

# Week 4 - Module 2a - Web-based Mapping Clients. Google Maps API (pt. 2)

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## Week 4 - Module 2a - Web-based Mapping Clients. Google Maps API (pt. 2)

### Overview

- Additional Google Maps API Capabilities to be Aware of
  - Styling of the base maps with custom preferences
  - Fusion Tables
- Bringing it all together in a “real” web page

### *Getting Started with Styled Maps - Video*

[Styled Maps Documentation](#) | [Create Map Style wizard](#)

### Map Example: Simple - Styled

gmap\_styled.html

```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <link rel="stylesheet" type="text/css" href="css/mapPage.css">
5    </head>
6
7    <body>
8      <h1>Sample Map - Styled (POIs Highlighted)</h1>
9      <div id="map_canvas"></div>
10
11     <!-- Let's put our JavaScript down here ----->
12     <!-- Load the external JavaScript file with the map definition code -->
13     <script src="js/mapPage_styled.js"></script>
14
15     <!-- Load the API in asynchronous mode and execute the initialize function when done -->
16
17     <script async defer
```

```

18         src="https://maps.googleapis.com/maps/api/js?callback=initialize&key=<YourKey>">
19     </script>
20 </body>
21 </html>

```

mapPage\_styled.js

```

1  function initialize() {
2      var classroom = new google.maps.LatLng(35.084280,-106.624073)
3      var myOptions = {
4          zoom: 8,
5          center: classroom,
6          mapTypeId: google.maps.MapTypeId.ROADMAP,
7          styles: [
8              {
9                  featureType: "water",
10                 stylers: [
11                     { visibility: "on" },
12                     { hue: "#0008ff" }
13                 ]
14             },{
15                 featureType: "road.highway",
16                 stylers: [
17                     { hue: "#ffa000" }
18                 ]
19             },{
20                 featureType: "road.arterial",
21                 stylers: [
22                     { hue: "#ffa200" },
23                     { visibility: "simplified" }
24                 ]
25             },{
26                 featureType: "road.local",
27                 stylers: [
28                     { visibility: "off" }
29                 ]
30             },{
31                 featureType: "administrative",
32                 stylers: [
33                     { visibility: "simplified" }
34                 ]
35             },{
36                 featureType: "poi",
37                 stylers: [
38                     { visibility: "on" },
39                     { hue: "#00ffff" }
40                 ]
41             },{
42                 featureType: "poi",
43                 stylers: [
44                     { visibility: "on" }
45                 ]
46             }
47         ]

```

```

48
49     };
50     var map = new google.maps.Map(
51         document.getElementById("map_canvas"),
52         myOptions);
53 }

```

## Google Fusion Tables

### Fusion Tables Introduction

Sample Fusion Table from the previous NAWRS Mapper example: <https://www.google.com/fusiontables/DataSource?docid=1v2IIIFJqat2tTSBA8e4guqlzMGR8iW4yXP25Kg>

NAWRS Mapper Javascript File: <https://github.com/nawrs/nawrs-web/blob/master/js/core.js>

## Bringing It All Together

gmaps\_events.html

```

1  <!DOCTYPE html>
2  <html>
3      <head>
4          <link rel="stylesheet" type="text/css" href="css/event_mapPage.css">
5          <title>Karl's Event Diary</title>
6      </head>
7
8      <body>
9          <h1>My diary of endurance events that I've participated in since joining Team in Training
10         </h1>
11
12         <p>In 2008 Cynthia and I joined the Leukemia and Lymphoma Society's (<a href="http://www.lls.org"
13
14         <p>From 2008 through early 2015 we continued to volunteer with TNT, as participants, mentors, a
15
16         <!-- based on the example provided by Google - https://developers.google.com/maps/documentation
17         <div id="style-selector-control" class="map-control">
18             <select id="style-selector" class="selector-control">
19                 <option value="default">Default</option>
20                 <option value="silver">Silver</option>
21                 <option value="night">Night mode</option>
22                 <option value="retro" selected="selected">Retro</option>
23                 <option value="hiding">Hide features</option>
24             </select>
25         </div>
26
27         <div id="event-map" name="event-map"></div>
28
29         <table>
30
31         <thead>
32             <th>Date</th>
33             <th>Event Name</th>

```

```

34     <th>Event Time</th>
35     <th>Location on Map</th>
36 </thead>
37
38 <tbody>
39 <tr>
40     <td>1/8/2017</td>
41     <td>Disney World Marathon</td>
42     <td>7:14</td>
43     <td><a href="#event-map" onclick="recenter(map, eventPlaces[4].point, 10)">approx. map</a></td>
44 </tr>
45
46 <tr>
47     <td>10/16/2016</td>
48     <td>Duke City Half Marathon </td>
49     <td>~2:55</td>
50     <td><a href="#event-map" onclick="recenter(map, eventPlaces[0].point, 11)">map</a></td>
51 </tr>
52
53 <tr>
54     <td>11/13/2015</td>
55     <td>Avengers Half Marathon </td>
56     <td>3:17:55</td>
57     <td><a href="#event-map" onclick="recenter(map, eventPlaces[5].point, 12)">approx. map</a></td>
58 </tr>
59
60 <tr>
61     <td>1/11/2015</td>
62     <td>Disney World Marathon (Goofy - Day 2)</td>
63     <td>6:21:01</td>
64     <td><a href="#event-map" onclick="recenter(map, eventPlaces[4].point, 10)">approx. map</a></td>
65 </tr>
66
67
68 <tr>
69     <td>1/10/2015</td>
70     <td>Disney World Half Marathon (Goofy - Day 1)</td>
71     <td>2:45:55</td>
72     <td><a href="#event-map" onclick="recenter(map, eventPlaces[4].point, 10)">approx. map</a></td>
73 </tr>
74
75 <tr>
76     <td>10/19/2014</td>
77     <td>Duke City Half Marathon</td>
78     <td>2:45:17</td>
79     <td><a href="#event-map" onclick="recenter(map, eventPlaces[0].point, 11)">map</a></td>
80 </tr>
81
82 <tr>
83     <td>2/23/2014</td>
84     <td>Princess Half Marathon</td>
85     <td>3:07:11</td>
86     <td><a href="#event-map" onclick="recenter(map, eventPlaces[4].point, 10)">approx. map</a></td>
87 </tr>

```

88  
89  
90  
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139  
140  
141

```
<tr>
  <td>2/22/2014</td>
  <td>Princess Enchanted 10k</td>
  <td>1:42:43</td>
  <td><a href="#event-map" onclick="recenter(map, eventPlaces[4].point, 10)">approx. map</a></td>
</tr>

<tr>
  <td>9/1/2013</td>
  <td>Disneyland Half Marathon</td>
  <td>2:56:57</td>
  <td><a href="#event-map" onclick="recenter(map, eventPlaces[5].point, 12)">approx. map</a></td>
</tr>

<tr>
  <td>1/13/2013</td>
  <td>Disney World Marathon (Goofy - Day 2)</td>
  <td>6:46:57</td>
  <td><a href="#event-map" onclick="recenter(map, eventPlaces[4].point, 10)">approx. map</a></td>
</tr>

<tr>
  <td>1/12/2013</td>
  <td>Disney World Half Marathon (Goofy - Day 1)</td>
  <td>3:22:48</td>
  <td><a href="#event-map" onclick="recenter(map, eventPlaces[4].point, 10)">approx. map</a></td>
</tr>

<tr>
  <td>9/29/2012</td>
  <td>Hot Chocolate 15k </td>
  <td>1:56:46</td>
  <td><a href="#event-map" onclick="recenter(map, eventPlaces[6].point, 10)">map</a></td>
</tr>

<tr>
  <td>6/9/2012</td>
  <td>Animas Valley/Steamworks Half Marathon</td>
  <td>no time: coached</td>
  <td><a href="#event-map" onclick="recenter(map, eventPlaces[1].point, 10)">map</a></td>
</tr>

<tr>
  <td>1/9/2012</td>
  <td>Disney World Marathon (Goofy - Day 2)</td>
  <td>6:56:28</td>
  <td><a href="#event-map" onclick="recenter(map, eventPlaces[4].point, 10)">map</a></td>
</tr>
```

```

142
143
144     <tr>
145         <td>1/8/2011</td>
146         <td>Disney World Half Marathon (Goofy - Day 1)</td>
147         <td>3:29:00</td>
148         <td><a href="#event-map" onclick="recenter(map, eventPlaces[4].point, 10)">map</a></td>
149     </tr>
150
151
152     <tr>
153         <td>6/19/2010</td>
154         <td>Animas Valley/Steamworks Half Marathon</td>
155         <td>no time: coached</td>
156         <td><a href="#event-map" onclick="recenter(map, eventPlaces[1].point, 10)">map</a></td>
157     </tr>
158
159
160     <tr>
161         <td>6/6/2010</td>
162         <td>San Diego Rock 'n' Roll Marathon</td>
163         <td>no time: coached</td>
164         <td><a href="#event-map" onclick="recenter(map, eventPlaces[2].point, 11)">map</a></td>
165     </tr>
166
167
168     <tr>
169         <td>10/18/09</td>
170         <td>Nike Women's Marathon</td>
171         <td>7:13:05</td>
172         <td><a href="#event-map" onclick="recenter(map, eventPlaces[3].point, 12)">map</a></td>
173     </tr>
174
175
176     <tr>
177         <td>9/6/2009</td>
178         <td>Disneyland Half Marathon</td>
179         <td>3:43:05</td>
180         <td><a href="#event-map" onclick="recenter(map, eventPlaces[5].point, 12)">map</a></td>
181     </tr>
182
183
184     <tr>
185         <td>1/11/2009</td>
186         <td>Disney World Marathon</td>
187         <td>6:57:42</td>
188         <td><a href="#event-map" onclick="recenter(map, eventPlaces[4].point, 10)">map</a></td>
189     </tr>
190
191
192     <tr>
193         <td>10/19/2008</td>
194         <td>Duke City Half Marathon</td>
195         <td>3:09:42</td>

```

```

196         <td><a href="#event-map" onclick="recenter(map, eventPlaces[0].point, 11)">map</a></td>
197     </tr>
198
199
200     <tr>
201         <td>6/21/2008</td>
202         <td>Animas Valley/Steamworks Half Marathon</td>
203         <td>3:14:52</td>
204         <td><a href="#event-map" onclick="recenter(map, eventPlaces[1].point, 10)">map</a></td>
205     </tr>
206 </tbody>
207 </table>
208
209
210 </body>
211
212 <!-- Let's put our JavaScript down here ----->
213 <!-- Load the external JavaScript file with the map definition code -->
214 <script src="js/mapPage_events.js"></script>
215
216 <!-- Load the API in asynchronous mode and execute the initialize function when done -->
217
218 <script async defer
219     src="https://maps.googleapis.com/maps/api/js?callback=initialize&key=<YourKey>"
220 </script>
221 </body>
222 </html>

```

gmaps\_events.js

```

1  var map;
2  var eventPlaces;
3
4  function initialize() {
5      // Define a set of global coordinates for use throughout the web site
6      // Place coordinates derived from GNIS database: http://geonames.usgs.gov/pls/gnispublic
7      geoCenter = new google.maps.LatLng(39.828175,-98.5795) // from https://tools.wmflabs.org/geohack/ge
8      eventPlaces = [
9          {
10             name: "Albuquerque",
11             point: new google.maps.LatLng(35.0889356,-106.5747462),
12             label: "Albuquerque: Duke City Half Marathon"
13         },
14         {
15             name: "Durango",
16             point: new google.maps.LatLng(37.2752800,-107.8800667),
17             label: "Durango: Animas Valley/Steamworks Half Marathon"
18         },
19         {
20             name: "San Diego",
21             point: new google.maps.LatLng(32.7153292,-117.1572551),
22             label: "San Diego: San Diego Rock 'n' Roll Marathon"
23         },
24         {

```

```

25         name: "San Francisco",
26         point: new google.maps.LatLng(37.7749295,-122.4194155),
27         label: "San Francisco: Nike Women's Marathon"
28     },
29     {
30         name: "Orlando",
31         point: new google.maps.LatLng(28.5383355,-81.3792365),
32         label: "Orlando: Walt Disney World half- and full-marathon"
33     },
34     {
35         name: "Anaheim",
36         point: new google.maps.LatLng(33.8352932,-117.9145036),
37         label: "Anaheim: Disneyland Half Marathon"
38     },
39     {
40         name: "Albuquerque",
41         point: new google.maps.LatLng(35.0889356,-106.5747462),
42         label: "Hot Chocolate 15k"
43     }
44 ];
45
46
47 var myOptions = {
48     zoom: 4,
49     center: geoCenter,
50     mapTypeId: google.maps.MapTypeId.ROADMAP,
51     mapTypeControl: false};
52
53 map = new google.maps.Map(
54     document.getElementById("event-map"),
55     myOptions);
56
57 addMarkers(map,eventPlaces)
58
59 // Add a style-selector control to the map.
60 var styleControl = document.getElementById('style-selector-control');
61 map.controls[google.maps.ControlPosition.TOP_LEFT].push(styleControl);
62
63 // Set the map's style to the initial value of the selector.
64 var styleSelector = document.getElementById('style-selector');
65 map.setOptions({styles: styles[styleSelector.value]});
66
67 // Apply new JSON when the user selects a different style.
68 styleSelector.addEventListener('change', function() {
69     map.setOptions({styles: styles[styleSelector.value]});
70 });
71 }
72
73 function recenter(mapName, latlon, zoomLevel) {
74     mapName.setCenter(latlon);
75     mapName.setZoom(zoomLevel)
76 }
77
78 function addMarkers(mapName, markerArray) {

```



```

79     for (index = 0; index < markerArray.length; index++) {
80         myMarker = new google.maps.Marker({
81             position: markerArray[index].point,
82             title: markerArray[index].label
83         });
84         myMarker.setMap(mapName)
85     }
86 }
87
88 // styles generated by https://mapstyle.withgoogle.com
89 var styles = {
90     default: null,
91     silver: [
92         {
93             elementType: 'geometry',
94             stylers: [{color: '#f5f5f5'}]
95         },
96         {
97             elementType: 'labels.icon',
98             stylers: [{visibility: 'off'}]
99         },
100        {
101            elementType: 'labels.text.fill',
102            stylers: [{color: '#616161'}]
103        },
104        {
105            elementType: 'labels.text.stroke',
106            stylers: [{color: '#f5f5f5'}]
107        },
108        {
109            featureType: 'administrative.land_parcel',
110            elementType: 'labels.text.fill',
111            stylers: [{color: '#bdbdbd'}]
112        },
113        {
114            featureType: 'poi',
115            elementType: 'geometry',
116            stylers: [{color: '#eeeeee'}]
117        },
118        {
119            featureType: 'poi',
120            elementType: 'labels.text.fill',
121            stylers: [{color: '#757575'}]
122        },
123        {
124            featureType: 'poi.park',
125            elementType: 'geometry',
126            stylers: [{color: '#e5e5e5'}]
127        },
128        {
129            featureType: 'poi.park',
130            elementType: 'labels.text.fill',
131            stylers: [{color: '#9e9e9e'}]
132        },

```

```

133 {
134     featureType: 'road',
135     elementType: 'geometry',
136     stylers: [{color: 'ffffff'}]
137 },
138 {
139     featureType: 'road.arterial',
140     elementType: 'labels.text.fill',
141     stylers: [{color: '#757575'}]
142 },
143 {
144     featureType: 'road.highway',
145     elementType: 'geometry',
146     stylers: [{color: '#dadada'}]
147 },
148 {
149     featureType: 'road.highway',
150     elementType: 'labels.text.fill',
151     stylers: [{color: '#616161'}]
152 },
153 {
154     featureType: 'road.local',
155     elementType: 'labels.text.fill',
156     stylers: [{color: '#9e9e9e'}]
157 },
158 {
159     featureType: 'transit.line',
160     elementType: 'geometry',
161     stylers: [{color: '#e5e5e5'}]
162 },
163 {
164     featureType: 'transit.station',
165     elementType: 'geometry',
166     stylers: [{color: 'eeeeee'}]
167 },
168 {
169     featureType: 'water',
170     elementType: 'geometry',
171     stylers: [{color: '#c9c9c9'}]
172 },
173 {
174     featureType: 'water',
175     elementType: 'labels.text.fill',
176     stylers: [{color: '#9e9e9e'}]
177 }
178 ],
179
180 night: [
181     {elementType: 'geometry', stylers: [{color: '#242f3e'}]},
182     {elementType: 'labels.text.stroke', stylers: [{color: '#242f3e'}]},
183     {elementType: 'labels.text.fill', stylers: [{color: '#746855'}]},
184     {
185         featureType: 'administrative.locality',
186         elementType: 'labels.text.fill',

```

```

187     stylers: [{color: '#d59563'}]
188 },
189 {
190     featureType: 'poi',
191     elementType: 'labels.text.fill',
192     stylers: [{color: '#d59563'}]
193 },
194 {
195     featureType: 'poi.park',
196     elementType: 'geometry',
197     stylers: [{color: '#263c3f'}]
198 },
199 {
200     featureType: 'poi.park',
201     elementType: 'labels.text.fill',
202     stylers: [{color: '#6b9a76'}]
203 },
204 {
205     featureType: 'road',
206     elementType: 'geometry',
207     stylers: [{color: '#38414e'}]
208 },
209 {
210     featureType: 'road',
211     elementType: 'geometry.stroke',
212     stylers: [{color: '#212a37'}]
213 },
214 {
215     featureType: 'road',
216     elementType: 'labels.text.fill',
217     stylers: [{color: '#9ca5b3'}]
218 },
219 {
220     featureType: 'road.highway',
221     elementType: 'geometry',
222     stylers: [{color: '#746855'}]
223 },
224 {
225     featureType: 'road.highway',
226     elementType: 'geometry.stroke',
227     stylers: [{color: '#1f2835'}]
228 },
229 {
230     featureType: 'road.highway',
231     elementType: 'labels.text.fill',
232     stylers: [{color: '#f3d19c'}]
233 },
234 {
235     featureType: 'transit',
236     elementType: 'geometry',
237     stylers: [{color: '#2f3948'}]
238 },
239 {
240     featureType: 'transit.station',

```

```

241     elementType: 'labels.text.fill',
242     stylers: [{color: '#d59563'}]
243 },
244 {
245     featureType: 'water',
246     elementType: 'geometry',
247     stylers: [{color: '#17263c'}]
248 },
249 {
250     featureType: 'water',
251     elementType: 'labels.text.fill',
252     stylers: [{color: '#515c6d'}]
253 },
254 {
255     featureType: 'water',
256     elementType: 'labels.text.stroke',
257     stylers: [{color: '#17263c'}]
258 }
259 ],
260
261 retro: [
262     {elementType: 'geometry', stylers: [{color: '#ebe3cd'}]},
263     {elementType: 'labels.text.fill', stylers: [{color: '#523735'}]},
264     {elementType: 'labels.text.stroke', stylers: [{color: '#f5f1e6'}]},
265     {
266         featureType: 'administrative',
267         elementType: 'geometry.stroke',
268         stylers: [{color: '#c9b2a6'}]
269     },
270     {
271         featureType: 'administrative.land_parcel',
272         elementType: 'geometry.stroke',
273         stylers: [{color: '#dcd2be'}]
274     },
275     {
276         featureType: 'administrative.land_parcel',
277         elementType: 'labels.text.fill',
278         stylers: [{color: '#ae9e90'}]
279     },
280     {
281         featureType: 'landscape.natural',
282         elementType: 'geometry',
283         stylers: [{color: '#dfd2ae'}]
284     },
285     {
286         featureType: 'poi',
287         elementType: 'geometry',
288         stylers: [{color: '#dfd2ae'}]
289     },
290     {
291         featureType: 'poi',
292         elementType: 'labels.text.fill',
293         stylers: [{color: '#93817c'}]
294     },

```

```

295 {
296     featureType: 'poi.park',
297     elementType: 'geometry.fill',
298     stylers: [{color: '#a5b076'}]
299 },
300 {
301     featureType: 'poi.park',
302     elementType: 'labels.text.fill',
303     stylers: [{color: '#447530'}]
304 },
305 {
306     featureType: 'road',
307     elementType: 'geometry',
308     stylers: [{color: '#f5f1e6'}]
309 },
310 {
311     featureType: 'road.arterial',
312     elementType: 'geometry',
313     stylers: [{color: '#fdcf8'}]
314 },
315 {
316     featureType: 'road.highway',
317     elementType: 'geometry',
318     stylers: [{color: '#f8c967'}]
319 },
320 {
321     featureType: 'road.highway',
322     elementType: 'geometry.stroke',
323     stylers: [{color: '#e9bc62'}]
324 },
325 {
326     featureType: 'road.highway.controlled_access',
327     elementType: 'geometry',
328     stylers: [{color: '#e98d58'}]
329 },
330 {
331     featureType: 'road.highway.controlled_access',
332     elementType: 'geometry.stroke',
333     stylers: [{color: '#db8555'}]
334 },
335 {
336     featureType: 'road.local',
337     elementType: 'labels.text.fill',
338     stylers: [{color: '#806b63'}]
339 },
340 {
341     featureType: 'transit.line',
342     elementType: 'geometry',
343     stylers: [{color: '#dfd2ae'}]
344 },
345 {
346     featureType: 'transit.line',
347     elementType: 'labels.text.fill',
348     stylers: [{color: '#8f7d77'}]

```

```

349   },
350   {
351     featureType: 'transit.line',
352     elementType: 'labels.text.stroke',
353     stylers: [{color: '#ebe3cd'}]
354   },
355   {
356     featureType: 'transit.station',
357     elementType: 'geometry',
358     stylers: [{color: '#dfd2ae'}]
359   },
360   {
361     featureType: 'water',
362     elementType: 'geometry.fill',
363     stylers: [{color: '#b9d3c2'}]
364   },
365   {
366     featureType: 'water',
367     elementType: 'labels.text.fill',
368     stylers: [{color: '#92998d'}]
369   }
370 ],
371
372 hiding: [
373   {
374     featureType: 'poi.business',
375     stylers: [{visibility: 'off'}]
376   },
377   {
378     featureType: 'transit',
379     elementType: 'labels.icon',
380     stylers: [{visibility: 'off'}]
381   }
382 ]
383 };

```

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