Visualizing CitiBike Data

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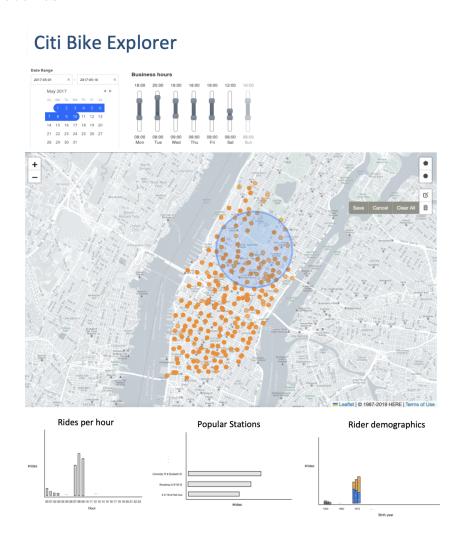
Data Visualization, Milestone 2

1 Sketches

Figure 1: Mock up of the Citi Bike Explorer concept

2 Tools and Lectures

Tools For the map, we are using the Leaflet library, and for the accompanying graphs, we are using D3. We are also using MongoDB to store our data and perform aggregations on the data to make it easier to create our D3 graphs. We especially need the content from the Maps and Graphs lectures, as well as the Data and Interactions lectures.

3 Work Breakdown

We will breakdown the work as follows:

- Complete the map (Currently only starting stations are shown, we would like to show ending stations)

- Implement time/date selection of the data

- rides/hour graph

- Station popularity graph

- Rider demographics graph

- Non-visualization styling (plain HTML/CSS) of the site

- stretch goal, allow selections over the graphs to alter the data presented in the other graphs. (Currently, only selections on the map update the data for all visualizations)

- stretch goal, allow multiple selections of the data to be visualized in different colour palettes so that users can compare e.g. different time ranges.

4   Prototype

We have begun implementing our vision as a react website. The data itself is stored in a MongoDB instance hosted inside the EPFL network (you currently need to use the VPN to be on campus to access it). Since there is quite a large amount of data, we used MongoDB to do server-side aggregations of the data in MongoDB. We currently have the data loaded, a basic map that allows users to geographically filter selections of the data, and one graph below, which updates as the user changes their selection.

To run the website, you currently need node v16 and npm v8. The super quick quick start is `cd server && npm i && npm start` then in another terminal `cd client && npm i && npm start` and then go to the URL of the client (probably 127.0.0.1:3001). For a much lengthier discussion of the architecture, see the 'DEV_README.md' file.