Programming Assignment 3

Due Oct 20, 2020 by 11:59pm **Points** 100 **Submitting** a file upload **Available** until Oct 24, 2020 at 11:59pm

This assignment was locked Oct 24, 2020 at 11:59pm.

Web Mashup: Display Best Restaurants on a Map

Description

The goal of this project is to create a web mashup that combines two web services: Google Maps and the Yelp API for Developers, using JavaScript and AJAX. After you center your Google Map to a geographical area and enter some terms, such as "Indian Restaurant", your application will find the best matches (eg, the best Indian restaurants) inside you map area, it will mark their location on the map, and will display some information about these restaurants on the web page.

This project must be done individually. No copying is permitted. **Note: We will use a system for detecting software plagiarism, called Moss (http://theory.stanford.edu/~aiken/moss/) , which is an automatic system for determining the similarity of programs.** That is, your program will be compared with the programs of the other students in class as well as with the programs submitted in previous years.

Note that, if you use a Search Engine to find similar programs on the web, we will find these programs too. So don't do it because you will get caught and you will get an F in the course (this is cheating). Don't look for code to use for your project on the web or from other students (current or past). Just do your project alone using the help given in this project description and from your instructor and GTA only. Finally, you should not post your code nor deploy your project on a public web site.

Platform

As in Project #2, you will develop this project on your PC/laptop using XAMPP and you will test it using using your Mozilla Firefox web browser. Download **project3.zip** (https://uta.instructure.com/courses/57979/files/10075156/download?download_frd=1) and unzip it inside your web server document root directory. The project3 directory contains 3 files: `proxy.php`, `yelp.html`, and `yelp.js`. All the web service requests to yelp.com

should go through the `proxy.php`. See the example in `yelp.js`. Your project is to edit `yelp.html` and `yelp.js` as described in the description of the web application.

Web Services used by the Web Mashup

For this project, you will use the

- **Yelp Fusion API (v3.0)** (https://www.yelp.com/fusion) from **Yelp** (http://www.yelp.com/) (more specifically, the **Search API** (https://www.yelp.com/developers/documentation/v3/business_search))
- **Google Maps JavaScript API V3** (https://developers.google.com/maps/documentation/javascript/tutorial)
- **Google Map Markers** (https://developers.google.com/maps/documentation/javascript/markers)

First, you need to get API keys for both Google maps and Yelp:

- To use Google maps, you need to get a Google API key. See **directions** (https://developers.google.com/maps/documentation/javascript/get-api-key) . You will need to register and provide a credit card number. Your credit card will not be charged as long as you make less than 28000 calls to the Map API in a month. You should disable this account at the end of the semester so that there are no accidental charges.
- To use the Yelp Fusion API (v3), you need to register and get an API key at the **Yelp API page** (https://www.yelp.com/fusion) . It's free. After you register, you go to **Fusion API** (https://www.yelp.com/developers/documentation/v3) and then "Manage App" and you click on "Generate new API key" from the Yelp API site. You cut-and-paste the API key into your `proxy.php`, and you test your setup on your web browser by using **http://localhost/project3/yelp.html** (http://localhost/project3/yelp.html) and by pushing the Find button. It will display the the top 5 Indian restaurants in Arlington in JSON format. If you don't get anything, try this on your browser: **http://localhost/project3/proxy.php?term=indian+restaurant&location=Arlington+Texas&limit=5** (http://localhost/project3/proxy.php?term=indian+restaurant&location=Arlington+Texas&limit=5) . If it gives an empty page, your Yelp API must be wrong. Get a new one.

Project Description

You need to edit the HTML file `yelp.html` and the JavaScript file `yelp.js`. Your HTML web page must have 3 sections:

1. a search text area to put search terms with a button "Find"
2. a Google map of size 600*500 pixels, initially centered at (32.75, -97.13) with zoom level 16
3. a text display area

When you write some search terms in the search text area, say "Indian buffet", it will find the 10 best restaurants in the map area that match the search terms. They may be less than 10 (including zero) sometimes. The map will display the location of these restaurants as map overlay markers with labels from 1 to 10. The text display area will display various information about these restaurants. It will be an ordered list from 1 to 10 that correspond to the best 10 matches. Each list item in the display area will include the following information about the restaurant: the image "image_url", the "name" as a clickable "url" to the Yelp page of this restaurant, and the rating (a number between 1-5). When you search for new terms, it will clear the display area and all the map overlay markers, and will create new ones based on the new search.

- How do you find the latitude and longitude of a restaurant to put an overlay marker on the map? Each restaurant returned by Yelp has a "coordinate" which contains a "latitude" and a "longitude".
- How do you tell Yelp to search only on the displayed map? You set the latitude, longitude, and radius on your Yelp search, which can be derived from the map bounding box from the Google Map. You can get the bounding box of the map using the **getBounds (https://developers.google.com/maps/documentation/javascript/reference/map#Map.getBounds)** method (it returns 4 numbers).

Note that everything should be done asynchronously and your web page should never be redrawn completely. You need only one XMLHttpRequest object for sending a request to Yelp, since Google Maps is already asynchronous. You should not use any JavaScript library, such as JQuery.

What to Submit

Zip your project3 directory and submit the `project3.zip` file.