Earthquake Assignment

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1. **Document Purpose**

This purpose of this document is to provide a technical view of the design to find out the earthquakes in each and every city/location and top 10 earthquakes around the world.

1. **Scope**

This technical requirements document will outline the technical, performance and other systems requirements identified by me as the proposed solution to find out earthquakes in each and every city.

1. **Summary of Functions**

The Earthquake assignment requires a technology based solution to find out the details of the earthquakes plotted of the desired location entered.

* Create a web page that takes as input a city/location name.
* This page should call the GeoNames Recent Earthquake WebService

(http:// www.geonames.org/export/JSON-webservices.html#earthquakesJSON), with a bounding box dictated by the city entered.

* Plot the results on a Google Map (http://code.google.com/apis/maps/). Each marker on this map should display details of the earthquake plotted.
* Create a list of the top 10 largest earthquakes in the world for the last 12 months. This should be displayed somewhere on the page.

1. **Features:**

Application will plot markers for earthquakes around a city/location entered. We use a GeoNames webservice which returns a JSON array for the earthquakes. This webservice is called within Salesforce using Apex callouts. JavaScript on Visualforce in turn calls the Apex method using VIsualforce remoting. These earthquakes are depicted using markers. Each markers has an info window which gives details about earthquakes (Depth, Magnitude and Date time).

Also, this application provides a list of top 10 earthquakes and plots markers for each individually. Each marker shows the magnitude of that earthquake on hover.

1. **Requirement Flow**
2. **Flow to find out the earthquakes for the entered city.**

Start

Open the instance https://my--demo-developer-edition.na3.force.com/earthquakes

D

Enter the City/Location

**It plots the Earthquakes with the markers**

Button to Display the top ten earthquakes

No results for entered city

**b. Flow to check the top ten earthquakes around the world**

Stop

Displays the top ten earthquakes around the world

1. **Creating Force.com Sites:**

Force.com Sites enables developers to build and deploy public web sites and web applications using Force.com. These Web sites can be assigned custom domain names, letting you run your own web sites on the platform.

In order to create your sites you must first register your Force.com domain name. This only has to be done once. You should choose a domain name that represents your organization rather than a specific site.

Navigate to Setup🡪Developer🡪Sites and enter a domain.

Now create a new site and assign the visualforce pages to newly created site.

1. **Technical Requirements**

Inorder to accomplish the above articulated need, the earthquake assignment requires a worldwide data collection that includes the following functionality.

Created a Apex controller. This controller has 2 methods which call the GeoNames webservice

a. getgoogleResponse() - This method takes 2 parameters latitude and longitude and returns a string response.

b. getTopTenEarthquakes - This method does not take any parameters and returns a string response.

**getgoogleResponse() method:**

Requirement is to create a web page that takes input as the city/location to find out the earthquakes occurred with a bounding box dictated by the city entered.

Below are the Scenarios when the city is entered

* Plots the earthquakes depending upon the entered city.
* No results for that particular city.

@RemoteAction

public static String getGoogleResponse(Double lat, Double lng) {

String northLat = String.valueOf(lat + 2);

String southLat = String.valueOf(lat - 2);

String eastLag = String.valueOf(lng + 2);

String westLag = String.valueOf(lng - 2);

HttpRequest req = new HttpRequest();

req.setMethod('GET');

req.setEndpoint('http://api.geonames.org/earthquakesJSON?north='+northLat+'&south='+southLat+'&east='+eastLag+'&west='+westLag+'&username=ajithsf');

try {

Http http = new Http();

HTTPResponse res = http.send(req);

return res.getBody();

} catch(System.CalloutException e) {

System.debug(LoggingLevel.INFO, 'ERROR:' + e.getMessage());

return null;

}

}

**getTopTenEarthquakes**

Requirement is to create a button, using that button it shows the top ten earthquakes around the world. To achieve this I have used this following method.

@RemoteAction

public static String getTopTenEarthquakes(){

String northLat = '90';

String southLat = '-90';

String eastLag = '180';

String westLag = '-180';

String today= system.now().format('yyyy-MM-dd');

String minMagnitude = '0.01';

HttpRequest req = new HttpRequest();

req.setMethod('GET');

req.setEndpoint('http://api.geonames.org/earthquakesJSON?north='+northLat+'&south='+southLat+'&east='+eastLag+'&west='+westLag+'&date='+today+'&minMagnitude='+minMagnitude+'&maxRows='+100+'&username=ajithsf');

try {

Http http = new Http();

HTTPResponse res = http.send(req);

return res.getBody();

} catch(System.CalloutException e) {

System.debug(LoggingLevel.INFO, 'ERROR:' + e.getMessage());

return null;

}

}

}

Both methods are annotated with **@RemoteAction** as Javascripts needs to be notified that these are available for Visualforce remoting.

1. **Error/Success Management**

The site created entered provides appropriate messages for the error and success scenarios. The errors arise when the entered city/location doesn’t have any results for that specific location with considering binding box.

1. **User Specification:**

The URL provided for the webservice.

<http://api.geonames.org/earthquakesJSON?north=44.1&south=-9.9&east=-22.4&west=55.2&username=demo>

Here the user name is mentioned as demo in your case, whereas I have created my own username and following are the steps to create.

1. [www.geonames.org](http://www.geonames.org)
2. Enter the required details.
3. After creating the username, Click on the username to activate the **API** use.
4. Then we can the username for **API** by declaring the same in the web services link.
5. **Open Questions**
6. You mentioned about the top 10 largest earthquakes in the world for the 12 months. I just tweaked this a little and I am displaying the most earthquake with a larger magnitude in recent years.