**Instructions for Route Planning Assignment**

You are given a set of orders to be delivered using the least number of trucks possible. The fleet of available trucks are also given. The software available for your use is Routific. Details on the software and how to use it is available at [www.routific.com](http://www.routific.com) as well as <http://slides.com/mck--2/api-overview#/>

Write a script to call the API - recommended to use Node.js, a simple cURLscript, or javascript with jQuery. Any editor can be used for this. Sublime Text is a popular one among developers. The examples of how to POST JSON to our endpoints are well-documented on the Routific website. Alternatively, you could use Postman to directly POST JSON data, without writing a script.

The following API key should be included in the Header of each API call:

"Authorization: bearer eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJfaWQiOiI1NDFiNzU2MWZkMmJlMzA4MDAyY2VlYmIiLCJpYXQiOjE0MTEwODU2NjV9.5jb\_61ykdHA2RyhfVWFMowb2oSB9gWAY4mPKHk1iCiI"

Assume the following:

* 5 mins per order
* No capacity constraints
* All trucks start & end from same depot (first location in the data set)

Part 1

Produce a routing plan for the data given to you and produce a plot of the routes using a tool such as MapBox.

Part 2

Change dwell time for each order to 3 mins each and extend the shift end time by 30 mins and explore the effect of capacity constraint

Compare part 1 with part 2 to evaluate impact of dwell times, working hours and capacity

Optional – change the time windows to show its impact

Here are some data to help you:

Javascript basics:

<https://www.codeschool.com/courses/javascript-road-trip-part->1

<http://www.codecademy.com/tracks/javascript>

Installing Node.js and using Request (simple HTTP client):

<http://nodejs.org/download/>

<https://github.com/mikeal/request>

Google Maps Geocoding API:

<https://developers.google.com/maps/documentation/geocoding/>

Routific API documentation:

<https://www.routific.com/developers>

For plotting results, either Google Maps, or Mapbox:

<https://developers.google.com/maps/documentation/javascript/tutorial>

<https://www.mapbox.com/mapbox.js/api/v2.0.1/>

Report to be submitted should:

* Explain what was done to prepare the data for each part
* Include softcopy screenshots of the key Routific inputs and outputs
* Provide full set of graphical results from MapBox or other plotting tool
* Be sent through IVLE