

CS 312

Internet Concepts

Web Programming/Scripting: AJAX Examples and Google Maps API

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AJAX and Google Maps

◆ AJAX Examples

- » XML
- » Live Search
- » RSS Reader
- » Poll



◆ Google Maps API

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AJAX XML Example

◆ Components

- » HTML form
- » XML file
- » Javascript
- » PHP page
 - ❖ because we want to use PHP to load XML, we need PHP 5
 - ❖ www.cs.odu.edu server has PHP 4
 - ❖ webspace.cs.odu.edu server has PHP 5
 - ❖ I wrote a version that only uses Javascript

<http://webspace.cs.odu.edu/~mweigle/cs312/php5/plants.html>

<http://www.cs.odu.edu/~mweigle/cs312/php/plants.html>

http://www.w3schools.com/php/php_ajax_xml.asp

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AJAX XML plants.html

```
<head>
<script src="selectPlant.js"></script>
</head>
<body>
<form>
Select a plant:
<select name="plants" onchange="showPlant(this.value)">
<option value="Bloodroot">Bloodroot</option>
<option value="Jack-In-The-Pulpit">Jack-In-The-Pulpit</option>
<option value="Phlox, Blue">Blue Phlox</option>
<option value="Phlox, Woodland">Woodland Phlox</option>
<option value="Spring-Beauty">Spring-Beauty</option>
<option value="Trout Lily">Trout Lily</option>
<option value="Black-Eyed Susan">Black-Eyed Susan</option>
</select>
</form>
<p><div id="txtHint"><b>Plant info will be listed here.</b></div></p>
```

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AJAX XML

selectPlant.js

```
var xmlhttp;

function showPlant(str)
{
    xmlhttp=GetXmlHttpRequestObject();
    if (xmlhttp==null) {
        alert ("Browser does not support HTTP Request");
        return;
    }

    var url="getPlant.php";
    url=url+"?q="+str;
    url=url+"&sid="+Math.random();
    xmlhttp.onreadystatechange=stateChanged;
    xmlhttp.open("GET",url,true);
    xmlhttp.send(null);
}
```

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AJAX XML

selectPlant.js

```
function stateChanged()
{
    if (xmlhttp.readyState==4 || xmlhttp.readyState=="complete") {
        document.getElementById("txtHint").innerHTML=xmlhttp.responseText;
    }
}
```

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AJAX XML

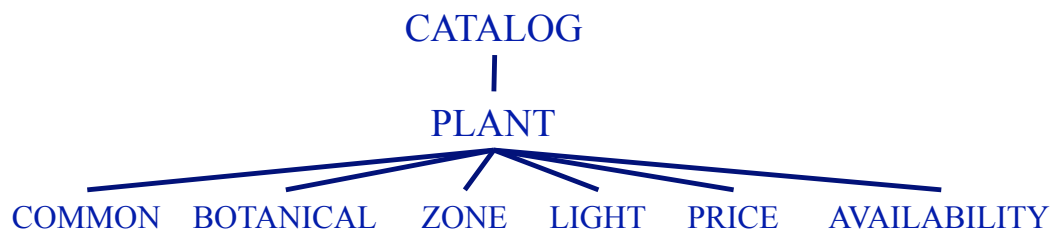
selectPlant.js

```
function GetXmlHttpRequest()
{
    var xmlhttp=null;

    try {
        // Firefox, Opera 8.0+, Safari
        xmlhttp=new XMLHttpRequest();
    }
    catch (e) {
        // Internet Explorer
        try {
            xmlhttp=new ActiveXObject("Msxml2.XMLHTTP");
        }
        catch (e) {
            xmlhttp=new ActiveXObject("Microsoft.XMLHTTP");
        }
    }
    return xmlhttp;
}
```

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plant_catalog.xml



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AJAX XML

getPlant.php

```
<?php
$q=$_GET["q"];    get the parameters sent in the URL

$xmlDoc = new DOMDocument();    not supported in PHP 4
$xmlDoc->load("../xml/plant_catalog.xml");

$x = $xmlDoc->getElementsByTagName('COMMON');

for ($i=0; $i<=$x->length-1; $i++) {
    // Process only element nodes
    if ($x->item($i)->nodeType == 1) {    1 - element type
        if ($x->item($i)->childNodes->item(0)->nodeValue == $q) {
            $y = ($x->item($i)->parentNode);    does the value == $q?
        }
        $y points to a PLANT
    }
}
```

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AJAX XML

getPlant.php

```
$plant = ($y->childNodes);

for ($i=0; $i<$plant->length; $i++) {    loop through all children of PLANT
    // Process only element nodes
    if ($plant->item($i)->nodeType==1) {
        echo($plant->item($i)->nodeName);    print tag name
        echo(": ");
        echo($plant->item($i)->childNodes->item(0)->nodeValue);
        echo("<br />");    print value
    }
}

?>
```

AJAX Live Search

◆ Components

- » HTML form
- » Javascript
- » PHP page
- » XML document

<http://webpace.cs.odu.edu/~mweigle/cs312/php5/liveSearch.html>
http://www.w3schools.com/php/php_ajax_livesearch.asp

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AJAX Live Search

liveSearch.html

```
<head>
<script src="liveSearch.js"></script>
<style type="text/css">
  #livesearch { margin:0px; width:194px; }
  #txt1 { margin:0px; }
</style>
</head>
<body>

<h1>Live Search</h1>
<p>Enter a search term:</p>
<form>
<input type="text" id="txt1" size="30" onkeyup="showResult(this.value)">

<div id="livesearch"></div>
</form>
```

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AJAX Live Search

liveSearch.js

```
var xmlhttp;

function showResult(str)
{
    if (str.length==0) {
        document.getElementById("livesearch").innerHTML="";
        document.getElementById("livesearch").style.border="0px";
        return;
    }
    xmlhttp=GetXmlHttpRequestObject();
    if (xmlhttp==null) {
        alert ("Browser does not support HTTP Request");
        return;
    }
    var url="liveSearch.php";
    url=url+"?q="+str;
    url=url+"&sid="+Math.random();
    xmlhttp.onreadystatechange=stateChanged;
    xmlhttp.open("GET",url,true);
    xmlhttp.send(null);
}
```

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AJAX Live Search

liveSearch.js

```
function stateChanged()
{
    if (xmlhttp.readyState==4) {
        document.getElementById("livesearch").innerHTML=xmlhttp.responseText;
        document.getElementById("livesearch").style.border="1px solid #A5ACB2";
    }
}
```

function GetXmlHttpRequestObject()

same as all other examples, so not shown

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AJAX Live Search

liveSearch.php

```
<?php
$xmlDoc = new DOMDocument();
$xmlDoc->load("links.xml");

$x=$xmlDoc->getElementsByTagName('link');

//get the q parameter from URL
$q=$_GET["q"];
```

<http://www.cs.odu.edu/~mweigle/cs312/php5/links.xml>

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AJAX Live Search

liveSearch.php

```
// lookup all links from the xml file if length of q>0
if (strlen($q) > 0) {
    $hint="";
    for ($i=0; $i<($x->length); $i++) {
        $y=$x->item($i)->getElementsByTagName('title');
        $z=$x->item($i)->getElementsByTagName('url');
        if ($y->item(0)->nodeType==1) {
            //find a link matching the search text
            if (strpos ($y->item(0)->childNodes->item(0)->nodeValue, $q)) {
                if ($hint == "") {
                    $hint="<a href=" . $z->item(0)->childNodes->item(0)->nodeValue .
                        " target='_blank'>";
                    $y->item(0)->childNodes->item(0)->nodeValue . "</a>";
                } else {
                    $hint=$hint . "<br /><a href=" .
                        $z->item(0)->childNodes->item(0)->nodeValue . " target='_blank'>";
                    $y->item(0)->childNodes->item(0)->nodeValue . "</a>";
                }
            }
        }
    }
}
```

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AJAX Live Search

liveSearch.php

```
// Set output to "no suggestion" if no hint were found
// or to the correct values
if ($hint == "") {
    $response = "no suggestion";
} else {
    $response = $hint;
}

//output the response
echo $response;
?>
```

<http://webSPACE.cs.odu.edu/~mweigle/cs312/php5/liveSearch.html>

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AJAX RSS Reader

- ◆ Components
 - » HTML form
 - » Javascript
 - » PHP page

<http://webSPACE.cs.odu.edu/~mweigle/cs312/php5/rss-reader.html>
http://www.w3schools.com/php/php_ajax_rss_reader.asp

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AJAX RSS Reader

rss-reader.html

```
<html>
<head>
<script type="text/javascript" src="getRSS.js"></script>
</head>
<body>

<form>
Select an RSS-Feed:
<select onchange="showRSS(this.value)">
<option value="Google">Google News</option>
<option value="MSNBC">MSNBC News</option>
</select>
</form>

<p><div id="rssOutput">
<b>RSS Feed will be listed here.</b></div></p>
</body>
</html>
```

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AJAX RSS Reader

getRSS.js

Pretty much same as other Javascript scripts.

Builds URL with getRSS.php

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AJAX RSS Reader

getRSS.php

```
<?php
// get the q parameter from URL
$q=$_GET["q"];

// find out which feed was selected
if ($q == "Google") {
    $xml = ("http://news.google.com/news?ned=us&topic=h&output=rss");
} elseif ($q == "MSNBC") {
    $xml = ("http://rss.msnbc.msn.com/id/3032091/device/rss/rss.xml");
}

$xmlDoc = new DOMDocument();
$xmlDoc->load($xml);
```

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AJAX RSS Reader

RSS XML Example

```
<?xml version="1.0"?>
<rss version="2.0">
  <channel>
    <title>Lift Off News</title>
    <link>http://liftoff.msfc.nasa.gov/</link>
    <description>Liftoff to Space Exploration.</description>
    <language>en-us</language>
    <pubDate>Tue, 10 Jun 2003 04:00:00 GMT</pubDate>
    <docs>http://blogs.law.harvard.edu/tech/rss</docs>
    <ttl>5</ttl>

    <item>
      <title>Star City</title>
      <link>http://liftoff.msfc.nasa.gov/news/2003/news-starcity.asp</link>
      <description>How do Americans get ready to work with Russians aboard the
        International Space Station? They take a crash course in culture, language
        and protocol at Russia's Star City.</description>
      <pubDate>Tue, 03 Jun 2003 09:39:21 GMT</pubDate>
      <guid>http://liftoff.msfc.nasa.gov/2003/06/03.html#item573</guid>
    </item>
```

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AJAX RSS Reader

getRSS.php

```
// get elements from "<channel>"
$channel=$xmlDoc->getElementsByTagName('channel')->item(0);
$channel_title = $channel->getElementsByTagName('title')
->item(0)->childNodes->item(0)->nodeValue;
$channel_link = $channel->getElementsByTagName('link')
->item(0)->childNodes->item(0)->nodeValue;
$channel_desc = $channel->getElementsByTagName('description')
->item(0)->childNodes->item(0)->nodeValue;

// output elements from "<channel>"
echo("<p><a href=\"" . $channel_link . "\">\" . $channel_title . "</a>");
echo("<br />");
echo($channel_desc . "</p>");
```

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AJAX RSS Reader

getRSS.php

```
// get and output "<item>" elements
$x=$xmlDoc->getElementsByTagName('item');
for ($i=0; $i<=2; $i++) {
    $item_title=$x->item($i)->getElementsByTagName('title')
->item(0)->childNodes->item(0)->nodeValue;
    $item_link=$x->item($i)->getElementsByTagName('link')
->item(0)->childNodes->item(0)->nodeValue;
    $item_desc=$x->item($i)->getElementsByTagName('description')
->item(0)->childNodes->item(0)->nodeValue;

    echo ("<p><a href=\"" . $item_link . "\">\" . $item_title . "</a>");
    echo ("<br />");
    echo ($item_desc . "</p>");
}
?> http://webpace.cs.odu.edu/~mweigle/cs312/php5/rss-reader.html
```

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AJAX Poll

◆ Components

- » HTML form
- » Javascript
- » PHP page
 - ❖ doesn't use XML, so we don't need PHP 5
- » text file to store the results

<http://www.cs.odu.edu/~mweigle/cs312/php/poll.html>

http://www.w3schools.com/php/php_ajax_poll.asp

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AJAX Poll

poll.html

```
<html>
<head>
<script src="poll.js"></script>
</head>
<body>

<div id="poll">
<h2>Do you like PHP and AJAX so far?</h2>

<form>
Yes:
<input type="radio" name="vote" value="0" onclick="getVote(this.value)">
<br />No:
<input type="radio" name="vote" value="1" onclick="getVote(this.value)">
</form>
</div>
</body>
</html>
```

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AJAX Poll

poll.js

Pretty much same as other Javascript scripts.

Builds URL with poll_vote.php

Writes output of PHP to “poll” div

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AJAX Poll

poll_vote.php

```
<?php
$vote = $_REQUEST['vote'];
```

```
// get content of textfile
$filename = "poll_result.txt";
$content = file($filename);
```

```
// put content in array
$array = explode("||", $content[0]);
$yes = $array[0];
$no = $array[1];
```

```
if ($vote == 0) {
    $yes = $yes + 1;
}
if ($vote == 1) {
    $no = $no + 1;
}
```

array explode (string \$delimiter, string \$string)
Splits \$string into multiple strings delimited by \$delimiter

poll_result.txt

no votes || yes votes

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AJAX Poll

poll_vote.php

```
// insert votes to txt file
$insertvote = $yes . "||" . $no;
$fp = fopen($filename, "w");
fputs ($fp, $insertvote);
fclose ($fp);
?>

<h2>Result:</h2>
<table>
<tr>
<td>Yes:</td>
<td>
' height='20'>
<?php echo(100*round($yes/($no+$yes),2)); ?>%
</td>
</tr>
```

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AJAX Poll

poll_vote.php

```
<tr>
<td>No:</td>
<td>
'
height='20'>
<?php echo(100*round($no/($no+$yes),2)); ?>%
</td>
</tr>
</table>
```

<http://www.cs.odu.edu/~mweigle/cs312/php/poll.html>

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AJAX and Google Maps

◆ AJAX Examples

- » XML
- » Live Search
- » RSS Reader
- » Poll



◆ Google Maps API

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Google Maps API

- ◆ First thing – sign up for a key
 - » <http://code.google.com/apis/maps/signup.html>
- ◆ Developer Guide
 - » <http://code.google.com/apis/maps/documentation/introduction.html>
- ◆ Google Maps API Reference
 - » <http://code.google.com/apis/maps/documentation/reference.html>
- ◆ Examples
 - » <http://code.google.com/apis/maps/documentation/examples/>
- ◆ Demos
 - » <http://code.google.com/apis/maps/documentation/demogallery.html>

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“Hello World”

This code should be at the beginning of the HTML file:

```
<!DOCTYPE html "-//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"/>
    <script src=
"http://maps.google.com/maps?file=api&v=2&key=mykey&sensor=false"
    type="text/javascript"></script>
```

<http://code.google.com/apis/maps/documentation/introduction.html>

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“Hello World”

Javascript to initialize the map:

```
<script type="text/javascript">
function initialize() {
  if (GBrowserIsCompatible()) {
    var map = new GMap2 (document.getElementById ("map_canvas"));
    map.setCenter (new GLatLng (36.8854, -76.2581), 12);
  }
}
</script>
```

setCenter (GLatLng, zoom level)
GLatLng (latitude, longitude)

<http://code.google.com/apis/maps/documentation/introduction.html>

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“Hello World”

Creating a div for the map to be placed:

```
</head>
<body onload="initialize()" onunload="GUnload()">
  <div id="map_canvas" style="width: 100%; height: 500px"></div>
</body>
</html>
```

<http://www.cs.odu.edu/~mweigle/cs312/gmap/map-simple.html>

<http://code.google.com/apis/maps/documentation/introduction.html>

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Map Attributes

- ◆ Map Types - setMapType()
 - » G_NORMAL_MAP – default view
 - » G_SATELLITE_MAP – Google Earth satellite images
 - » G_HYBRID_MAP – mixture of normal and satellite
 - » Example: map.setMapType (G_SATELLITE_MAP);

- ◆ Zoom Levels
 - » 0 – lowest zoom (view whole world)
 - » 19 – highest zoom (individual buildings, if available)
 - » Retrieve current zoom level using getZoom()

<http://code.google.com/apis/maps/documentation/introduction.html>

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Google Maps Controls

- ◆ GLargeMapControl
 - » large pan/zoom control in top left corner by default
- ◆ GSmallMapControl
 - » smaller version of GLargeMapControl
- ◆ GSmallZoomControl
 - » small zoom control (no panning)
- ◆ GScaleControl
 - » map scale
- ◆ GMapTypeControl
 - » buttons to let the user toggle map types

<http://code.google.com/apis/maps/documentation/controls.html>

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Recall initialize()

Javascript to initialize the map:

```
<script type="text/javascript">
function initialize() {
  if (GBrowserIsCompatible()) {
    var map = new GMap2 (document.getElementById ("map_canvas"));
    map.setCenter (new GLatLng (36.8854, -76.2581), 12);
  }
}
</script>
```

<http://code.google.com/apis/maps/documentation/introduction.html>

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Example

control-simple.html

Just change initialize() (inside GBrowserIsCompatible())

```
var map = new GMap2(document.getElementById("map_canvas"));
map.addControl(new GSmallMapControl());
map.addControl(new GMapTypeControl());
map.setCenter (new GLatLng (36.8854, -76.2581), 12);
```

<http://www.cs.odu.edu/~mweigle/cs312/gmap/control-simple.html>

<http://code.google.com/apis/maps/documentation/controls.html>

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Latitudes and Longitudes

- ◆ A map displays a current "window" of the entire world within what is known as a *viewport*
 - » viewport can be defined by the rectangular points at its corners
- ◆ GLatLngBounds object
 - » defines a rectangular region using two GLatLng objects representing the southwest and northeast corners of the bounding box, respectively
- ◆ GLatLng also used to place a marker overlay on the map
 - » addOverlay (*GMarker*)
 - » GMarker (*GLatLng*)

<http://code.google.com/apis/maps/documentation/introduction.html>

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Google Maps Overlays

◆ Overlays

- » objects on the map tied to latitude/longitude coordinates
- » reflect objects you add to the map to designate points, lines, areas

◆ Some types

- » markers – points on the map
 - ❖ GMarker or GIcon
- » polylines – lines on the map
 - ❖ Gpolyline
- » tile – the map itself
 - ❖ GTileLayerOverlay
- » info window – special overlay, only one per map
 - ❖ GInfoWindow

<http://code.google.com/apis/maps/documentation/overlays.html>

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Example

map-markers.html

```
var map = new GMap2(document.getElementById("map_canvas"));
map.setCenter(new GLatLng(36.8854, -76.2581), 12);

// Add 10 markers to the map at random locations
var bounds = map.getBounds(); returns a GLatLngBounds object
var southWest = bounds.getSouthWest();
var northEast = bounds.getNorthEast();
var lngSpan = northEast.lng() - southWest.lng();
var latSpan = northEast.lat() - southWest.lat();
for (var i = 0; i < 10; i++) {
    var point = new GLatLng(southWest.lat() + latSpan * Math.random(),
        southWest.lng() + lngSpan * Math.random());
    map.addOverlay(new GMarker(point));
}
```

<http://www.cs.odu.edu/~mweigle/cs312/gmap/map-marker.html>

<http://code.google.com/apis/maps/documentation/introduction.html>

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Google Maps and Events

- ◆ Just like regular Javascript, we can interact with Google Maps using events
- ◆ Register *event listeners* with the GEvent namespace
 - » GEvent.addListener (*map source, event, handler*)
- ◆ Examples of Events: click, dblclick, mousemove

<http://code.google.com/apis/maps/documentation/events.html>

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Example

event-arguments.html

```
var map = new GMap2(document.getElementById("map_canvas"));
map.setCenter(new GLatLng(36.8854, -76.2581), 12);
```

```
GEvent.addListener (map, "click", function(overlay, latlng) {
  if (latlng) {
    var myHtml = "GLatLng value: " + latlng.toUrlValue() +
      " degrees<br />GPoint value (pixels): " +
      map.fromLatLngToDivPixel(latlng) +
      "<br/>Zoom level: " + map.getZoom();
    map.openInfoWindow (latlng, myHtml);
  } // end of if (latlng)
} // end of function
); // end of addListener
map.addControl(new GSmallMapControl());
map.addControl(new GMapTypeControl());
```

<http://www.cs.odu.edu/~mweigle/cs312/gmap/event-arguments.html>

<http://code.google.com/apis/maps/documentation/events.html>

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Draggable Markers

- ◆ By default, markers are clickable, but not draggable
- ◆ We can add events to markers
 - » `click`
 - » `dragstart`
 - » `drag`
 - » `dragend`
- ◆ Add *draggable* attribute
- ◆ Can also set *bouncy* attribute to false
 - » `true` by default

<http://code.google.com/apis/maps/documentation/overlays.html>

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Example

marker-drag.html

```
var map = new GMap2(document.getElementById("map_canvas"));
map.setCenter(new GLatLng(36.8854, -76.2581), 12);
```

```
var marker = new GMarker(center, {draggable: true});
```

```
GEvent.addListener(marker, "dragstart", function() {
  map.closeInfoWindow();
});
```

```
GEvent.addListener(marker, "dragend", function() {
  marker.openInfoWindowHtml("Just bouncing along...");
});
```

```
map.addOverlay(marker);
```

<http://www.cs.odu.edu/~mweigle/cs312/gmap/marker-drag.html>

<http://code.google.com/apis/maps/documentation/overlays.html>

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Google Maps Icons

- ◆ Can define an icon to show as a marker in place of the default
- ◆ Icons can be complex just because of what has to be defined
 - » foreground image
 - » shadow image – must align properly with foreground
- ◆ Simplest icons are based on G_DEFAULT_ICON

<http://code.google.com/apis/maps/documentation/overlays.html>

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Remember map-marker?

```
var map = new GMap2(document.getElementById("map_canvas"));
map.setCenter(new GLatLng(36.8854, -76.2581), 12);

// Add 10 markers to the map at random locations
var bounds = map.getBounds();
var southWest = bounds.getSouthWest();
var northEast = bounds.getNorthEast();
var lngSpan = northEast.lng() - southWest.lng();
var latSpan = northEast.lat() - southWest.lat();
for (var i = 0; i < 10; i++) {
    var point = new GLatLng(southWest.lat() + latSpan * Math.random(),
        southWest.lng() + lngSpan * Math.random());
    map.addOverlay(new GMarker(point));
}
```

<http://code.google.com/apis/maps/documentation/introduction.html>

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Example

icon-simple.html

```
var map = new GMap2(document.getElementById("map_canvas"));
map.setCenter(new GLatLng(36.8854, -76.2581), 12);

// Create our "tiny" marker icon
var blueIcon = new GIcon(G_DEFAULT_ICON);
blueIcon.image = "http://gmaps-samples.googlecode.com/svn/trunk/markers/blue/blank.png";

// Set up our GMarkerOptions object
markerOptions = { icon:blueIcon };

// [random marker placement code, except]
map.addOverlay(new GMarker(point, markerOptions));
```

<http://www.cs.odu.edu/~mweigle/cs312/gmap/icon-simple.html>
<http://code.google.com/apis/maps/documentation/overlays.html>

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Google Maps Layers

- ◆ Layers
 - » sets of geographically-related features that share some common function
 - » displayed on a map as a group
- ◆ GLayer
 - » overlay objects that store a set of third-party geographic information
 - » <http://spreadsheets.google.com/pub?key=p9pdwsai2hDN-cAocTLhnag>
- ◆ Add to the map using addOverlay()

<http://code.google.com/apis/maps/documentation/overlays.html>

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Example

layer-simple.html

```
var map = new GMap2(document.getElementById("map_canvas"));
map.setCenter(new GLatLng(36.8854, -76.2581), 12);

var myLayer = new GLayer("org.wikipedia.en");
map.addOverlay(myLayer);
```

<http://www.cs.odu.edu/~mweigle/cs312/gmap/layer-simple.html>

<http://www.cs.odu.edu/~mweigle/cs312/gmap/layer-photos.html>

<http://code.google.com/apis/maps/documentation/overlays.html>

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Google Maps and Local Search

You can easily add local search to your maps

- ◆ Add the Google AJAX Search API URL
- ◆ Load stylesheets for the control object
- ◆ Load the control itself

<http://code.google.com/apis/maps/documentation/services.html>

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Remember HTML Heading Code?

This code should be at the beginning of the HTML file:

```
<!DOCTYPE html "-//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"/>
    <script src=
"http://maps.google.com/maps?file=api&v=2&key=mykey&sensor=false"
    type="text/javascript"></script>
```

<http://code.google.com/apis/maps/documentation/services.html>

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Example control-localsearch.html

Add

```
<style type="text/css">
@import url("http://www.google.com/uds/css/gsearch.css");
@import url("http://www.google.com/uds/solutions/localsearch/gmlocalsearch.css");
</style>

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

<script src="http://www.google.com/uds/solutions/localsearch/
gmlocalsearch.js" type="text/javascript"></script>
```

<http://code.google.com/apis/maps/documentation/services.html>

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Example

control-localssearch.html

```
function initialize() {  
    if (GBrowserIsCompatible()) {  
        var map = new GMap2(document.getElementById("map_canvas"));  
        map.setCenter(new GLatLng(36.8854, -76.2581), 12);  
        map.addControl(new GLargeMapControl());  
        map.addControl(new GMapTypeControl());  
  
        // bind a search control to the map, suppress result list  
        map.addControl(new google.maps.LocalSearch(),  
            new GControlPosition(G_ANCHOR_BOTTOM_RIGHT,  
                new GSize(10,20)));  
    } // end if  
} // end function  
GSearch.setOnLoadCallback(initialize);
```

<http://www.cs.odu.edu/~mweigle/cs312/gmap/control-localssearch.html>

<http://code.google.com/apis/maps/documentation/services.html>

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Google Maps and Geocoding

◆ Geocoding

- » process of converting an address to a latitude and longitude

◆ GClientGeocoder

- » getLatLng() converts address to latitude/longitude
- » function takes a callback to execute once the lat/lng has been determined

<http://code.google.com/apis/maps/documentation/services.html>

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Example

geocoding-simple.html

```
var geocoder = null;

function initialize() {
  if (GBrowserIsCompatible()) {
    map = new GMap2(document.getElementById("map_canvas"));
    map.setCenter(new GLatLng(36.8854, -76.2581), 12);

    geocoder = new GClientGeocoder();
  }
}
```

<http://code.google.com/apis/maps/documentation/services.html>

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Example

geocoding-simple.html

```
function showAddress (address) {
  if (geocoder) {
    geocoder.getLatLng (address, function (point) {
      if (!point) {
        alert (address + " not found");
      } else {
        map.setCenter (point, 14);
        var marker = new GMarker (point);
        map.addOverlay (marker);
        marker.openInfoWindowHtml (address);
      } // end if
    } // end function
  ); // getLatLng
} // end if (geocoder)
} // end function showAddress
```

<http://code.google.com/apis/maps/documentation/services.html>

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Example

geocoding-simple.html

New HTML Code

```
<body onload="initialize()" onunload="GUnload()">
  <form action="#" onsubmit="showAddress(this.address.value); return
false">
    <p>
      <input type="text" size="60" name="address" value="4700 Elkhorn
Avenue, Norfolk, VA" />
      <input type="submit" value="Go!" />
    </p>
    <div id="map_canvas" style="width: 100%; height: 500px"></div>
  </form>
</body>
```

<http://www.cs.odu.edu/~mweigle/cs312/gmap/geocoding-simple.html>

<http://code.google.com/apis/maps/documentation/services.html>

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AJAX and Google Maps

◆ AJAX Examples

- » XML
- » Live Search
- » RSS Reader
- » Poll



◆ Google Maps API

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