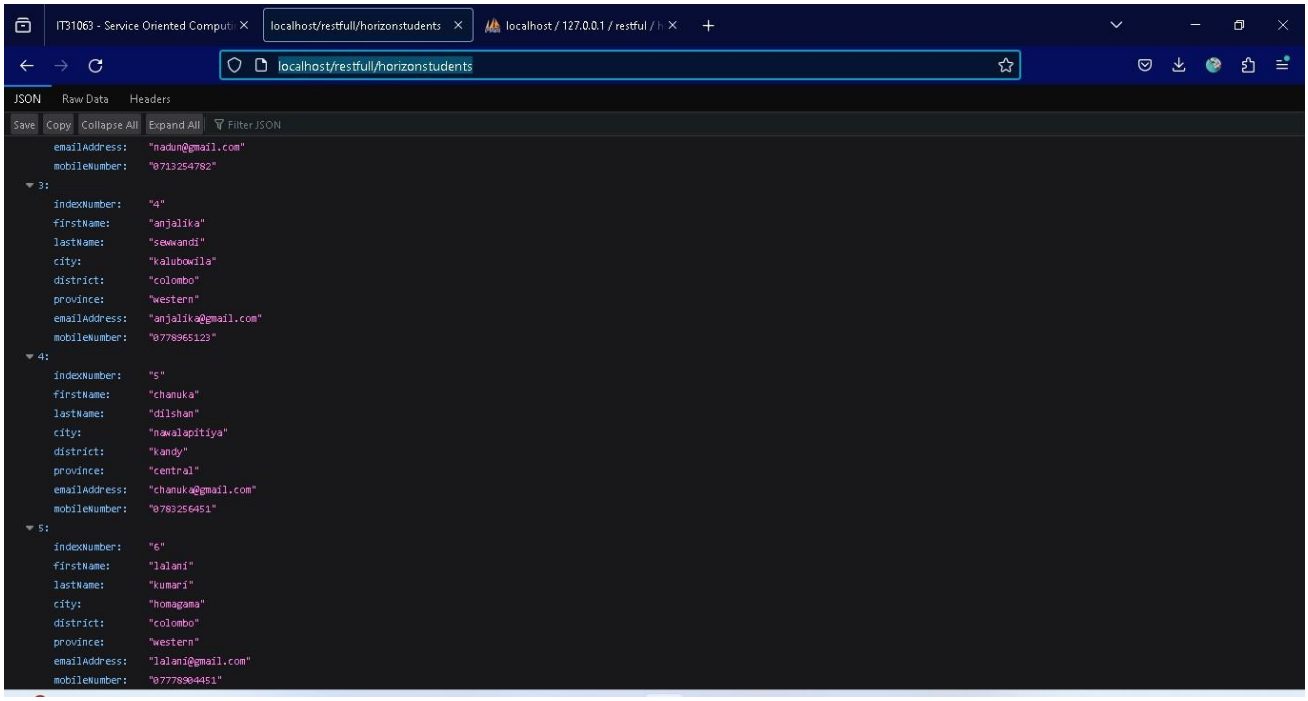



- Now I send the request then postman tool display the message **"student Updated Sucessfully".** Now I check by using the **GET** method, number 6 student update or not. You can see in below,

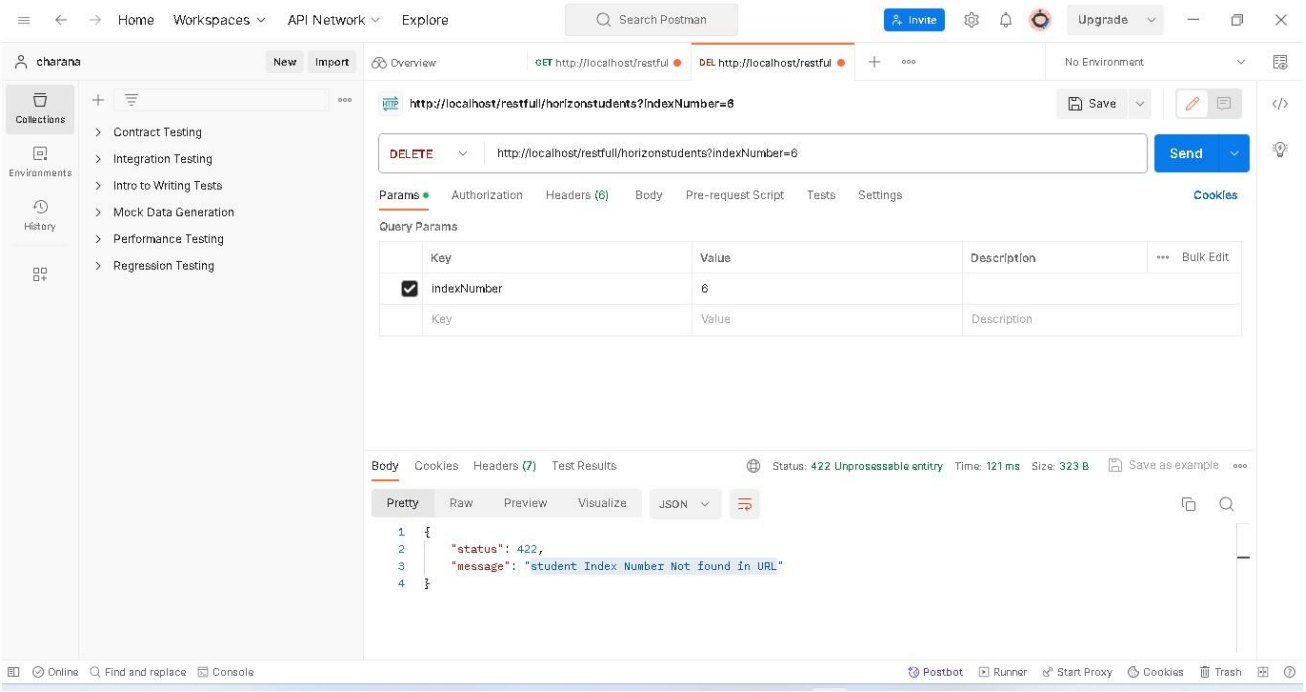


- You can see the number 6 student's details changed, now I show this by using database and API in like below screenshots

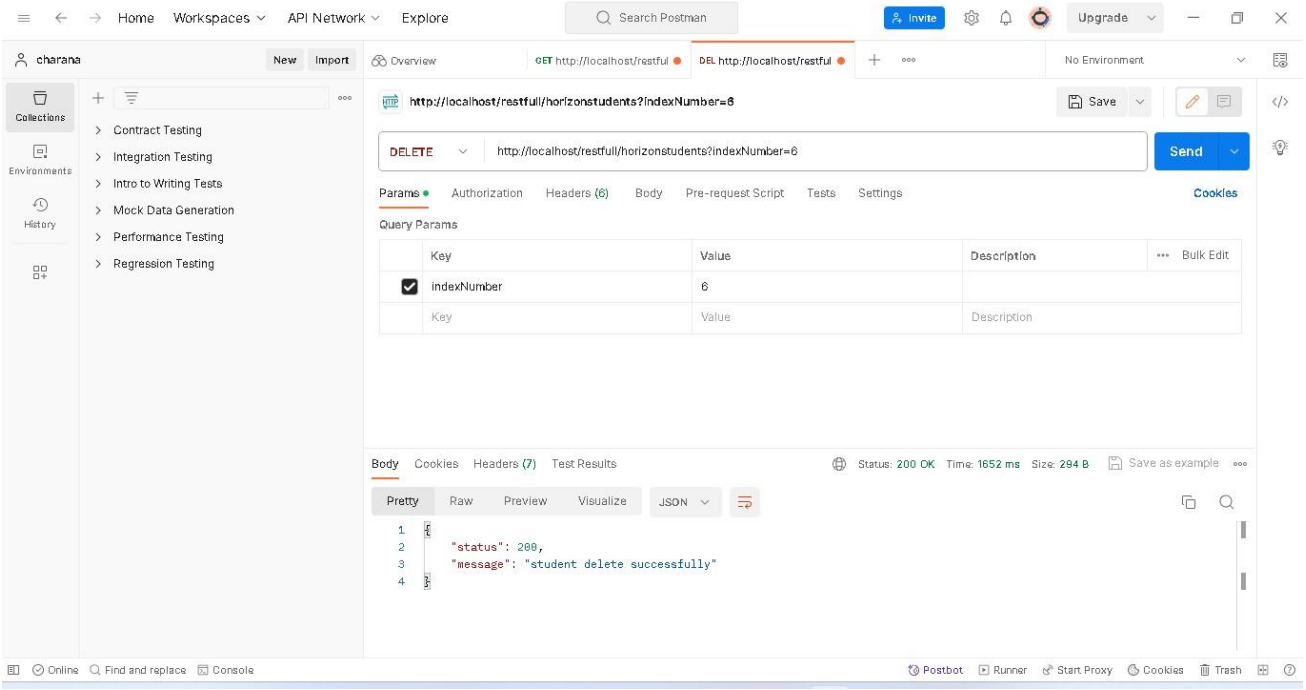


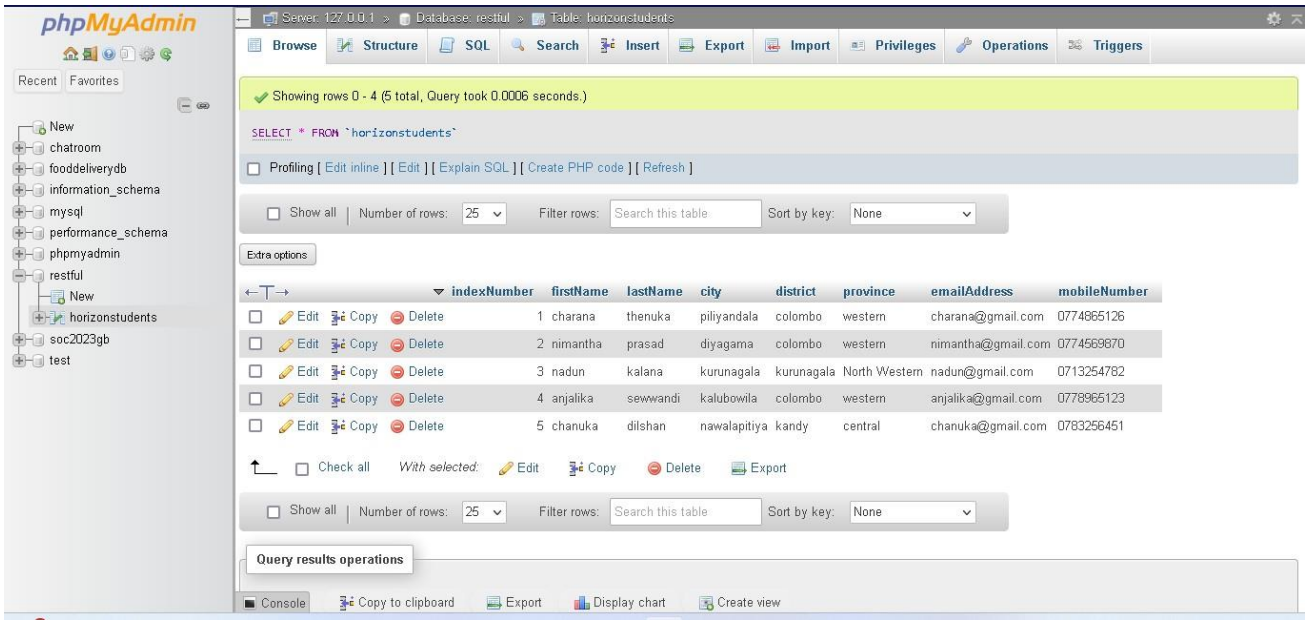
- Finally I changed the method to **DELETE**. When I send the request, the Postman tool displays the message as **"student Index Number Not found in URL".** This means that the index number of the student to be deleted has not been added to the URL. Therefore I add the newly created student index number which is 6.

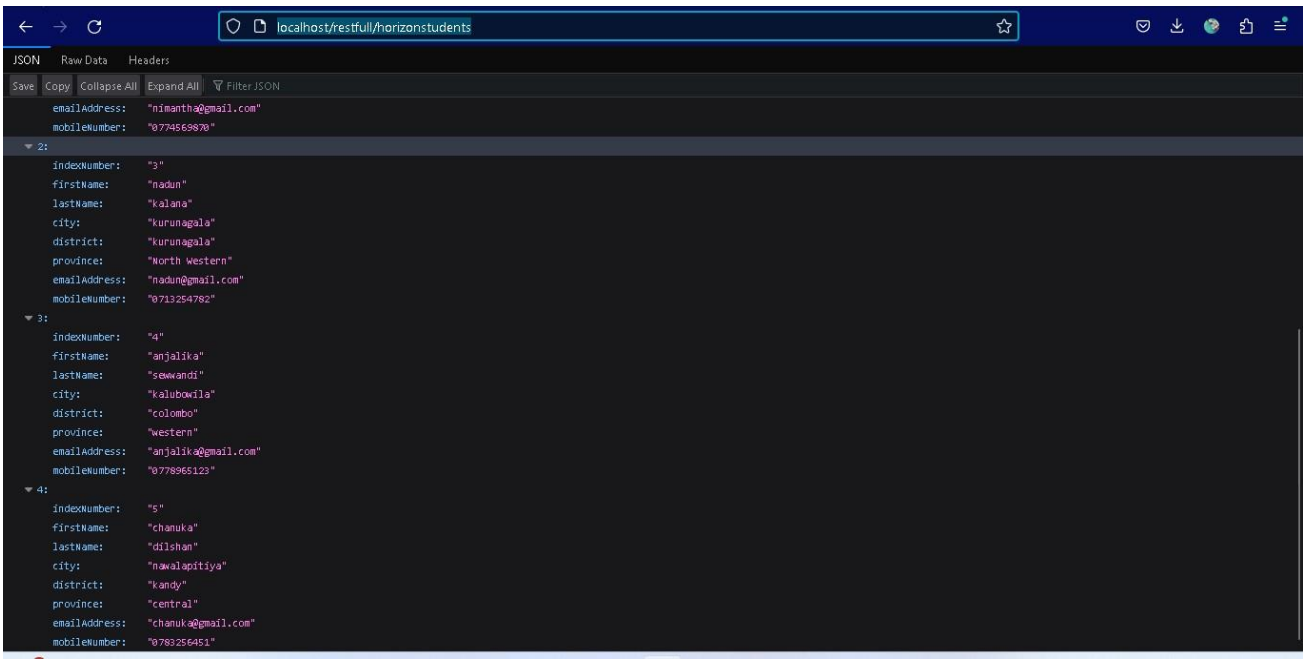



- now I send the request and the Postman tool displays the message as **"student Delete Successfully"**. you can see in the below screenshot.



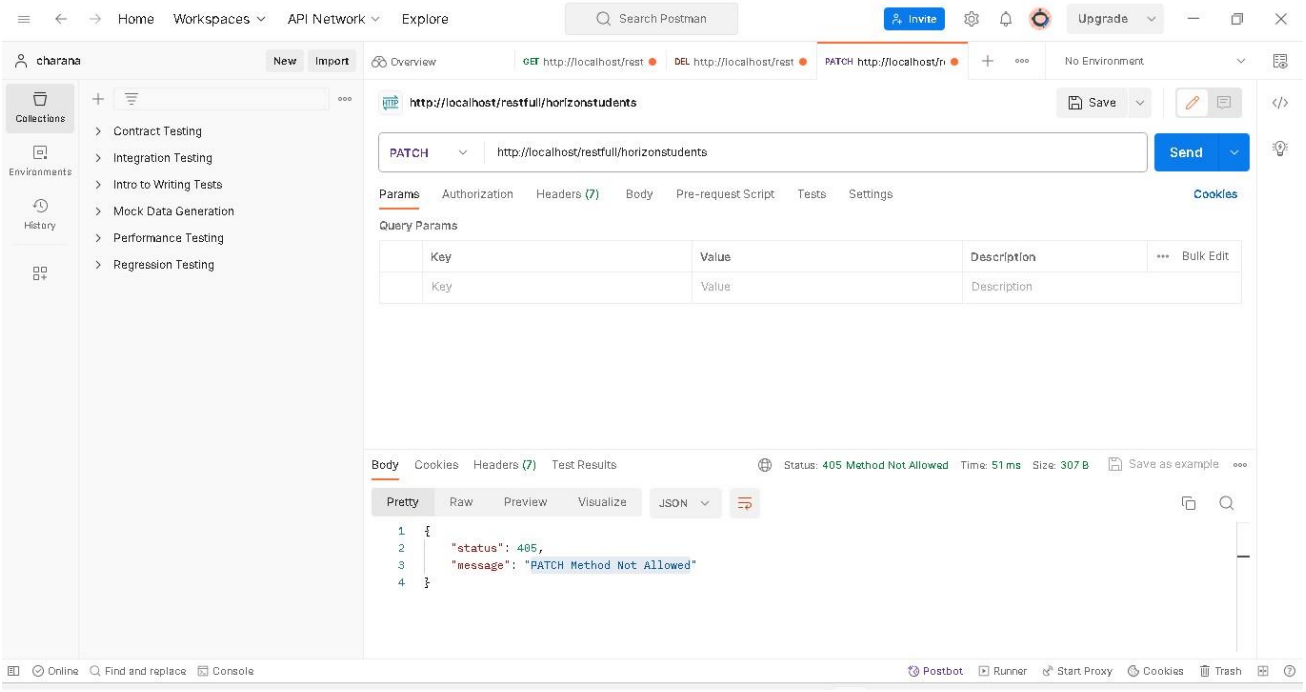
- I show my database to you database and the API student 6 details are deleted or not.




- likewise, you can see all GET, POST, PUT, and DELETE methods checked by using the Postman tool. All the methods are working properly.

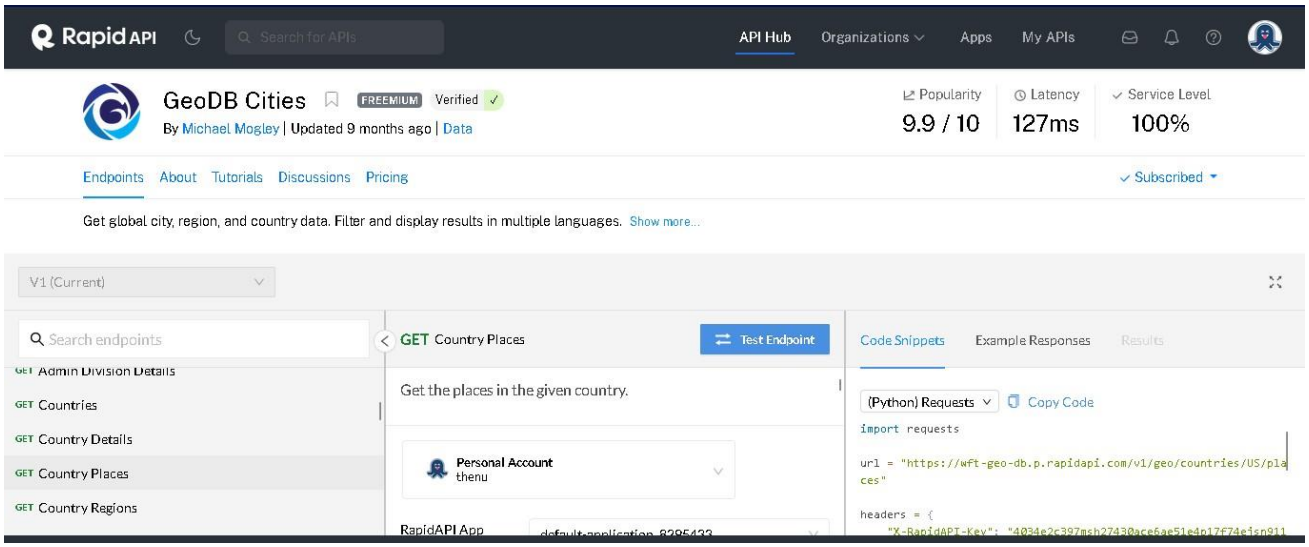
- Now I used the method as **PATCH**, then the Postman tool display the message as "PATCH Method Not Allowed" because I wrote code only **GET, POST, PUT,** and **DELETE.** You can see below screenshot.



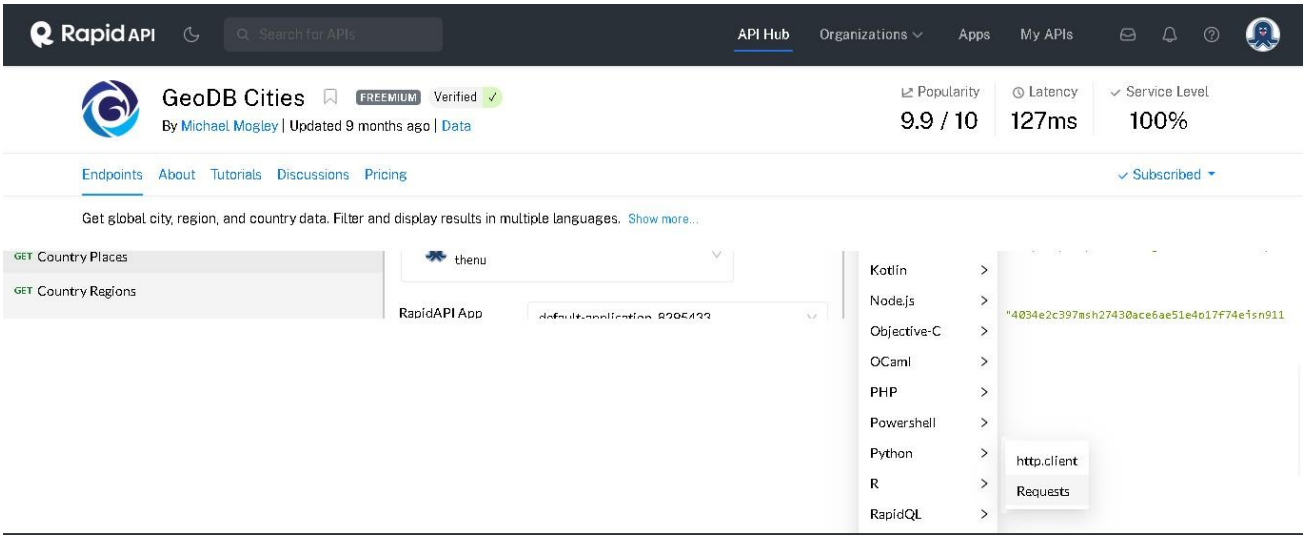
# Question 4

4. **Access https://rapidapi.com/wirefreethought/api/geodb-cities Rest API and get country places in New Zealand using Python and display "place id", "place name", "place type", and "region code" by using the panda library.**

   ➢ First I go to the provided link and then I choose "get country places", like below




   ➢ Thereafter I choose code Snippets as (python) Request, like below.



- Now I copy that code and paste then I saw this provided url gives only United States (US) details, like below

```
url = "https://wft-geo-db.p.rapidapi.com/v1/geo/countries/US/places"
```

- Therefor I changed this country code (US) to nz , because New Zealand's country code is nz. Now you can see My modified code. I display only "place id", "place name", "place type", and "region code", You can see my code and output below,

```
import requests

url = "https://wft-geo-db.p.rapidapi.com/v1/geo/countries/nz/places"

headers = {
  "X-RapidAPI-Key": "4034e2c397msh27430ace6ae51e4p17f74ejsn911be8a1ae04",
  "X-RapidAPI-Host": "wft-geo-db.p.rapidapi.com"
}

response = requests.get(url, headers=headers)

data=(response.json())
data=data['data']
import pandas as pd
df=pd.DataFrame(data)
df[['id' , 'name' , 'type' , 'regionCode']]
```

| | id | name | type | regionCode |
|---|---|---|---|---|
| 0 | 3458993 | Abbotsford | CITY | OTA |
| 1 | 3401902 | Acacia Bay | CITY | WKO |
| 2 | 3529320 | Adair | CITY | CAN |
| 3 | 3617971 | Adams Island | ISLAND | NaN |
| 4 | 3357962 | Addington | CITY | CAN |

# References


1. Anon., n.d. [Online]
   Available at:
   https://colab.research.google.com/github/Rblivingstone/iMaterialist_Kaggle_competition/blob/master/Untitled0.ipynb?pli=1#scrollTo=NOhr7LV7aN7u

2. Anon., n.d. [Online]
   Available at: https://getbootstrap.com/docs/5.0/getting-started/introduction/

3. Anon., n.d. *Find Color On Image, Match PMS Colors.* [Online]
   Available at: https://www.ginifab.com/feeds/pms/pms_color_in_image.php#google_vignette

4. Anon., n.d. *W3 school.* [Online]
   Available at: https://www.w3schools.com/bootstrap5/bootstrap_get_started.php