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

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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
```

```
<!DOCTYPE html>
   <html>
       <head>
3
           <link rel="stylesheet" type="text/css" href="css/mapPage.css">
       </head>
       <body>
           <h1>Sample Map - Styled (POIs Highlighted)</h1>
           <div id="map_canvas"></div>
10
       <!-- Let's put our JavaScript down here -----
           <!-- Load the external JavaScript file with the map definition code -->
12
           <script src="js/mapPage_styled.js"></script>
           <!-- Load the API in asynchronous mode and execute the initialize function when done -->
16
           <script async defer</pre>
               src="https://maps.googleapis.com/maps/api/js?callback=initialize&key=<YourKey>">
           </script>
       </body>
20
   </html>
```

```
mapPage_styled.js
function initial
```

```
function initialize() {
        var classroom = new google.maps.LatLng(35.084280,-106.624073)
2
        var myOptions = {
3
            zoom: 8,
            center: classroom,
            mapTypeId: google.maps.MapTypeId.ROADMAP,
            styles: [
              {
                 featureType: "water",
9
                 stylers: [
10
                   { visibility: "on" },
                   { hue: "#0008ff" }
12
              },{
14
                 featureType: "road.highway",
15
                 stylers: [
16
                   { hue: "#ff1a00" }
18
              },{
                 featureType: "road.arterial",
20
                stylers: [
                   { hue: "#ffa200" },
22
                   { visibility: "simplified" }
23
                ]
24
              },{
25
                 featureType: "road.local",
26
                 stylers: [
27
                   { visibility: "off" }
28
29
              },{
                 featureType: "administrative",
31
                 stylers: [
                   { visibility: "simplified" }
33
              },{
35
                featureType: "poi",
                stylers: [
37
                   { visibility: "on" },
38
                   { hue: "#00ffff" }
39
                 ]
40
              },{
41
                 featureType: "poi",
42
                 stylers: [
43
                   { visibility: "on" }
44
                 ]
45
              }
46
            ]
47
48
            };
        var map = new google.maps.Map(
50
            document.getElementById("map_canvas"),
51
            myOptions);
52
```

53 }

Google Fusion Tables

Fusion Tables Introduction

Sample Fusion Table from the previous NAWRS Mapper example: https://www.google.com/fusiontables/DataSource?docid=1v2IIIFJqat2tTSBA8e4guqlzMGRe8iW4yXP25Kg

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

Bringing It All Together - link

```
###
   gmaps events.html
   <!DOCTYPE html>
   < html>
       <head>
3
           <link rel="stylesheet" type="text/css" href="css/event_mapPage.css">
           <title>Karl's Event Diary</title>
       </head>
       <body>
           <h1>My diary of endurance events that I've participated in since joining
           Team in Training
10
           </h1>
12
           In 2008 Cynthia and I joined the Leukemia and Lymphoma Society's
           (<a href="http://www.lls.org/">LLS</a>) Team in Training
14
           (<a href="http://www.teamintraining.org/">TNT</a>,
           <a href="http://youtu.be/GMSKG8L6K78">info video</a>) program as
16
           participants to train for the Animas Valley/Steamworks Half Marathon and
            raise money for blood cancer research and patient services. In spite of
18
             our not having any direct connection to blood cancer (at that time),
             we found the goals of LLS admirable, the combined training and
20
             fund-raising program of TNT a great idea, and made many new friends
             over the many seasons that we have been involved with TNT.
22
23
           From 2008 through early 2015 we continued to volunteer with TNT, as
24
           participants, mentors, and since 2010 I was a coach (check out my
25
           <a href="http://youtu.be/GMSKG8L6K78">half-second</a> of fame in the
26
           info video at 2:13) for TNT with an emphasis on training walkers for
           full- or half-marathons. This page provides a summary of the events that
28
            I've participated in in some capacity since 2008. 
29
           <!-- based on the example provided by Google -
31
           https://developers.google.com/maps/documentation/javascript/examples/
           style-selector -->
33
           <div id="style-selector-control" class="map-control">
             <select id="style-selector" class="selector-control">
35
               <option value="default">Default</option>
               <option value="silver">Silver</option>
37
```

```
<option value="night">Night mode</option>
38
             <option value="retro" selected="selected">Retro</option>
39
             <option value="hiding">Hide features</option>
40
           </select>
41
          </div>
42
43
          <div id="event-map" name="event-map"></div>
45
          46
47
          <thead>
          Date
49
          Event Name
50
          Event Time
51
          Location on Map
52
          </thead>
53
54
          55
          56
             1/8/2017
57
             Disney World Marathon
58
             7:14
             <a href="#event-map" onclick="recenter(map, eventPlaces[4].point,</pre>
60
61
             10) ">approx. map</a>
          62
          64
             10/16/2016
             Duke City Half Marathon 
66
             ~2:55
             <a href="#event-map" onclick="recenter(map, eventPlaces[0].point,</pre>
68
              11) ">map</a>
69
          70
          72
             11/13/2015
73
             Avengers Half Marathon 
             3:17:55
75
             <a href="#event-map" onclick="recenter(map, eventPlaces[5].point,
              12) ">approx. map</a>
          79
          \langle t.r \rangle
             1/11/2015
81
             Disney World Marathon (Goofy - Day 2)
             6:21:01
83
             <a href="#event-map" onclick="recenter(map, eventPlaces[4].point,
              10) ">approx. map</a>
85
          86
87
88
          89
             1/10/2015
90
             Disney World Half Marathon (Goofy - Day 1)
91
```

```
2:45:55
92
              <a href="#event-map" onclick="recenter(map, eventPlaces[4].point,</pre>
93
              10)">approx. map</a>
          95
          97
              10/19/2014
              Duke City Half Marathon
99
              2:45:17
100
              <a href="#event-map" onclick="recenter(map, eventPlaces[0].point,
101
              11) ">map</a>
          103
104
          105
              2/23/2014
106
              Princess Half Marathon
107
              3:07:11
108
              <a href="#event-map" onclick="recenter(map, eventPlaces[4].point,
109
               10) ">approx. map</a>
110
          111
112
          2/22/2014
114
              Princess Enchanted 10k
115
              1:42:43
116
              <a href="#event-map" onclick="recenter(map, eventPlaces[4].point,
               10) ">approx. map</a>
118
          120
          \langle t.r \rangle
              9/1/2013
122
              Disneyland Half Marathon
123
              2:56:57
124
              <a href="#event-map" onclick="recenter(map, eventPlaces[5].point,
125
               12) ">approx. map</a>
126
          127
129
          130
              1/13/2013
131
              Disney World Marathon (Goofy - Day 2)
132
              6:46:57
133
              <a href="#event-map" onclick="recenter(map, eventPlaces[4].point,
134
               10) ">approx. map</a>
135
          137
138
          139
              1/12/2013
140
              Disney World Half Marathon (Goofy - Day 1)
141
              3:22:48
142
              <a href="#event-map" onclick="recenter(map, eventPlaces[4].point,
143
               10) ">approx. map</a>
144
          145
```

```
147
          9/29/2012
149
              Hot Chocolate 15k 
150
              1:56:46
151
              <a href="#event-map" onclick="recenter(map, eventPlaces[6].point,
               10) ">map</a>
153
          155
          157
              6/9/2012
158
              Animas Valley/Steamworks Half Marathon
159
              no time: coached
160
              <a href="#event-map" onclick="recenter(map, eventPlaces[1].point,
161
               10)">map</a>
162
          163
164
165
          166
              1/9/2012
              Disney World Marathon (Goofy - Day 2)
168
169
              6:56:28
              <a href="#event-map" onclick="recenter(map, eventPlaces[4].point,
170
               10) ">map</a>
          172
174
          \langle t.r \rangle
              1/8/2011
176
              Disney World Half Marathon (Goofy - Day 1)
177
              3:29:00
              <a href="#event-map" onclick="recenter(map, eventPlaces[4].point,
179
               10) ">map</a>
180
          181
183
          6/19/2010
185
              Animas Valley/Steamworks Half Marathon
              no time: coached
187
              <a href="#event-map" onclick="recenter(map, eventPlaces[1].point,
              10)">map</a>
189
          191
192
          193
              6/6/2010
194
              San Diego Rock 'n' Roll Marathon
195
              no time: coached
196
              <a href="#event-map" onclick="recenter(map, eventPlaces[2].point,</pre>
197
               11) ">map</a>
198
          199
```

146

```
200
201
          10/18/09
203
              Nike Women's Marathon
204
              7:13:05
205
              <a href="#event-map" onclick="recenter(map, eventPlaces[3].point,
               12) ">map</a>
207
          209
          211
212
              9/6/2009
              Disneyland Half Marathon
213
              3:43:05
              <a href="#event-map" onclick="recenter(map, eventPlaces[5].point,
215
               12) ">map</a>
216
          217
218
219
          220
              1/11/2009
              Disney World Marathon
222
223
              6:57:42
              <a href="#event-map" onclick="recenter(map, eventPlaces[4].point,
224
               10)">map</a>
          226
227
228
          \langle t.r \rangle
              10/19/2008
230
              Duke City Half Marathon
231
              3:09:42
232
              <a href="#event-map" onclick="recenter(map, eventPlaces[0].point,</pre>
233
               11) ">map</a>
234
          235
237
          238
              6/21/2008
239
              Animas Valley/Steamworks Half Marathon
240
              3:14:52
241
              <a href="#event-map" onclick="recenter(map, eventPlaces[1].point,
242
               10) ">map</a>
243
          245
          246
247
248
       </body>
249
250
       <!-- Let's put our JavaScript down here -----
251
          <!-- Load the external JavaScript file with the map definition code -->
252
          <script src="js/mapPage_events.js"></script>
253
```

```
254
             <!-- Load the API in asynchronous mode and execute the initialize
255
             function when done -->
257
             <script async defer</pre>
                 src="https://maps.googleapis.com/maps/api/js?callback=initialize&
259
                 key=<YourKey>">
             </script>
261
        </body>
262
    </html>
263
    gmaps_events.js
    var map;
    var eventPlaces;
    function initialize() {
        // Define a set of global coordinates for use throughout the web site
 5
        // Place coordinates derived from GNIS database: http://geonames.usgs.gov/
        // pls/gnispublic
        // from https://tools.wmflabs.org/geohack/geohack.php?
        // pagename=Geographic_center_of_the_contiguous_United_States&
        // params=39.828175_N_98.579500_W_region:US_type:landmark
10
        geoCenter = new google.maps.LatLng(39.828175,-98.5795)
11
        eventPlaces = [
12
             {
13
                 name: "Albuquerque",
14
                 point: new google.maps.LatLng(35.0889356,-106.5747462),
                 label: "Albuquerque: Duke City Half Marathon"
16
            },
17
             {
18
                 name: "Durango",
                 point: new google.maps.LatLng(37.2752800,-107.8800667),
20
                 label: "Durango: Animas Valley/Steamworks Half Marathon"
            },
22
                 name: "San Diego",
24
                 point: new google.maps.LatLng(32.7153292,-117.1572551),
                 label: "San Diego: San Diego Rock 'n' Roll Marathon"
26
            },
28
                 name: "San Francisco",
29
                 point: new google.maps.LatLng(37.7749295,-122.4194155),
30
                 label: "San Francisco: Nike Women's Marathon"
31
            },
32
             {
33
                 name: "Orlando",
                 point: new google.maps.LatLng(28.5383355,-81.3792365),
35
                 label: "Orlando: Walt Disney World half- and full-marathon"
            },
37
                 name: "Anaheim",
39
                 point: new google.maps.LatLng(33.8352932,-117.9145036),
40
                 label: "Anaheim: Disneyland Half Marathon"
41
```

```
},
42
43
                name: "Albuquerque",
44
                point: new google.maps.LatLng(35.0889356,-106.5747462),
45
                label: "Hot Chocolate 15k"
            }
47
        ];
49
        var myOptions = {
51
            zoom: 4,
            center: geoCenter,
53
            mapTypeId: google.maps.MapTypeId.ROADMAP,
            mapTypeControl: false};
55
        map = new google.maps.Map(
57
            document.getElementById("event-map"),
            myOptions);
59
60
        addMarkers(map, eventPlaces)
61
62
        // Add a style-selector control to the map.
        var styleControl = document.getElementById('style-selector-control');
64
        map.controls[google.maps.ControlPosition.TOP_LEFT].push(styleControl);
65
66
        // Set the map's style to the initial value of the selector.
        var styleSelector = document.getElementById('style-selector');
68
        map.setOptions({styles: styles[styleSelector.value]});
70
        // Apply new JSON when the user selects a different style.
        styleSelector.addEventListener('change', function() {
72
             map.setOptions({styles: styles[styleSelector.value]});
        });
74
   }
75
76
   function recenter(mapName, latlon, zoomLevel) {
77
        mapName.setCenter(latlon);
        mapName.setZoom(zoomLevel)
79
   }
80
81
   function addMarkers(mapName, markerArray) {
82
        for (index = 0; index < markerArray.length; index++) {</pre>
83
            myMarker = new google.maps.Marker({
                position: markerArray[index].point,
85
                title: markerArray[index].label
            }):
87
            myMarker.setMap(mapName)
        }
89
   }
91
   // styles generated by https://mapstyle.withgoogle.com
92
   var styles = {
93
   default: null,
94
   silver: [
```

```
96
         elementType: 'geometry',
97
         stylers: [{color: '#f5f5f5'}]
      },
99
100
         elementType: 'labels.icon',
101
         stylers: [{visibility: 'off'}]
      },
103
      {
104
         elementType: 'labels.text.fill',
105
         stylers: [{color: '#616161'}]
      },
107
108
         elementType: 'labels.text.stroke',
109
         stylers: [{color: '#f5f5f5'}]
110
      },
111
112
         featureType: 'administrative.land_parcel',
113
         elementType: 'labels.text.fill',
114
         stylers: [{color: '#bdbdbd'}]
115
      },
116
         featureType: 'poi',
118
         elementType: 'geometry',
119
         stylers: [{color: '#eeeeee'}]
120
      },
122
         featureType: 'poi',
         elementType: 'labels.text.fill',
124
         stylers: [{color: '#757575'}]
      },
126
127
         featureType: 'poi.park',
128
         elementType: 'geometry',
129
         stylers: [{color: '#e5e5e5'}]
130
      },
131
      {
132
         featureType: 'poi.park',
133
         elementType: 'labels.text.fill',
         stylers: [{color: '#9e9e9e'}]
135
      },
136
137
         featureType: 'road',
138
         elementType: 'geometry',
139
         stylers: [{color: '#ffffff'}]
      },
141
         featureType: 'road.arterial',
143
         elementType: 'labels.text.fill',
         stylers: [{color: '#757575'}]
145
      },
146
147
         featureType: 'road.highway',
148
         elementType: 'geometry',
149
```

```
stylers: [{color: '#dadada'}]
150
      },
151
152
         featureType: 'road.highway',
153
         elementType: 'labels.text.fill',
         stylers: [{color: '#616161'}]
155
      },
157
         featureType: 'road.local',
         elementType: 'labels.text.fill',
159
         stylers: [{color: '#9e9e9e'}]
      },
161
162
         featureType: 'transit.line',
163
         elementType: 'geometry',
164
         stylers: [{color: '#e5e5e5'}]
165
      },
166
      ₹
167
         featureType: 'transit.station',
168
         elementType: 'geometry',
169
         stylers: [{color: '#eeeeee'}]
170
      },
172
173
         featureType: 'water',
         elementType: 'geometry',
174
         stylers: [{color: '#c9c9c9'}]
      },
176
         featureType: 'water',
178
         elementType: 'labels.text.fill',
         stylers: [{color: '#9e9e9e'}]
180
181
    ],
182
183
    night: [
184
      {elementType: 'geometry', stylers: [{color: '#242f3e'}]},
185
      {elementType: 'labels.text.stroke', stylers: [{color: '#242f3e'}]},
186
      {elementType: 'labels.text.fill', stylers: [{color: '#746855'}]},
187
         featureType: 'administrative.locality',
189
         elementType: 'labels.text.fill',
190
         stylers: [{color: '#d59563'}]
191
      },
192
193
         featureType: 'poi',
         elementType: 'labels.text.fill',
195
         stylers: [{color: '#d59563'}]
196
      },
197
198
         featureType: 'poi.park',
199
         elementType: 'geometry',
200
         stylers: [{color: '#263c3f'}]
201
      },
202
      {
203
```

```
featureType: 'poi.park',
204
         elementType: 'labels.text.fill',
205
         stylers: [{color: '#6b9a76'}]
206
      },
207
208
         featureType: 'road',
209
         elementType: 'geometry',
         stylers: [{color: '#38414e'}]
211
      },
213
         featureType: 'road',
         elementType: 'geometry.stroke',
215
         stylers: [{color: '#212a37'}]
      },
217
         featureType: 'road',
219
         elementType: 'labels.text.fill',
220
         stylers: [{color: '#9ca5b3'}]
221
      },
222
223
         featureType: 'road.highway',
224
         elementType: 'geometry',
         stylers: [{color: '#746855'}]
226
227
      },
228
         featureType: 'road.highway',
         elementType: 'geometry.stroke',
230
         stylers: [{color: '#1f2835'}]
      },
232
         featureType: 'road.highway',
234
         elementType: 'labels.text.fill',
235
         stylers: [{color: '#f3d19c'}]
236
      },
237
238
         featureType: 'transit',
239
         elementType: 'geometry',
240
         stylers: [{color: '#2f3948'}]
241
      },
242
243
         featureType: 'transit.station',
244
         elementType: 'labels.text.fill',
245
         stylers: [{color: '#d59563'}]
246
      },
247
         featureType: 'water',
249
         elementType: 'geometry',
         stylers: [{color: '#17263c'}]
251
      },
253
         featureType: 'water',
254
         elementType: 'labels.text.fill',
255
         stylers: [{color: '#515c6d'}]
256
      },
257
```

```
258
         featureType: 'water',
259
         elementType: 'labels.text.stroke',
260
         stylers: [{color: '#17263c'}]
261
262
    ],
263
    retro: [
265
       {elementType: 'geometry', stylers: [{color: '#ebe3cd'}]},
       {elementType: 'labels.text.fill', stylers: [{color: '#523735'}]},
267
      {elementType: 'labels.text.stroke', stylers: [{color: '#f5f1e6'}]},
269
         featureType: 'administrative',
         elementType: 'geometry.stroke',
271
         stylers: [{color: '#c9b2a6'}]
      },
273
274
        featureType: 'administrative.land_parcel',
275
         elementType: 'geometry.stroke',
276
         stylers: [{color: '#dcd2be'}]
277
      },
278
         featureType: 'administrative.land_parcel',
280
         elementType: 'labels.text.fill',
281
         stylers: [{color: '#ae9e90'}]
282
      },
284
         featureType: 'landscape.natural',
         elementType: 'geometry',
286
         stylers: [{color: '#dfd2ae'}]
      },
288
289
         featureType: 'poi',
290
         elementType: 'geometry',
291
         stylers: [{color: '#dfd2ae'}]
292
      },
293
      {
294
         featureType: 'poi',
295
         elementType: 'labels.text.fill',
         stylers: [{color: '#93817c'}]
297
      },
298
299
        featureType: 'poi.park',
300
         elementType: 'geometry.fill',
301
         stylers: [{color: '#a5b076'}]
      },
303
304
        featureType: 'poi.park',
305
         elementType: 'labels.text.fill',
306
         stylers: [{color: '#447530'}]
307
      },
308
309
         featureType: 'road',
310
         elementType: 'geometry',
311
```

```
stylers: [{color: '#f5f1e6'}]
312
      },
313
314
         featureType: 'road.arterial',
315
         elementType: 'geometry',
         stylers: [{color: '#fdfcf8'}]
317
      },
319
         featureType: 'road.highway',
320
         elementType: 'geometry',
321
         stylers: [{color: '#f8c967'}]
      },
323
         featureType: 'road.highway',
325
         elementType: 'geometry.stroke',
326
         stylers: [{color: '#e9bc62'}]
327
      },
328
329
         featureType: 'road.highway.controlled_access',
330
         elementType: 'geometry',
331
         stylers: [{color: '#e98d58'}]
332
      },
334
         featureType: 'road.highway.controlled_access',
335
         elementType: 'geometry.stroke',
336
         stylers: [{color: '#db8555'}]
      },
338
         featureType: 'road.local',
340
         elementType: 'labels.text.fill',
         stylers: [{color: '#806b63'}]
342
      },
343
344
         featureType: 'transit.line',
345
         elementType: 'geometry',
346
         stylers: [{color: '#dfd2ae'}]
347
      },
348
349
         featureType: 'transit.line',
         elementType: 'labels.text.fill',
351
         stylers: [{color: '#8f7d77'}]
352
      },
353
354
         featureType: 'transit.line',
355
         elementType: 'labels.text.stroke',
         stylers: [{color: '#ebe3cd'}]
357
358
      },
359
         featureType: 'transit.station',
360
         elementType: 'geometry',
361
         stylers: [{color: '#dfd2ae'}]
362
      },
363
364
         featureType: 'water',
365
```

```
elementType: 'geometry.fill',
366
         stylers: [{color: '#b9d3c2'}]
367
      },
368
369
         featureType: 'water',
         elementType: 'labels.text.fill',
371
         stylers: [{color: '#92998d'}]
373
    ],
374
375
    hiding: [
376
377
         featureType: 'poi.business',
378
         stylers: [{visibility: 'off'}]
379
      },
380
381
         featureType: 'transit',
382
         elementType: 'labels.icon',
         stylers: [{visibility: 'off'}]
384
      }
385
    ]
386
    };
387
```

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