

Geo APIs

February 18th 2013

Smart Data Hack



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Overview

- Maps in your apps
- Going beyond just showing maps
- Geospatial data: it isn't just maps



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Back to Google, Bing and Here (Nokia)

- These don't just offer map data
- Each service has a suite of APIs for JavaScript, iOS, Android, HTML5 etc.
 - <https://developers.google.com/maps/>
 - [http://www.microsoft.com/maps/developers/
web.aspx](http://www.microsoft.com/maps/developers/web.aspx)
 - http://developer.here.net/en_GB



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Going beyond just showing maps

Adding other Layers



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Leaflet: <http://leafletjs.com/>

- Easy to use
- Nice default graphics
- Very light weight
- Not very flexible
 - Only uses GeoJSON or Native layers
 - You may need to parse your data before it will work



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Leaflet: <http://leafletjs.com/>

TextPad - C:\Users\Tom\Desktop\leaflet2.html

```
<!DOCTYPE html>
<html>
<head>
<link rel="stylesheet" href="http://cdn.leafletjs.com/leaflet-0.5/leaflet.css" />
<!--[if lt IE 8]>
<link rel="stylesheet" href="http://cdn.leafletjs.com/leaflet-0.5/leaflet.ie.css" />
<![endif]-->
</head>
<body>
<div id="map" style="width: 500px; height: 500px"></div>
<script src="http://cdn.leafletjs.com/leaflet-0.5/leaflet.js"></script>
<script>

var map = L.map('map').setView([55.945, -3.187], 10);

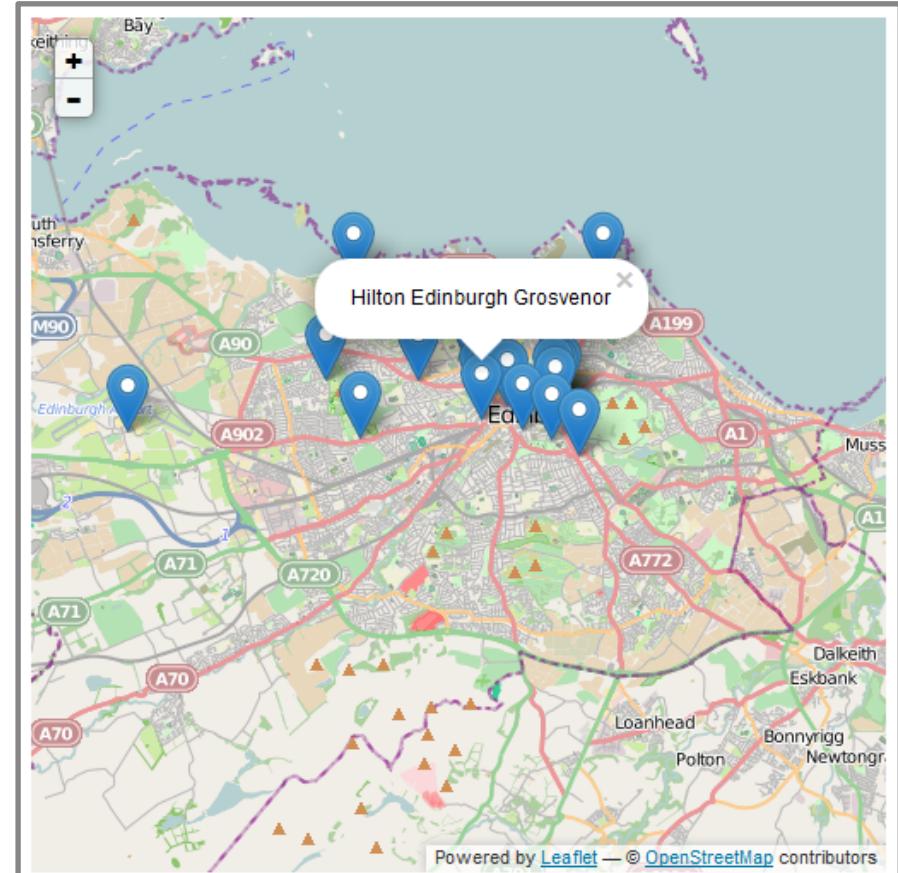
L.tileLayer('http://{s}.tile.osm.org/{z}/{x}/{y}.png', {
    attribution: '&copy; <a href="http://osm.org/copyright">OpenStreetMap</a> contributors',
    maxZoom: 18
}).addTo(map);

function onEachFeature(feature, layer) {
    if (feature.properties && feature.properties.name) {
        layer.bindPopup(feature.properties.name);
    }
}

var edinburghhotels = {
    "type": "FeatureCollection",
    "features": [
        {
            "type": "Feature",
            "id": "9722472",
            "geometry": {
                "type": "Point",
                "coordinates": [-3.18738, 55.9508]
            },
            "properties": {
                "name": "Barcelo Edinburgh Carlton Hotel",
                "popupContent": "Barcelo Edinburgh Carlton Hotel",
                "sourceid": "6951350",
                "country": "United Kingdom",
                "countrycode": "GB",
                "adminlevel1": "Scotland",
                "adminlevel2": "City of Edinburgh",
                "adminlevel3": "",
                "adminlevel4": "",
                "featuretype": "Hotel",
                "custodian": "GeoNames",
                "gazetteer": "GeoNames",
                "scale": "unknowvn",
                "centroid": "-3.18738, 55.9508",
                "footprint": "http://unlock.edina.ac.uk/ws/footprintLookup?format=json&identifier"
            }
        },
        {
            "type": "Feature",
            "id": "9722791",
            "geometry": {
                "type": "Point",
                "coordinates": [-3.20092, 55.9444]
            },
            "properties": {}
        }
    ]
};

map.on('click', function(e) {
    var popup = L.popup();
    var coordinates = e.latlng.toString();
    var address = L.esri的地名;
    var zoom = map.getZoom();
    var title = '坐标: ' + coordinates + '，缩放: ' + zoom + '，地址: ' + address;
    var content = '坐标: ' + coordinates + '  
缩放: ' + zoom + '  
地址: ' + address;
    var footer = 'Powered by Leaflet — © OpenStreetMap contributors';
    var button = '关闭';

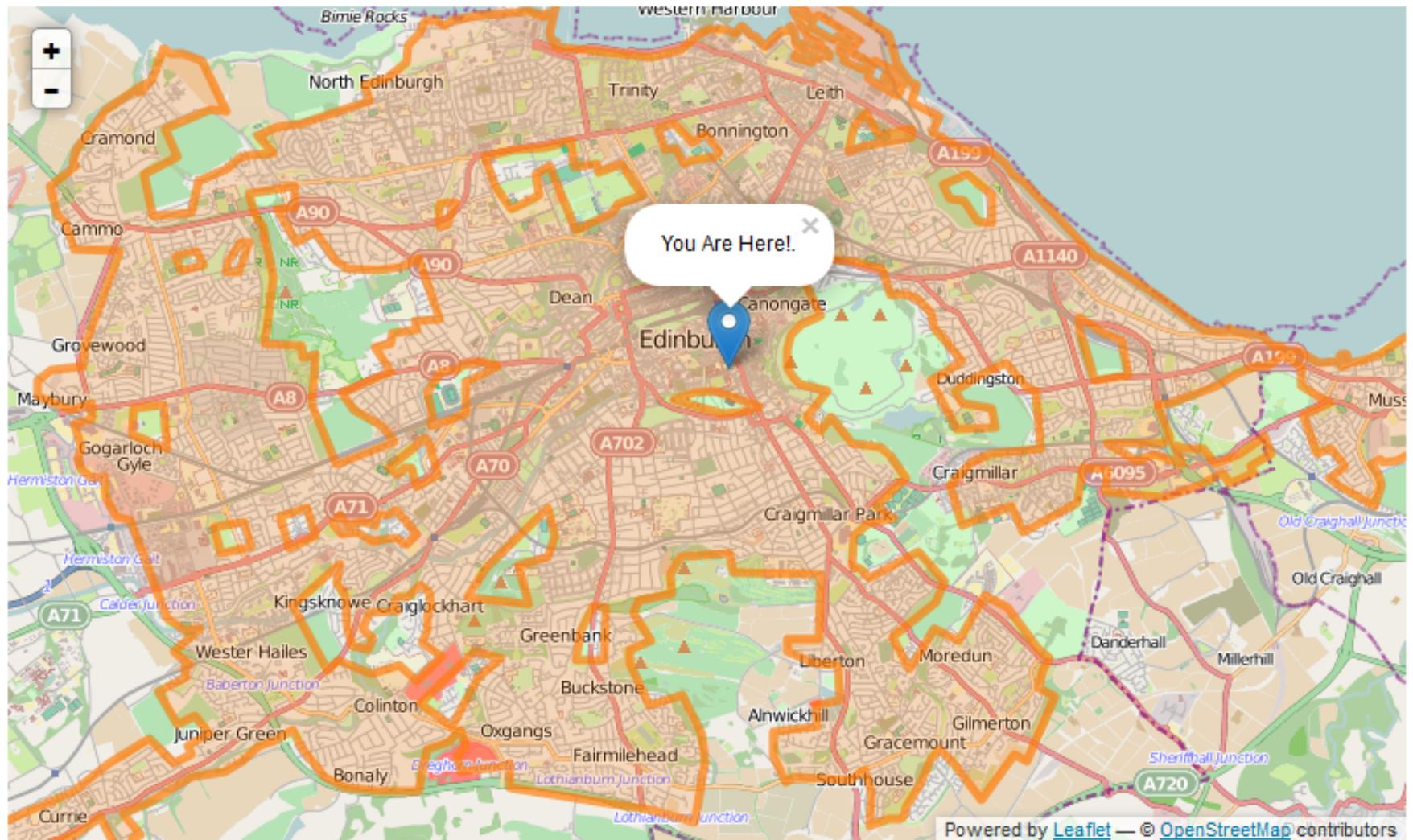
    popup.setLatLng(e.latlng)
        .setContent(content)
        .setFooter(footer)
        .openOn(map);
});
```



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Leaflet: <http://leafletjs.com/>



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OpenLayers: <http://openlayers.org/>

- Very Powerful
- Open Source with a huge user community
- Much more flexible for reading in different datasets
- Not as easy to use
- Defaults settings and visuals are a little ugly
- Larger Codebase, harder to streamline for mobile devices



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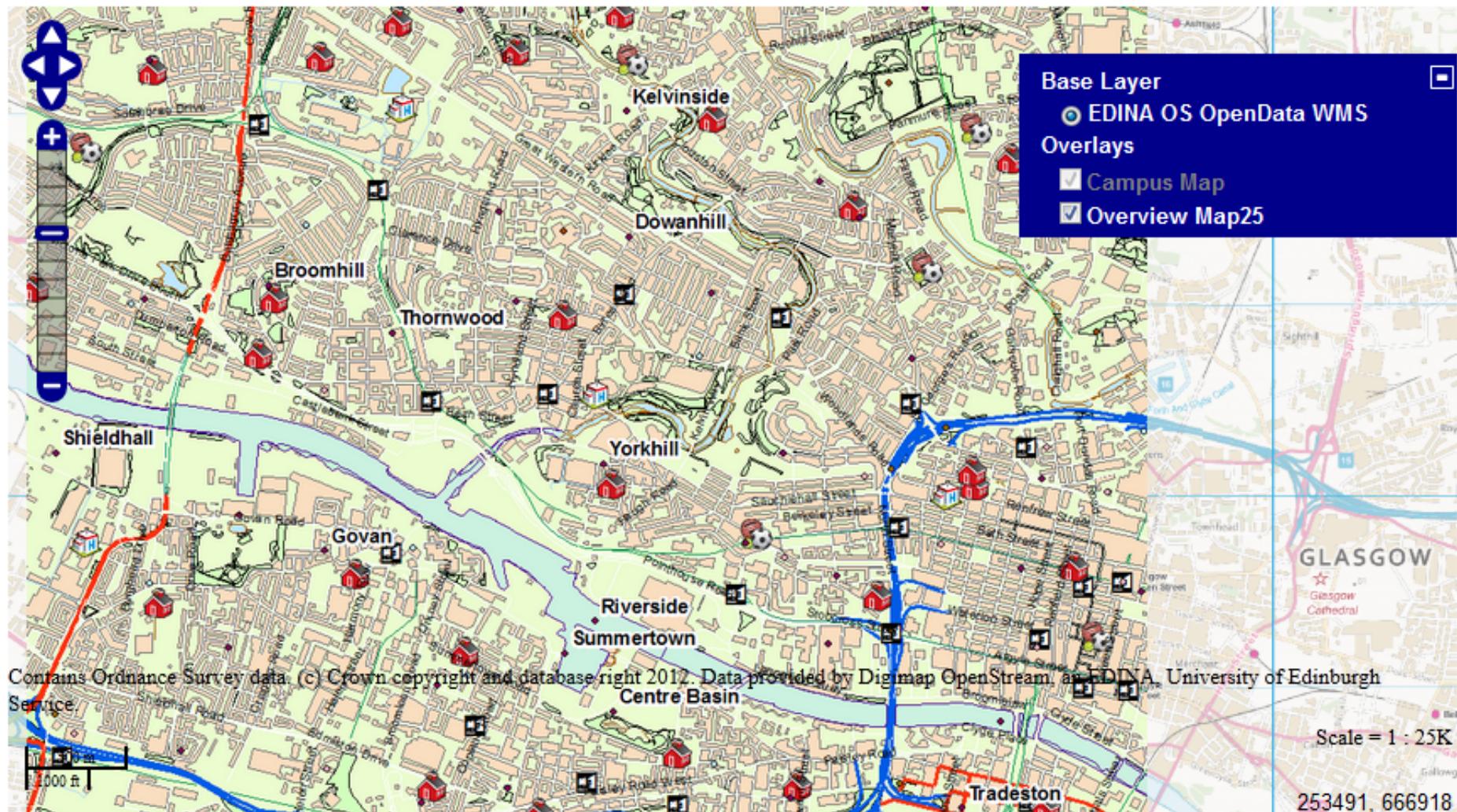
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Considerations

- **Traffic**
 - Google etc. have caps above which they charge
- **Hosted or Download?**
 - Easier to use hosted but can be more stable to download the code
- **Projection and conversion**
 - Different datasets can be in different projections
 - APIs tend to use Web Mercator
 - Different conversions have different accuracies
 - Default is usually poor! Ask edina@ed.ac.uk for advice



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Other ways to represent spatial data



Geospatial data: it isn't just all about maps

- Most data has an element that is geospatial or can be georeferenced
 - Postcode, Place name, Location Stamp, IP Address
- Get data with coordinates
 - <http://poi.gps-data-team.com/>
- Use a “Gazetteer Service” to add coordinates to your data
 - Unlock Places, Here Places



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Unlock: <http://unlock.edina.ac.uk/home/>

- **Unlock Places**

- Build spatial queries from user or sensor inputs
- Return results in several different formats:
 - kml, json, xml, txt, georss...
- Returns, points, bounding boxes, footprints...

- **Unlock Text**

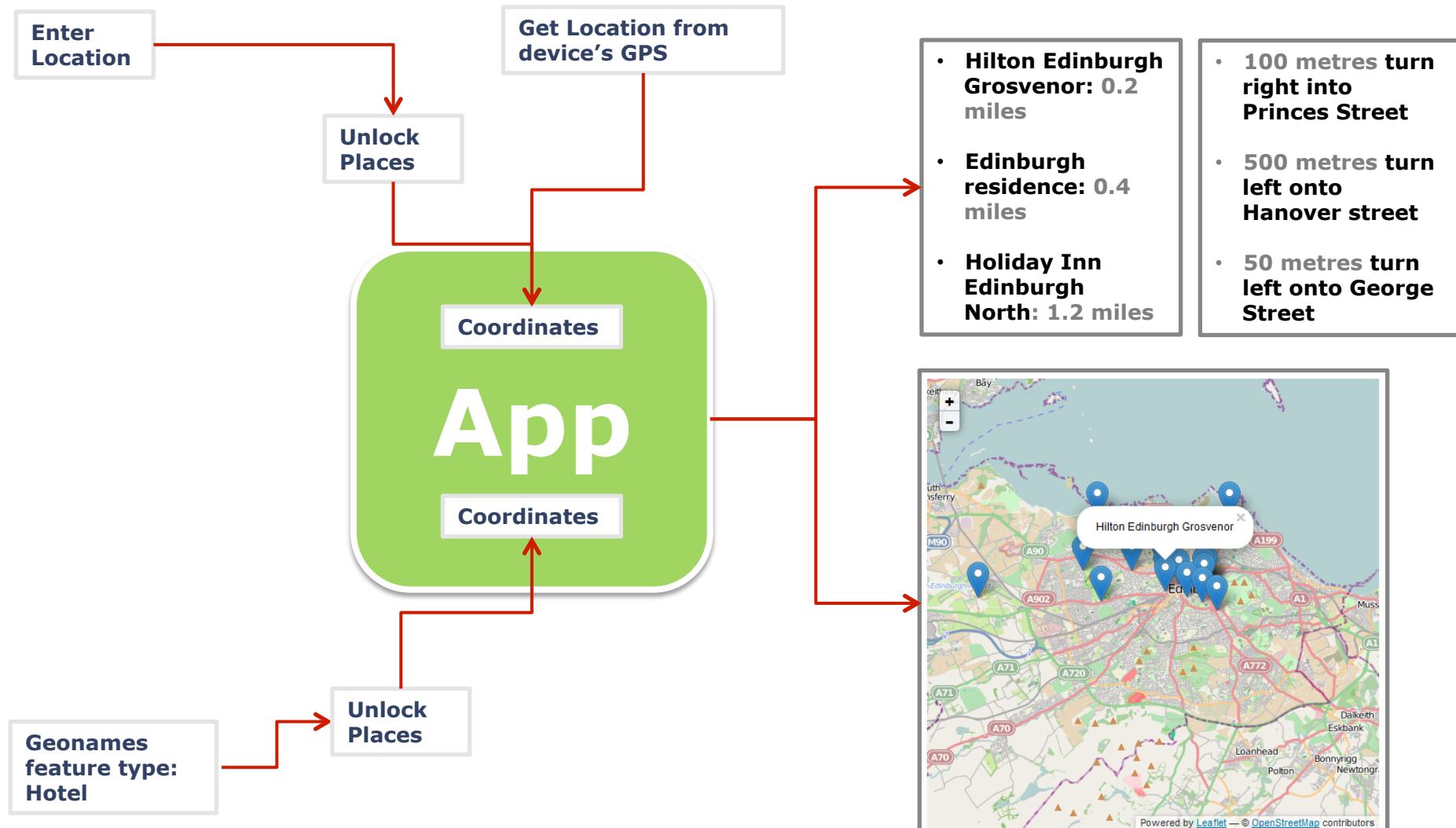
- generates a list of places from a txt or html file
- RESTful Client
- Geoparser made by the LTG here in Informatics



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Where's the nearest Hotel?



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Questions?



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