

IT452 Advanced Web and Internet Systems

Set 10: Mashups
(with an emphasis on Google tools)
(Chapter 15)

Examples

- <http://www.housingmaps.com/>
- <http://weatherbonk.com/>
- <http://www.vizband.co.uk/>

- For more info:
 - Mashup Examples: www.programmableweb.com
 - Maps: <http://code.google.com/apis/maps/>
 - Search: <http://code.google.com/apis/ajaxsearch/documentation/>

Why Mashup?

- Add better UI to the data
- Combine multiple sources of data
- Both

Where is the data from?

- Web service
 - Accessed directly via REST/SOAP
 - Accessed via JS library
 - Accessed via a feed (RSS etc.)
- Screen scraping

Map1 – simple

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
 "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="content-type" content="text/html; charset=utf-8"/>
<title>Google Maps JavaScript API Example</title>
<script
src="http://maps.google.com/maps?file=api&v=2&key=ABQIAAAAaC6nAnYdk8qd
aiaidKJdqhR49beIkXhYdyxofUyvvU7xCyPaFhRUhNkQtNlgKBiuJwqa9fWngUgbIQ"
type="text/javascript"></script>
<script type="text/javascript">
//<![CDATA[
function load() {
    if (GBrowserIsCompatible()) {
        var map = new GMap2(document.getElementById("map"));
        map.setCenter(new GLatLng(37.4419, -122.1419), 13);
    }
}
//]]>
</script>
</head>
<body onload="load()" onunload="GUnload()">
    <div id="map" style="width: 500px; height: 300px"></div>
</body>
</html>
```

Map2 – set location (HTML)

```
<body onload="load()" onunload="GUnload()">
    <div id="map" style="width: 500px; height: 300px"></div>

    <p>
        <input type="text" value="121 Blake Road Annapolis, MD 21402" id="myaddr" />
        <input type="button" value="Move to here!" onclick="moveMap()" />
    </p>
```

Map2 – set location (simplified JS)

```
var map;
var geocoder;
var currentCenter;
function load() {
  if (GBrowserIsCompatible()) {
    map      = new GMap2(document.getElementById("map"));
    map.addControl(new GSmallMapControl());
    map.addControl(new GMapTypeControl());

    geocoder = new GClientGeocoder();
    map.setCenter(new GLatLng(37.4419, -122.1419), 13);
  }
}

// Move map to given location. Derived from example on Google API docs
function moveMap() {
  addr = document.getElementById("myaddr").value;
  geocoder.getLatLang(addr, handleLatLangResponse);
} // end of moveMap() function

function handleLatLangResponse(point) {
  if (!point) {
    alert(address + " not found");
  } else {
    currentCenter = point;
    map.setCenter(point, 13);
    var marker = new GMarker(point);
    map.addOverlay(marker);

    marker.openInfoWindowHtml("A <b>great</b> address: "+addr);
  }
}
```

Map2 – set location (Googley JS)

```
var map;
var geocoder;
var currentCenter;

function load() {
  if (GBrowserIsCompatible()) {
    map      = new GMap2(document.getElementById("map"));
    map.addControl(new GSmallMapControl());
    map.addControl(new GMapTypeControl();

    geocoder = new GClientGeocoder();
    map.setCenter(new GLatLng(37.4419, -122.1419), 13);
  }
}

// Move map to given location. Derived from example on Google API docs
function moveMap() {
  var addr = document.getElementById("myaddr").value;
  geocoder.getLatLang(addr,
    function(point) {
      if (!point) {
        alert(address + " not found");
      } else {
        currentCenter = point;
        map.setCenter(point, 13);
        var marker = new GMarker(point);
        map.addOverlay(marker);
        marker.openInfoWindowHtml("A <b>great</b> address: "+addr);
      }
    } // end of anonymous function
  ); // end of getLatLang() call
} // end of moveMap() function
```

Map3 – perimeter

```
// Draw a rectangle "perimeter" around the current center
function makePerimeter() {
    dx = .004;
    dy = .003;
    cx = currentCenter.lng();
    cy = currentCenter.lat();

    addLine(cx - dx, cy - dy, cx - dx, cy + dy);
    addLine(cx - dx, cy + dy, cx + dx, cy + dy);
    addLine(cx + dx, cy + dy, cx + dx, cy - dy);
    addLine(cx + dx, cy - dy, cx - dx, cy - dy);
}

// Add one line to the map
function addLine(lng1, lat1, lng2, lat2) {
    var polyline = new GPolyline([new GLatLng(lat1, lng1),
        new GLatLng(lat2, lng2)], "#ff0000", 10);
    map.addOverlay(polyline);
}

```
<p>
 <input type="text" value="121 Blake Road Annapolis, MD 21402" id="myaddr" />
 <input type="button" value="Move to here!" onclick="moveMap()" />
 <input type="button" value="Setup perimeter" onclick="makePerimeter()" />
</p>
```

## Map4 – directions (part 1)

```
var map;
var geocoder;
var currentCenter;
var directions;

function load() {
 if (GBrowserIsCompatible()) {
 map = new GMap2(document.getElementById("map"));
 map.addControl(new GSmallMapControl());
 map.addControl(new GMapTypeControl());
 currentCenter = new GLatLng(38.983628, -76.48185);
 map.setCenter(currentCenter, 13);

 geocoder = new GClientGeocoder();
 }
}

function getDirections() {
 var addr = document.getElementById("myaddr").value;

 directionsPanel = document.getElementById("route");
 directions = new GDirections(map, directionsPanel);
 GEvent.addListener(directions, "load", onGDirectionsLoad);
 GEvent.addListener(directions, "error", handleErrors);

 directions.load("Annapolis, MD to "+addr);
}
```

## Map4 – directions (part 2)

```
function onGDirectionsLoad() {
 window.alert("Wow, that will be "+directions.getDistance().meters+" meters to get there!");
}

// I want it to move the map to the destination
function goToDest() {
 // There will be two geocode in result -- start and finish. Get the latter
 var dstMarker = directions.getMarker(1);

 // Now move to it
 map.setCenter(dstMarker.getPoint(), 15);

}

function handleErrors() {
 window.alert("Error, status: "+directions.getStatus().code);
}

<body onload="load()" onunload="GUnload()>
<div id="map" style="width: 800px; height: 600px"></div>

<p>
 <input type="text" value="13070 Crouse Mill Road Queen Anne, MD 21657" id="myaddr" />
 <input type="button" value="Directions to here" onclick="getDirections()" />
 <input type="button" value="Go to dest." onclick="goToDest()" />
</p>
<div id="route" style="width: 100%; border: 1px solid black;"></div>
```

## Search1 – simple

```
<script
src="http://www.google.com/jsapi?key=ABQIAAAAaC6nAnYdk8qdaiadKJdqhR6cIEZB1VS4VNxm3yeWIJ3Dy2tNB
S2Z7wlBcB_NhF3qSuiCMM4znmUYA" type="text/javascript"></script>
<script type="text/javascript">
//<![CDATA[

// Note this alternative "newer" way to load the google API's!
// In next example we'll use the old way -- more examples shown with this
google.load('search', "1");

function load() {
 // Create a search control
 var searchControl = new google.search.SearchControl();

 // Add in a full set of searchers
 var localSearch = new google.search.LocalSearch();
 searchControl.addSearcher(localSearch);
 searchControl.addSearcher(new google.search.WebSearch());
 searchControl.addSearcher(new google.search.VideoSearch());
 searchControl.addSearcher(new google.search.BlogSearch());

 // Set the Local Search center point
 localSearch.setCenterPoint("New York, NY");

 // Tell the searcher to draw itself and tell it where to attach
 searchControl.draw(document.getElementById("searchcontrol"));

 // How to manually do a search:
 // searchControl.execute("Google");
}
//]]>
</script>
</head>
<body onload="load()" onunload="GUnload()>
<div id="searchcontrol">Loading...</div>
```

## Search2 – with map (part 1)

```
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
 <meta http-equiv="content-type" content="text/html; charset=utf-8"/>
 <title>Search Control Callbacks - Google AJAX Search API Sample</title>
 <link href="http://www.google.com/uds/css/gsearch.css" type="text/css" rel="stylesheet"/>
 <style type="text/css">

 td {
 vertical-align : top;
 }

 td.map {
 width: 600px;
 }

 td.search-control {
 padding-left : 25px;
 width : 350px;
 }

 #mapDiv {
 border : 1px solid #979797;
 width : 100%;
 height : 400px;
 }

 </style>

 <script
src="http://maps.google.com/maps?file=api&v=2&key=ABQIAAAAaC6nAnYdk8qdaiaidKJdqhR49beLk
XhYdyxf0YvvU7rCyafhRUhNkQtNLgKbluJwqa9fWngUgBiQ"
type="text/javascript"></script>

<script
src="http://www.google.com/uds/api?file=uds.js&v=1.0&key=ABQIAAAAaC6nAnYdk8qdaiaidKJdqh
R6cIEZB1VS4VNxm3yeWIJ3Dy2tNBSSZ7wlBcB_NhF3qSuiCMM4znmUYA" type="text/javascript"></script>
```

## Search2 – with map (part 2)

```
<script type="text/javascript">
//<![CDATA[
var myMap;
var markerList;

function load() {
 myMap = null;
 markerList = new Array();

 // create a map
 myMap = new GMap2(document.getElementById("mapDiv"));
 myMap.addControl(new GSmallMapControl());
 myMap.setCenter(new GLatLng(38.983628, -76.48185), 13);

 // Create a search control
 var searchControl = new GSearchControl();

 // Add in a full set of searchers
 var localSearch = new GlocalSearch();
 var options = new GsearcherOptions();
 options.setExpandMode(GSearchControl.EXPAND_MODE_OPEN);
 searchControl.addSearcher(localSearch, options);
 searchControl.addSearcher(new GvideoSearch());

 // Set the Local Search center point
 localSearch.setCenterPoint(myMap);

 // tell the searcher to draw itself and tell it where to attach
 searchControl.draw(document.getElementById("searchcontrol"));

 // tell the search control to call be on start/stop
 searchControl.setSearchCompleteCallback(this, OnSearchComplete);
 searchControl.setSearchStartingCallback(this, OnSearchStarting);
}


```

## Search2 – with map (part 3)

```
OnSearchComplete = function(sc, searcher) {
 // if we have local search results, put them on the map
 if (searcher.results && searcher.results.length > 0) {
 for (var i = 0; i < searcher.results.length; i++) {
 var result = searcher.results[i];

 // if this is a local search result, then proceed...
 if (result.GsearchResultClass == GlocalSearch.RESULT_CLASS) {
 latLng = new GLatLng(parseFloat(result.lat), parseFloat(result.lng));
 gmarker = new GMarker(latLng);
 markerList.push(gmarker);
 myMap.addOverlay(gmarker);
 }
 }
 }
}

OnSearchStarting = function(sc, searcher, query) {
 // clear old markers
 for (var i=0; i < markerList.length; i++) {
 var marker = markerList[i];
 myMap.removeOverlay(marker);
 }
 markerList = new Array();
}
```

## Search2 – with map (part 4!!!)

```
<body onload="load()" onunload="GUnload()">
<h1>Combined Search and Mapping</h1>
<table>
 <td class="map">

 <div id="mapDiv">Loading...</div>
 </td>
 <td class="search-control">
 <div id="searchcontrol">Loading...</div>
 </td>
</table>
</body>
```