GOOGLE MAP API

Google Maps

API documentation

main page: http://code.google.com/apis/maps/

☐ sign up for a key (for a particular domain name)

documentation:

http://code.google.com/apis/maps/documentation

◻ Basics, Events, Controls, Overlays, Services

Example: create/center map

```html
<head>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252" />
<title>Theme Operations</title>
<script
    src="http://maps.google.com/maps?file=api&amp;v=2&amp;sensor=false&amp;key=_your_key_"
    type="text/javascript"></script>
<script type="text/javascript">
    function initialize() {
      if (GBrowserIsCompatible()) {
        var map = new GMap2(document.getElementById("map_canvas"));
        map.setCenter(new GLatLng(41.878896, -87.625067), 13);
        map.setUIToDefault();
      }
    }
    </script>
</head>
  <body onload="initialize()" onunload="GUnload()">
    <div id="map_canvas" style="width: 500px; height: 300px"></div>
  </body>
</html>
```

Example: create marker

```
<script type="text/javascript">
    function initialize() {
      if (GBrowserIsCompatible()) {
       var map = new
           GMap2(document.getElementById("map_canvas"));
       var center = new GLatLng(41.878896, -87.625067);
       map.setCenter(center, 13);
       marker = new GMarker(center, {draggable: false});
       map.addOverlay(marker);
       GEvent.addListener(map, "click", function(overlay, point) {
           marker.setLatLng(point);
       });
       map.setUIToDefault();
      }
    }
</script>
```

Example: geodecode

```html
<script type="text/javascript">
    function initialize() {
      if (GBrowserIsCompatible()) {
        var map = new GMap2(document.getElementById("map_canvas"));
        var geocoder = new GClientGeocoder();
        geocoder.getLatLng(
          "243 South Wabash, Chicago, IL 60604",
          function(point) {
            if (!point) {
                            map.setCenter(new GLatLng(41.878896, -87.625067), 10);
            } else {
                            map.setCenter(point, 13);
            }
          }
        );
        map.setUIToDefault();
      }
    }
    </script>
```

Exercises

1.
- allow user to enter address,
- display map centered at address with marker there

2.
- allow user to add two markers
- calculate rectangular area between them

Help

distance between two points in longitude/latitude:

$$d = R \cdot \text{acos}(\ \sin(lat_1) \cdot \sin(lat_2) +$$
$$\cos(lat_1) \cdot \cos(lat_2) \cdot \cos(long_2 - long_1))$$

(spherical law of cosines, also see Haversine formula)