

# COMP30670

## Software Engineering (Conversion)

18 - Frontend Support  
03/04/2017

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# Frontend

```

<!DOCTYPE html>
<html>
  <head>
    <title>Simple Map</title>
    <meta name="viewport" content="initial-scale=1.0">
    <meta charset="utf-8">
    <style>
      /* Always set the map height explicitly to define the size of the div
       * element that contains the map. */
      #map {
        height: 100%;
      }
      /* Optional: Makes the sample page fill the window. */
      html, body {
        height: 100%;
        margin: 0;
        padding: 0;
      }
    </style>
  </head>
  <body>
    <div id="map"></div>
    <script>
      var map;
      function initMap() {
        map = new google.maps.Map(document.getElementById('map'), {
          center: {lat: -34.397, lng: 150.644},
          zoom: 8
        });
      }
    </script>
    <script src="https://maps.googleapis.com/maps/api/js?key=YOUR_API_KEY&callback=initMap"
      async defer></script>
  </body>
</html>

```

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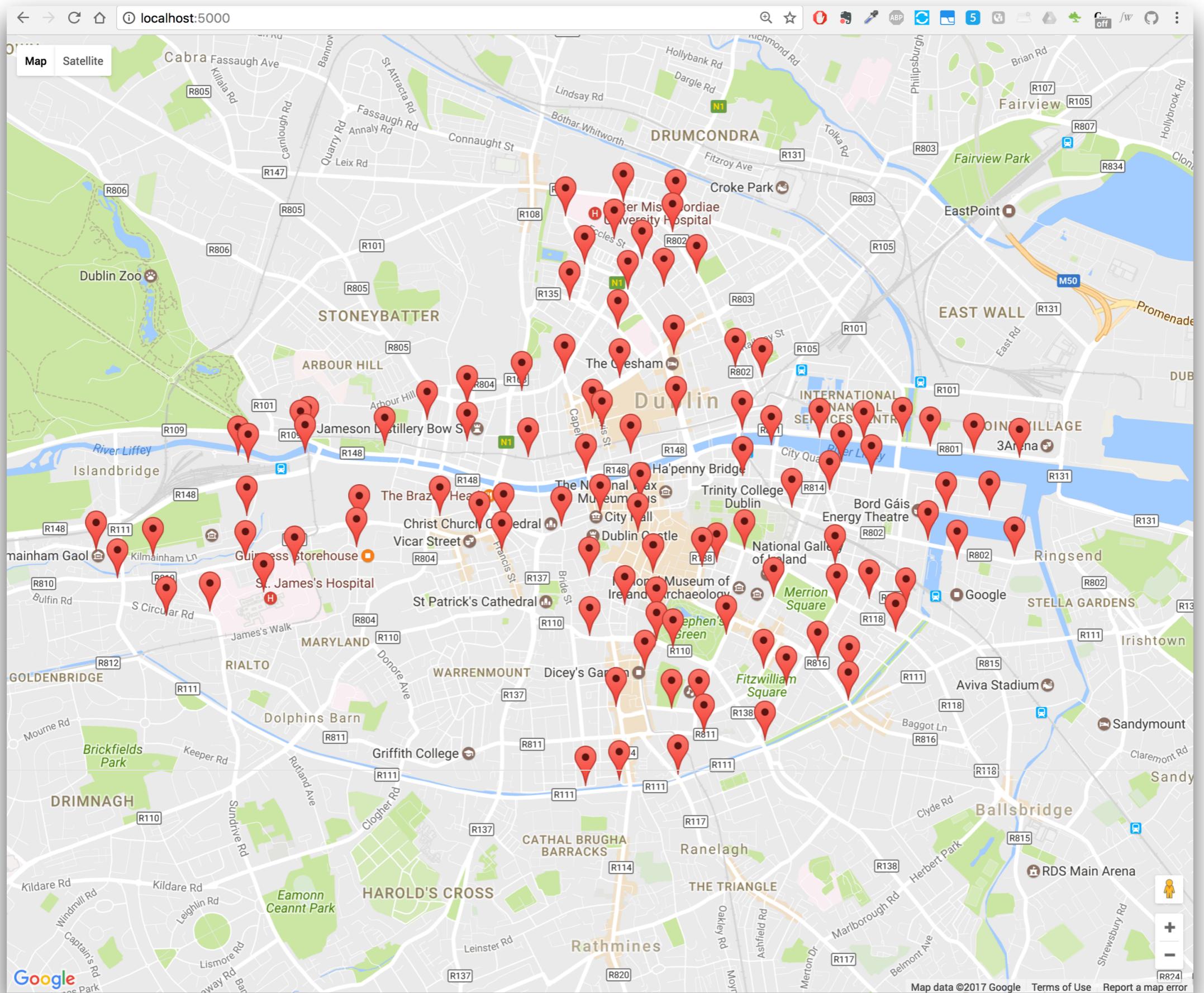
```

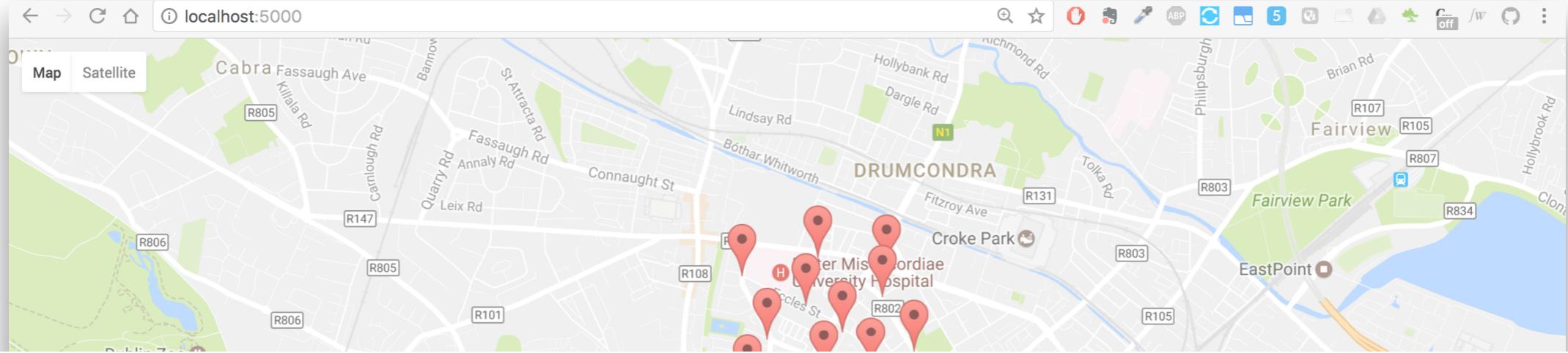
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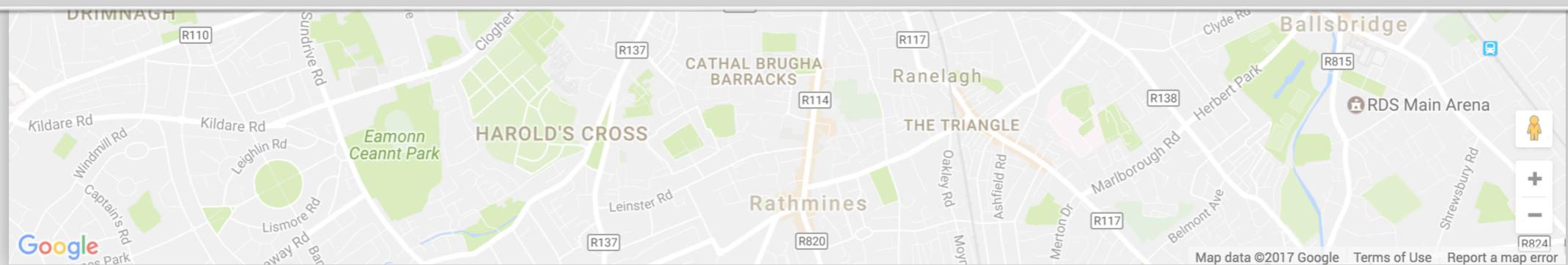
```





```
@app.route("/stations")
@functools.lru_cache(maxsize=128)
def get_stations():
    engine = get_db()
    sql = "select * from station;"
    rows = engine.execute(sql).fetchall()
    print('#found {} stations', len(rows))
    return jsonify(stations=[dict(row.items())] for row in rows) #
```

use this formula to turn the rows into a list of dicts



## XMLHttpRequest

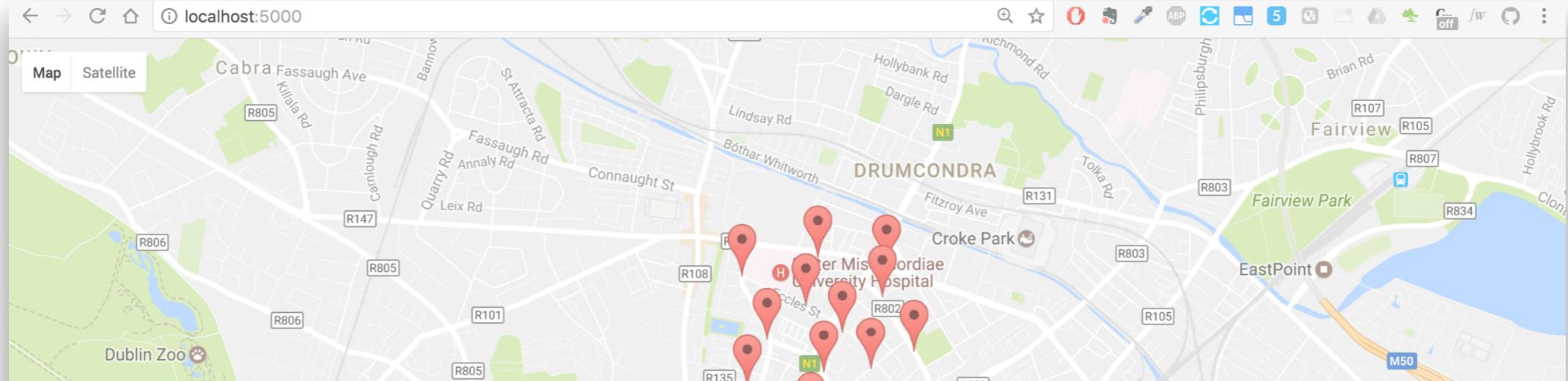
```
var xmlhttp = new XMLHttpRequest();
var url = "myTutorials.txt";

xmlhttp.onreadystatechange = function() {
    if (this.readyState == 4 && this.status == 200) {
        var myArr = JSON.parse(this.responseText);
        myFunction(myArr);
    }
};
xmlhttp.open("GET", url, true);
xmlhttp.send();

function myFunction(arr) {
    var out = "";
    var i;
    for(i = 0; i < arr.length; i++) {
        out += '<a href="' + arr[i].url + '">' +
        arr[i].display + '</a><br>';
    }
    document.getElementById("id01").innerHTML = out;
}
```

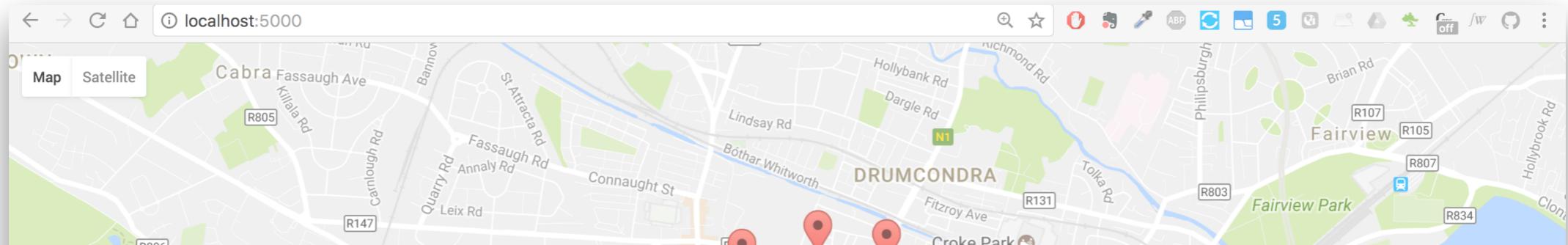
`$.getJSON()`

```
var jqxhr = $.getJSON( "example.json", function() {
    console.log( "success" );
})
.done(function() {
    console.log( "second success" );
})
.fail(function() {
    console.log( "error" );
})
.always(function() {
    console.log( "complete" );
});
```

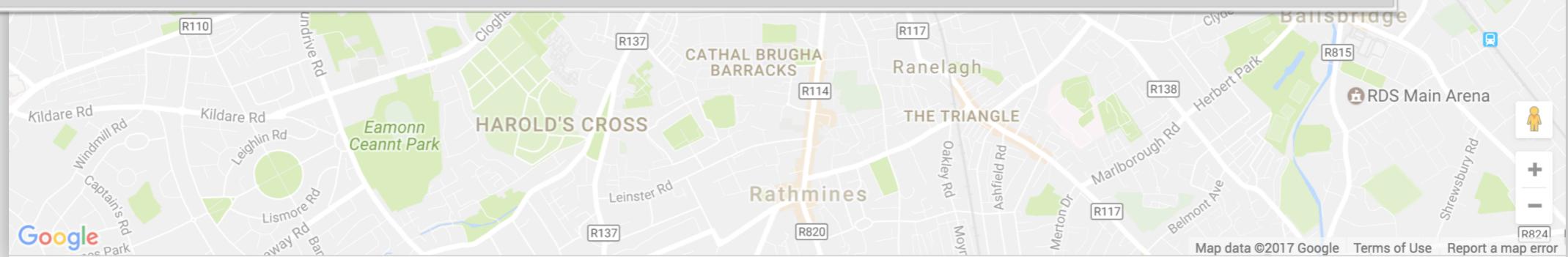


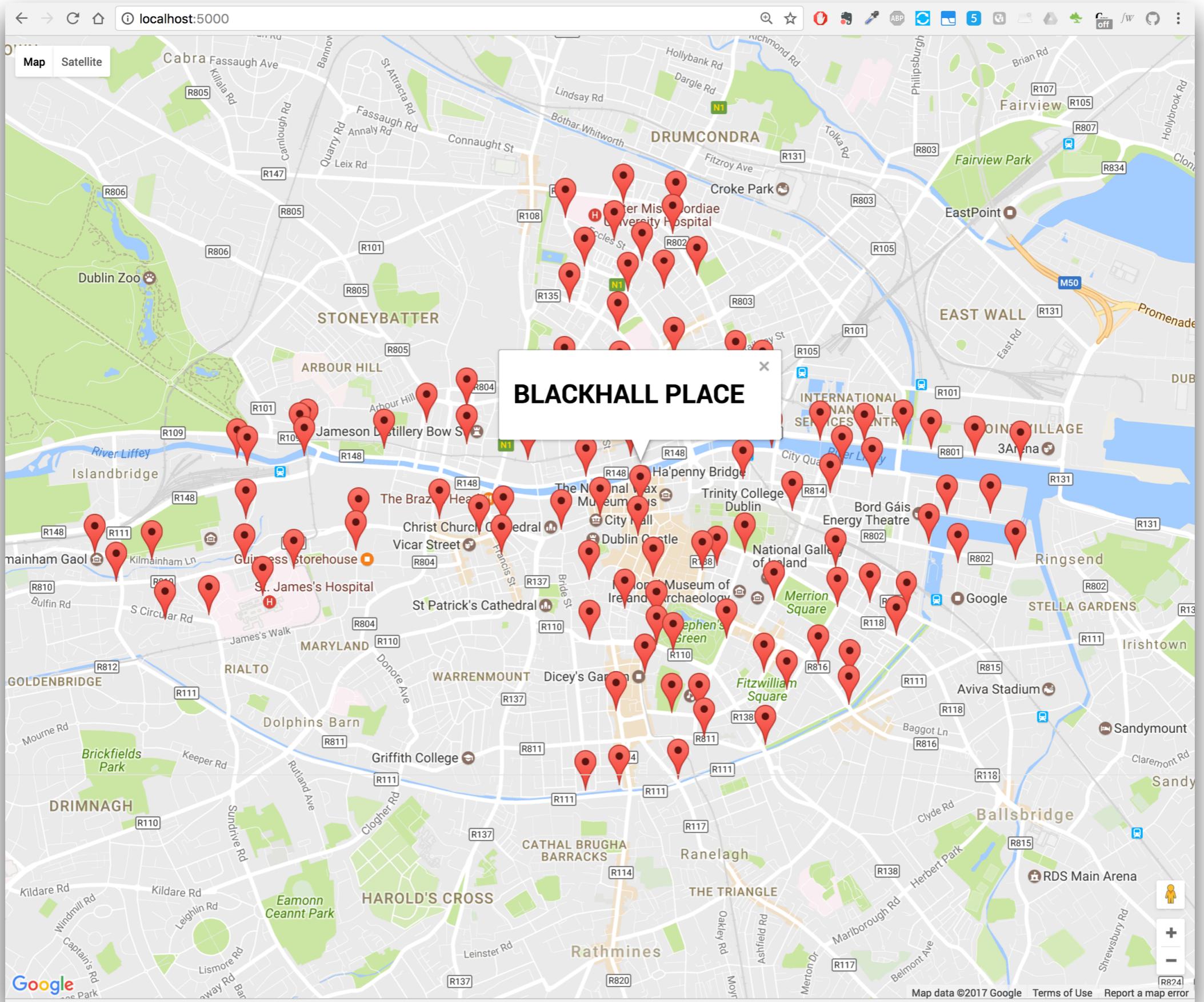
```
function showStationMarkers() {
  var jqxhr = $.getJSON($SCRIPT_ROOT + "/stations", function(data) {
    var stations = data.stations;
    console.log('stations', stations);
    // draw markers
  })
  .fail(function() {
    console.log("error");
  })
}
```

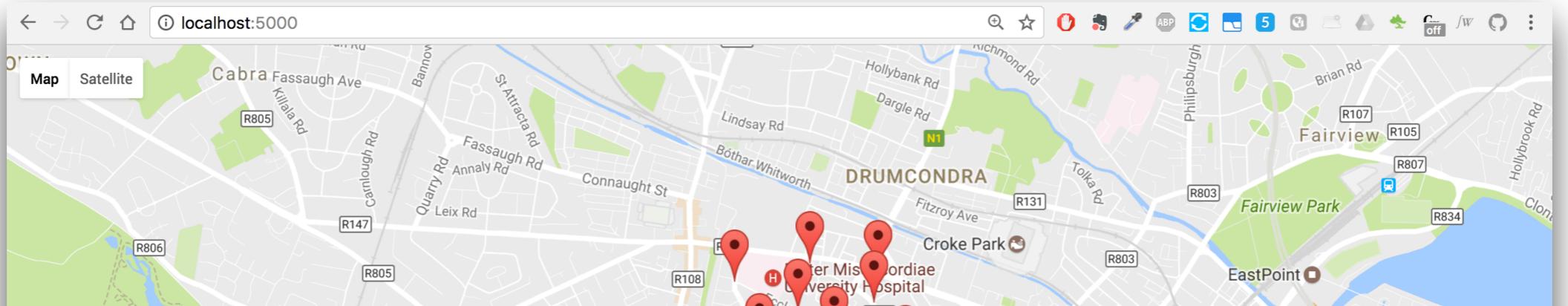




```
// draw markers
_.forEach(stations, function(station) {
    // console.log(station.name, station.number);
    var marker = new google.maps.Marker({
        position : {
            lat : station.position_lat,
            lng : station.position_lng
        },
        map : map,
        title : station.name,
        station_number : station.number
    });
})
```





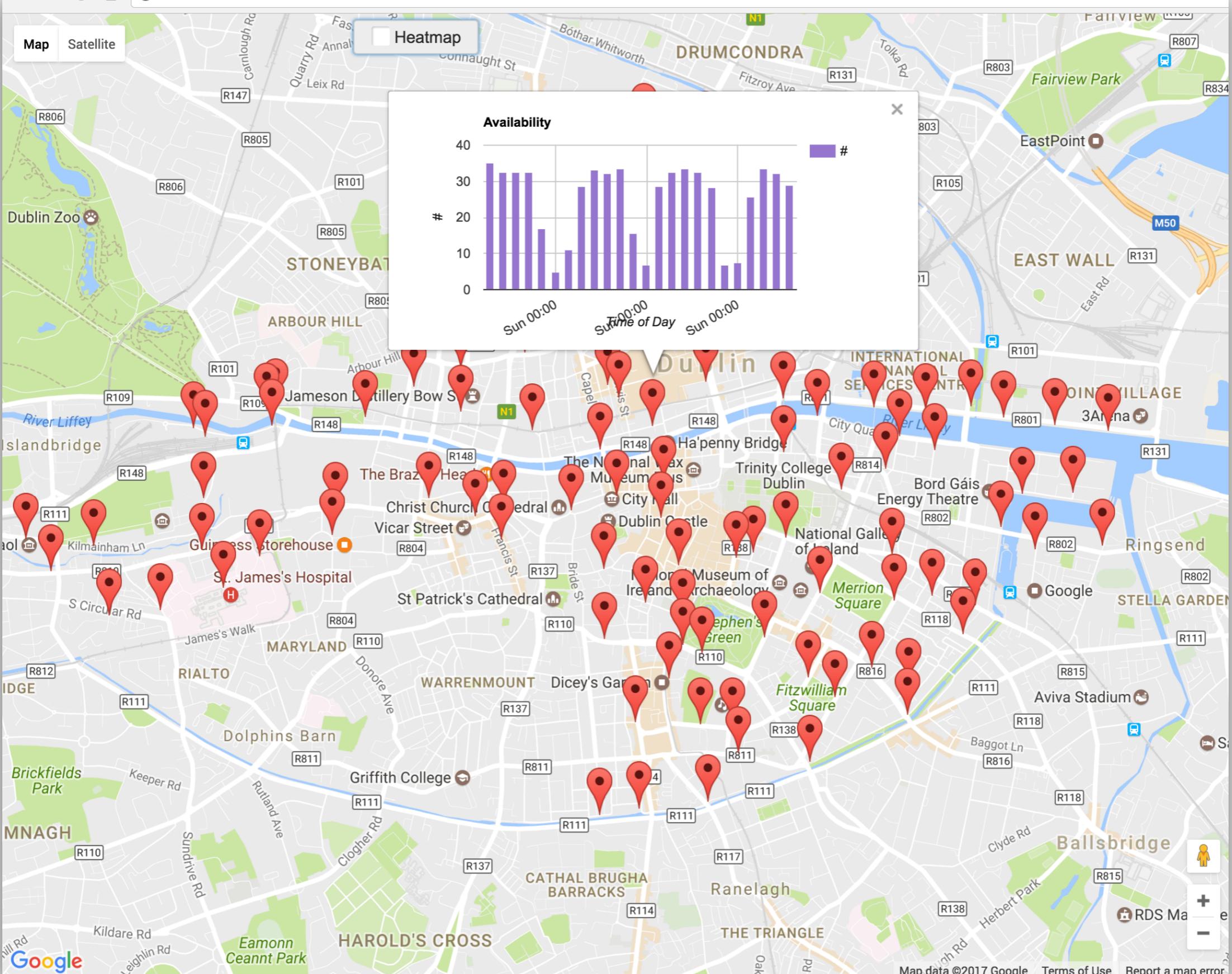


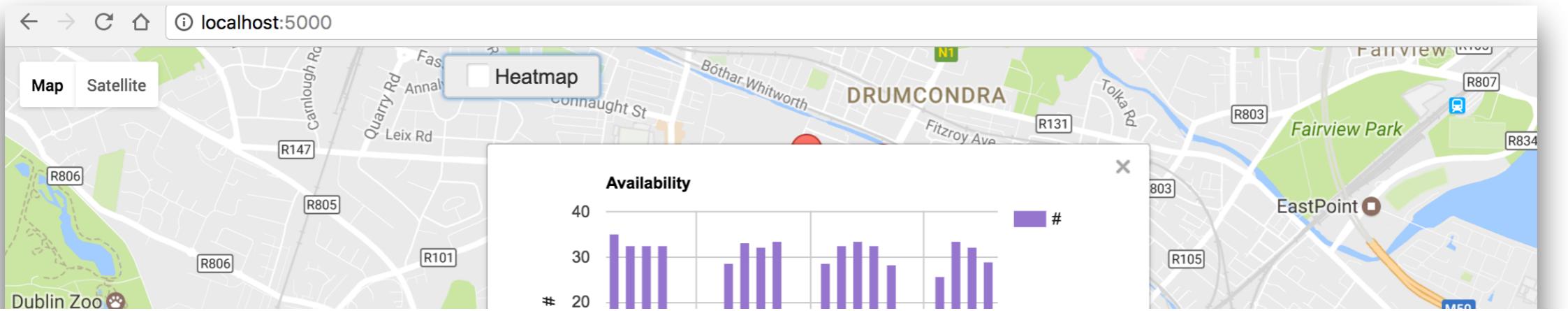
```
_.forEach(stations, function(station) {
    // console.log(station.name, station.number);
    var marker = new google.maps.Marker(...);

    contentString = '<div id="content"><h1>' + station.name + '</h1></div>'
    + '<div id="station_availability"></div>';

    google.maps.event.addListener(marker, 'click', function() {
        drawInfoWindowChart(this);
    });
});
```





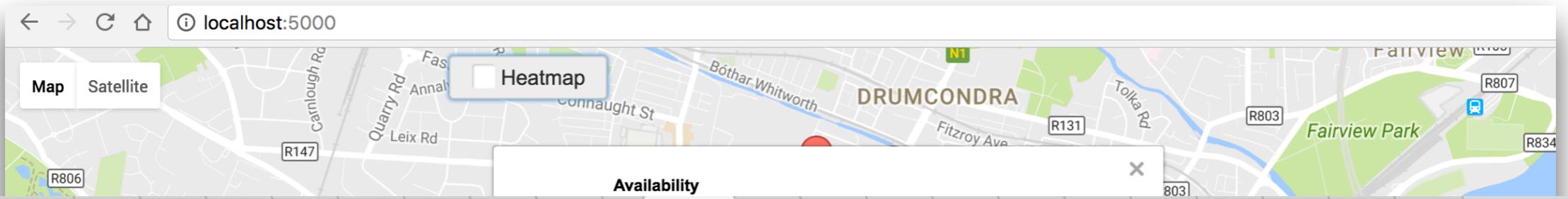


```

@app.route("/occupancy/<int:station_id>")
def get_occupancy(station_id):
    engine = get_db()
    df = pd.read_sql_query("select * from availability where number = %s", engine, params={"number": station_id})
    df['last_update_date'] = pd.to_datetime(df.last_update, unit='ms')
    df.set_index('last_update_date', inplace=True)
    res = df['available_bike_stands'].resample('1d').mean()
    #res['dt'] = df.index
    print(res)
    return jsonify(data=json.dumps(list(zip(map(lambda x: x.isoformat(), res.index), res.values)))))

```

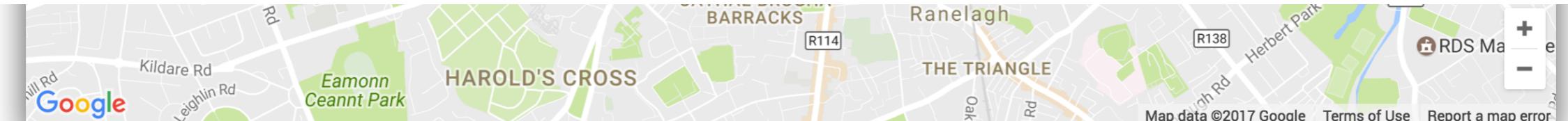


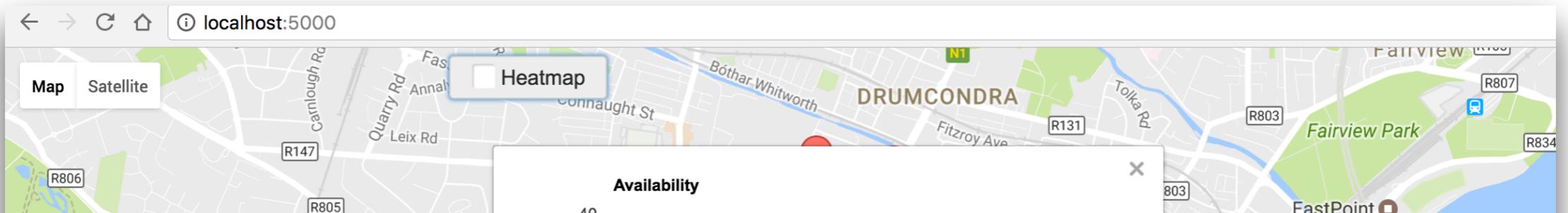


{

```
"data": "[["20160531T00:0000Z", 0.0], ["20160601T00:0000Z", 9.53125],
["20160602T00:0000Z", 9.10763888888889], ["20160603T00:0000Z", 11.937716262975778],
["20160604T00:0000Z", 8.954703832752614], ["20160605T00:0000Z", 11.651567944250871],
["20160606T00:0000Z", 12.006944444444445], ["20160607T00:0000Z", 8.19097222222221],
["20160608T00:0000Z", 9.21875], ["20160609T00:0000Z", 9.337979094076655],
["20160610T00:0000Z", 10.024221453287197], ["20160611T00:0000Z", 13.19163763066202],
["20160612T00:0000Z", 12.121951219512194], ["20160613T00:0000Z", 9.822916666666666],
["20160614T00:0000Z", 8.75347222222221], ["20160615T00:0000Z", 8.256944444444445],
["20160616T00:0000Z", 9.245674740484429], ["20160617T00:0000Z", 8.716783216783217],
["20160618T00:0000Z", 10.434027777777779], ["20160619T00:0000Z", 8.961805555555555],
["20160620T00:0000Z", 9.550522648083623], ["20160621T00:0000Z", 9.149825783972126],
["20160622T00:0000Z", 9.06597222222221], ["20160623T00:0000Z", 12.183266932270916]]"
```

}





```

var jqxhr = $.getJSON($SCRIPT_ROOT + "/occupancy/" + marker.station_number,
    function(data) {
data = JSON.parse(data.data);
console.log('data', data);

var node      = document.createElement('div'),
infowindow = new google.maps.InfoWindow(),
chart      = new google.visualization.ColumnChart(node);

var chart_data = new google.visualization.DataTable();
chart_data.addColumn('datetime', 'Time of Day');
chart_data.addColumn('number', '#');
_.forEach(data, function(row){
    chart_data.addRow([new Date(row[0]), row[1]]);
})

chart.draw(chart_data, options);
infowindow.setContent(node);
infowindow.open(marker.getMap(), marker);
}).fail(function() {
    console.log( "error" );
})
}

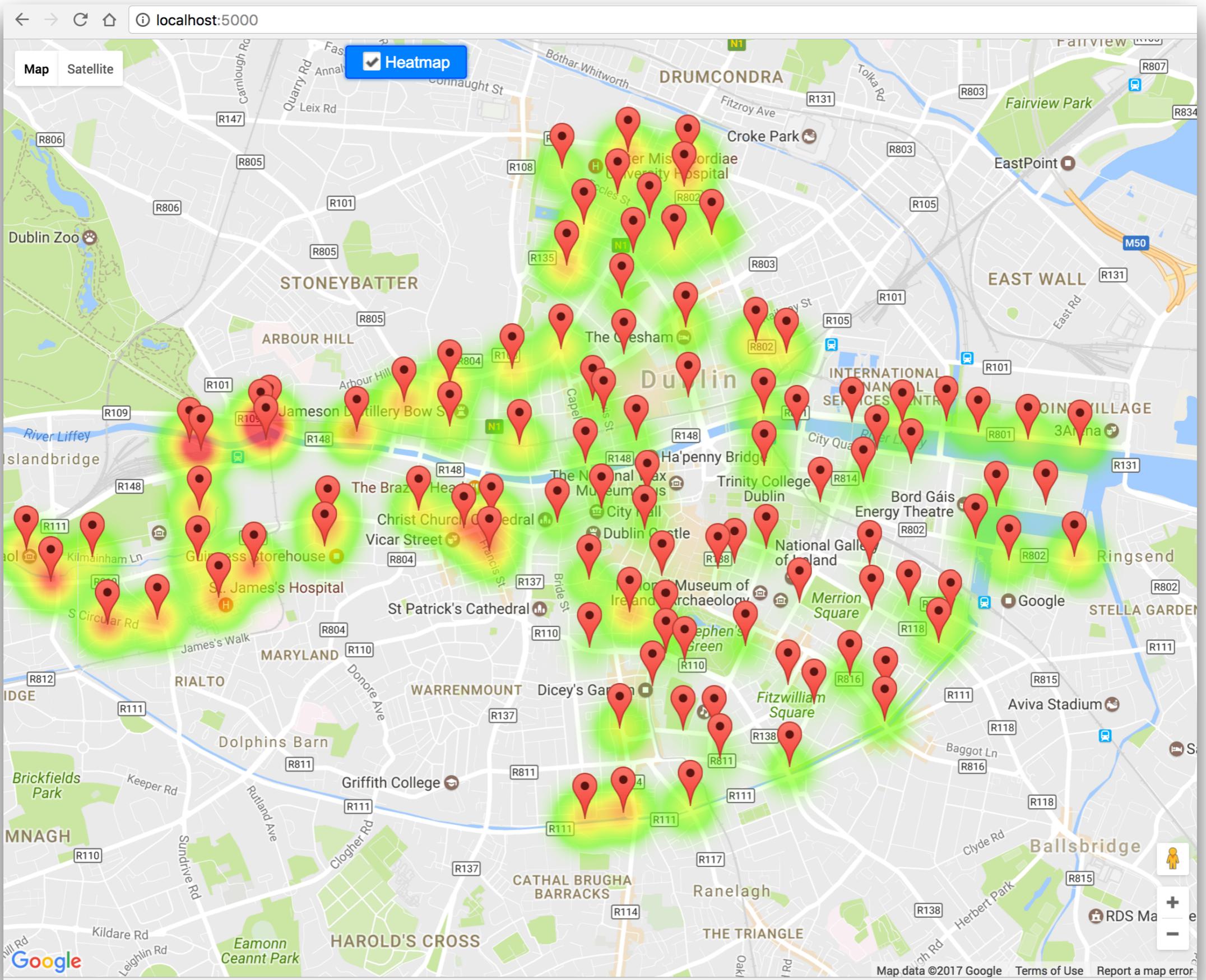
```



Map Satellite

[Toggle Heatmap](#) [Change gradient](#) [Change radius](#) [Change opacity](#)





```

function drawHeatmap(me) {
    //console.log('toggle heatmap');
    console.log('clicked checkbox-1', me, me.prop('checked'));
    checked = me.prop('checked');
    if(checked) {
        if(heatmap == null) {

            var jqxhr = $.getJSON($SCRIPT_ROOT + "/heatmap",
                function(data) {
                    console.log('data', data);

                    var heatmapData = [];
                    _.forEach(data.data, function(row) {
                        heatmapData.push(
                            {location: new google.maps.LatLng(row.position_lat, row.position_lng),
                             weight: row.available_bikes});
                    });
                    heatmap = new google.maps.visualization.HeatmapLayer({
                        data: heatmapData,
                        map: map
                    });
                    console.log(heatmap);
                    heatmap.setMap(map);
                    heatmap.set('radius', 40);

                    //heatmap.setMap(heatmap.getMap() ? null : map);
                }).fail(function() {
                    console.log('failed');
                });
            } else {
                heatmap.setMap(map);
            }
        } else {
            heatmap.setMap(null);
        }
    }
}

```

```
<script src="{{ url_for('static',filename='jquery-3.2.0.min.js') }}></script>
<script src="{{ url_for('static',filename='lodash.js') }}></script>
<script src="{{ url_for('static',filename='bootstrap/js/bootstrap.min.js') }}></script>
<link rel="stylesheet" href="{{ url_for('static', filename='bootstrap/css/bootstrap.css') }}></link>
<script src="{{ url_for('static', filename='jquery-ui-1.12.1/jquery-ui.min.js') }}></script>
<link rel="stylesheet" href="{{ url_for('static', filename='jquery-ui-1.12.1/jquery-
ui.theme.min.css') }}>
<link rel="stylesheet" href="{{ url_for('static', filename='jquery-ui-1.12.1/jquery-
ui.min.css') }}>
<script type=text/javascript> $SCRIPT_ROOT = {{ request.script_root|tojson|safe }}; </script>
<script src="{{ url_for('static',filename='app.js') }}></script>
<script type="text/javascript" src="https://www.gstatic.com/charts/loader.js"></script>
```