GeoNames API

In the Earthquake system, tmpst uses an API to fetch the country code associated with a specific latitude and longitude. The API used is offered by GeoNames which provides multiple endpoints and various attributes that can be queried for, however, only the country code endpoint is used by tmpst. The GeoNames API does require authorisation, however, this is in the form of a username that is provided when signing up.

The country code endpoint provides the following attributes:

- languages
- distance
- countryCode
- countryName

Pre-requisites:

- Understanding of JSONp format
- GeoNames account username for authorisation
- Latitude and longitude to query the API for
- A suitable method for making a request (Postman: https://www.getpostman.com/downloads/ or in new tab)

Aims:

- Learn how to request data from the GeoNames country code endpoint in Postman
- Learn how to request data from the GeoNames country code endpoint in a new tab
- Learn how to request data from the GeoNames country code endpoint using AJAX call

Postman Tutorial

In this tutorial, we will create a request to the GeoNames country code endpoint using the postman application on Windows. Before proceeding with this tutorial, please ensure you have access to the Postman application or are using the online version.

Steps:

1. Construct Postman request

Step 1: Construct Postman request

This tutorial assumes that you have a basic understanding of how to use Postman. If not, we provide a tutorial on how to utilise Postman properly that you may wish to read before you continue with this tutorial. If you know how to use Postman, create a new GET request and give it an appropriate name. The name I will use in this tutorial is “GeoNames Country Code Request”. If you have setup the request properly you should see the following:

Nothing will happen if you attempt to send the request as the url box is empty. Now we have to add the base url (https://secure.geonames.org/countryCode) to the url box as well as adding the following as query parameters:

- type = JSON
- lat = 55.8668213
- lng = -4.2521489
- username = {Your_GeoNames_Username}

The final url should look like the following:
https://secure.geonames.org/countryCode?type=JSON&lat=55.8668213&lng=-4.2521489&username={Your_GeoNames_Username}

The latitude and longitude chosen is the exact location of Glasgow Caledonian University. If you hit the send button you should see the following response:


```
{
   "languages": "en-GB,cy-GB,gd",
   "distance": "0",
   "countryCode": "GB",
```

"countryName": "United Kingdom"
}

Browser Request Tutorial

In this tutorial, we will create a request to the GeoNames country code endpoint using a new tab on a Google Chrome browser. For this tutorial, we will use the same endpoint as is used in the Postman example:

https://secure.geonames.org/countryCode?type=JSON&lat=55.8668213&lng=-4.2521489&username={Your_GeoNames_Username}

Step 1: Add url to tab and run
This tutorial is easier than either the Postman method or the AJAX method (still to come) as it only involves using a tab in a browser as if you are navigating to a web page. To get a result, add the url to the address bar and hit enter and you should see the following:

{"languages":"en-GB,cy-GB,gd","distance":"0","countryCode":"GB","countryName":"United Kingdom"}

The result is shown in plain text below:

{
"languages": "en-GB,cy-GB,gd",
"distance": "0",
"countryCode": "GB",
"countryName": "United Kingdom"
}

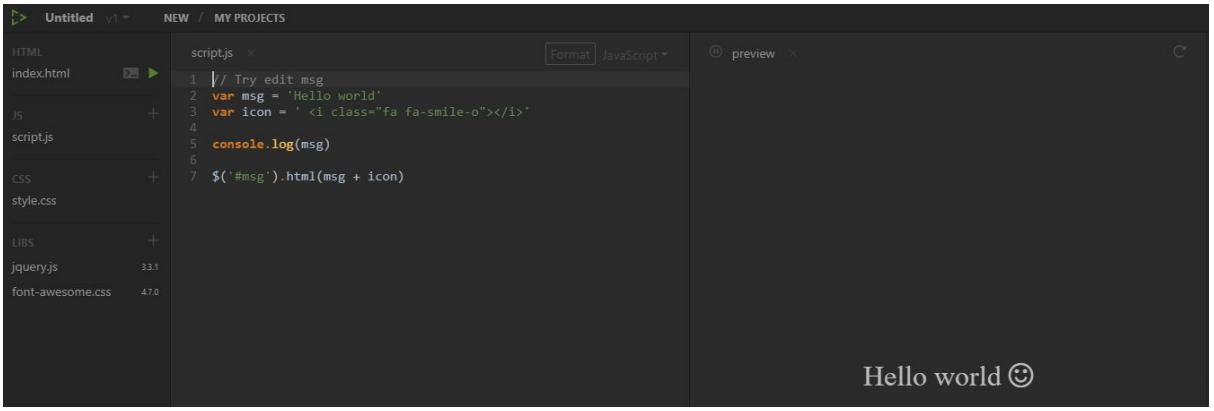
AJAX Tutorial

The above methods show you how to access the GeoNames country code endpoint and view the data, however, neither method involves any coding and neither would work well in an application's context. So, in this tutorial we will connect to the endpoint using AJAX which can then be put into the javascript of any application.

Steps:

1. Create a new playcode project
2. Add the provided AJAX code and run

Step 1: Create a new playcode project
For this tutorial, playcode will be used to demonstrate the AJAX request. Although we are using playcode, almost any online JavaScript IDE would work (JsFiddle). If you search for playcode and click on the link you should see the following default project setup:



Playcode is ideal for this tutorial as we only need to change the js file and view the console as jquery is referenced as standard.

Step 2: Add the provided AJAX code and run
The AJAX required to fetch the data programatically is:

```
$.ajax({
        type: "GET",
        url:
"https://secure.geonames.org/countryCode?type=JSON&lat=55.8668213&lng=-4.2521489&
username={Your_GeoNames_Username}",
        dataType: "jsonp",
        success: function (result) {
            console.log('AJAX Result: ', result);
        },
        error: function (errorResult) {
            console.log('ERROR: ', errorResult.statusText);

        }
    });
```

If you replace the contents of script.js with the above AJAX and run the code, you should see the following:

As you can see this result looks similar to the other results we have seen earlier in the project, however, this code can be added to an application and the data can be fetched and altered dynamically.

Conclusion
That is the methods which can be used to request data from the GeoNames country code endpoint. The most useful of the methods is AJAX, however, the others can be used for testing and ensuring the quality of the data

Common Issues:
Normally, implementing the methods discussed in this tutorial are relatively easy, however, some of the most common issues are detailed below:

- Not authorising username - The username used to request data from the endpoint has to be authorised on the GeoNames site. If this is not dones, then any attempt to access the endpoint will fail

Outcomes
You should now be able to:
- Request data from the GeoNames country code endpoint in Postman
- Request data from the GeoNames country code endpoint in a new tab
- Request data from the GeoNames country code endpoint using AJAX call

References
Although we hope this tutorial has been all the help you need, here are some useful links that may be of use:

Useful Resources:
- GeoNames home page - http://www.geonames.org/
- Functional playcode AJAX request - https://playcode.io/269206?tabs=console&script.js&output

Tools:
- Postman - https://www.getpostman.com/downloads/
- Playcode - https://playcode.io/