Programming Assignment 3 (70%)

Introduction

This is the final assignment for the programming course. In this work you should demonstrate all (or at least most) of the skills you learned about Javascript programming.

In the Virtual Aula we've created a task to upload your work. Please, use a single zip/rar file to upload all your files.

Deadline

14/12/2014, 23h55

Assignment

The goal of the assignment is to implement a 1-page Web application that visualizes information on a google map.

The map should show information about points of interest in a city together with a score of your feeling in this place. For instance, let's imagine that there is an ice cream shop in the city that you really like. In that case, there will be a marker in that place with a high score. On the other hand, if there is a particular restaurant you don't like since the food is not good, this restaurant will have a low score.

To realize this Web application, your web page should have 4 main parts:

1. A form to add new places
2. The map
3. Map visualization options
4. A list of places

Form to add new places

This form is used to add new points of interest (using a marker) to the map. The information that the user should provide to add a new marker is as follows:

- Name of the point of interest
- Short description
- Score (0-100)
- Type: choose between restaurant/bar, shop, monument, educational institution, public place.
- Latitude and longitude

Use form validation as much as possible to avoid the introduction of bad information. Any other useful technique to help the user when introducing the data is welcome, as for instance to change the field color when it has the focus.

When the user clicks on the "Add Place" button, a new marker is created and shown in the map. The color of the marker depends on the type selected: each different type of place should have a different color.

The map

The map shows the points of interest using markers of different color (per type).

When the user click on one marker, the information of the marker should be shown.

The user should also be able to draw a rectangle on the map, after which the average score of the places falling within the area is calculated and shown to the user.

Map visualization options

You should be able to control some aspects of your map. Add code to:

- By default, markers have a different color depending on the type of the place they belong to. Allow to change the color of all markers so their color depends on the score or on type. When score is selected, then the markers with high score should be shown using a "hot" color, but if it has low score, then a "cold" color should be used instead (Foresee at least 4 different colors).

- Allow filtering the markers on type, e.g., show only the places of selected types, e.g. only monuments.

List of places

The web page should also show a list of all markers included in the map. The next elements should be shown:

- Name of the place, and score between brackets.
- An element to change the score of the place.
- A button to delete the place.
- A button to center the map in the place.

Adding a place (see "Form to add new places") should result in adding a marker on the map, and adding the place to the list of places.

Notes

- The web page should have the following initial places when the web page will be loaded:
  - UJI – educational institution
  - Cathedral of Santa María – monument
  - Gambrinus Borrull – restaurant/bar
  - Pizzería Don Pepe – restaurant/bar
  - Taverna Ca'l Cuc – restaurant/bar
  - Academia Alyma – educational institution
  - Bocatería Zurich - restaurant/bar
  - Parc Rafalafena – public place
  - Plaça España – public place

- It is important to select an appropriate data structure to store the places of interest.
- There are several ways to provide the functionality that is described above. Try to end up with a usable Web application.
- Remember to take care of your code: think of performance, readability, abstractions, etc.