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Module 2.3 - Web-based Mapping Clients: OpenLayers Javascript Framework - Part I

Outline

- Capabilities
- OpenLayers = Javascript (by example)

OpenLayers Capabilities

- Support for Multiple basemaps: *Google, Yahoo, Bing, OpenStreetMap*
- Model for interaction with multiple map server platforms: *ArcGIS* (REST & cache), *ArcIMS*, *KaMap*, *MapServer*
- Support for key OGC standards: *WMS, WMTS, WFS, GML, KML, SLD*
- Multiple control types: *Navigation, Pan, Zoom, Overview, Scale, Feature Creation & Editing, Graticule, Layer Switcher*
- Custom styled features with associated attributes: *Curve, LinearRing, LineString, MultiLineString, MultiPoint, MultiPolygon, Point, Polygon, Rectangle*
- Support for many formats for data read and write: *ArcXML, ATOM, GeoRSS, GPX, KML, WKT*, any many others
- Open Source, enabling modification and integration into other systems (e.g. [GeoExt](#))

Distinguishing Characteristics Between OpenLayers and Google Maps

- Greater emphasis on client-side processing - Client access and rendering of data files that Google's servers otherwise take care of (pros & cons to this approach)
- Integrated support for OGC services and their products
- Support for different projections (adds complexity)
- API more rich in options ==> more complexity

Resources

[OpenLayers Home Page](#)

[Application Programming Interface \(API\) Reference](#)

[Examples](#)

Demonstrations and Examples

- [Basic Mapper](#) (with OpenStreetMaps [OSM] base map)

```
1 <html xmlns="http://www.w3.org/1999/xhtml">
2   <head>
3     <script type="text/javascript" src="http://openlayers.org/api/OpenLayers.js"></script>
4     <script type="text/javascript">
5       // define global variables
6       var lon = -106.5;
7       var lat = 36;
8       var zoom = 3;
9       var map;
10      var layer;
11
12      // ===== Initialization function =====
13      function init(){
14        map = new OpenLayers.Map( 'map' );
15
16        // ===== OSM Map =====
17        layer = new OpenLayers.Layer.OSM( "Open Street Map");
18        map.addLayer(layer);
19
20        map.setCenter(
21          new OpenLayers.LonLat(lon, lat).transform(
22            new OpenLayers.Projection("EPSG:4326"),
23            map.getProjectionObject()
24          ), zoom
25        );
26      }
27      // ===== End of Initialization Function =====
28
29    </script>
30    <style type="text/css">
31      #map {width:90%; height:500px}
32    </style>
33  </head>
34  <body onload="init()">
35    <h1>Basic OpenLayers Map</h1>
36    <p>Shows the basic use of OpenLayers with the <a href="http://www.openstreetmap.org/">OpenStreetmap</a>
37    <!-- Map DIV -->
38    <div id="map"></div>
39  </body>
40 </html>
```

Demonstration and Examples - Online Resources

- [Mapper](#) with a variety of base maps (Google, Bing, Yahoo, OSM)
- Basic Mapper with Controls: [No Controls](#), [Layer Switcher](#), [Control Array](#), [Overlay Map](#), [Scale Information](#)
- Positioning Controls with the `moveTo` function: [two controls moved](#)

Next Week - Custom Features and WMS Layers