

Lab Week 4

This week you will begin working with GPX files and build a basic understanding of Open Street Maps using the Leaflet API. This will require understanding how to parse and read-through XML and display this correctly on a map.

Get Setup with Leaflet API

Resources for getting started with the API are available here: <https://leafletjs.com/>

You should be able to produce a “Hello World” map application quickly that just displays a map centred on Glasgow. You can use your “About Me” website from last week as a starting point or create a new website to embed the map in.

Loading up XML

Browse through the GPX files available on Moodle. Get a feel for how these are structured and what content is included.

GPX files are in XML format. Each XML file contains at least one “Track” <trk> element. The track element can contain a “Name” <name>. The Track is made up of a series of “Track Points” <trkpt> which represent the path of the recorded activity. Each Track Point has attributes for latitude and longitude. Track Points may also have extensions with additional data including heartrate and cadence. Track Points also include the “Elevation” <ele> of the current position. Be aware that “:” is a character that must be escaped in JavaScript.

Start of simple by parsing the XML, finding the name of activity and displaying this above the map.

Add in the pathway of the activity, ensuring that this is drawn correctly by parsing through the entire file.

Calculate additional information such as average heartrate, average cadence, total distance, average pace, etc. Display this somewhere helpful/meaningful on the page.

Ensure the map is centred and bounded dynamically based on the data feeding in.

Add additional visual features to the map, for example using elevation, heart rate, pace, direction of movement, or any other data to improve the map visualisation.

Wrap-Up

If you have a map interface that can dynamically load and visualise files, you have a basic Hello World! version of your group project. Next week, you will begin working in your groups to turn this Hello World into a fully featured and thoughtfully designed application.