Lesson 3: SankofaPOWER – What is GeoAI?

Lab Instructions

In this lab we will build on our work from Lab 2 and explore some more computational GIS techniques.

Get More Data

In this section we will explore two ways to acquire geospatial data.

1) Go to https://overpass-turbo.eu/. This is a web-based data filtering tool for OpenStreetMap (OSM) – "a map of the world, created by people like you and free to use under an open license."

a) Enter this query into the console at the top of the screen.

This will grab all the information about Oak Park Center, where Project Sweetie Pie does a lot of work in North Minneapolis.

```
{{geocodeArea:"Minnesota"}}->.State;
way
["name"="Oak Park Center"]
(area.State);
out center;
```

b) Click **Run**

c) We could set up a program to automate this task or grab even more information from OSM, but this will suffice for this lab. Click **Export | GeoJSON | download**

d) **Rename** this file to **OakPark_Center.geojson** and move it to the Data folder from lab 2

2) Next, let's go to https://opendata.minneapolismn.gov/datasets/cityoflakes::pw-street-centerline/about. This is a dataset of all roadways in Minneapolis.

a) Click **Download | GeoJSON | Download**

b) Move the file **PW_Street_Centerline.geojson** to the Data folder from lab 2

Routing in QGIS

In this section, we will utilize the data we have gathered to help answer a hypothetical question from our interviewee, "**How can I get a free dinner tonight?**"

1) Reopen the QGIS project from lab 2.

2) Add the new data layers

a) Cick on the **Layer** tab at the top of the screen. Select **Add Layer | Add Vector Layer**

b) Under Source, click on the …, navigate to OakPark_Center.geojson, and select open.

c) Click the Add button.

d) Repeat steps b & c for PW_Street_Centerline.geojson then close the Data Source Manager window.

3) Now let's do some geoprocessing to find the way from our Juneteenth interview to Oak Park!

a) Click on the **Processing** tab at the top of the screen. Select **Toolbox**

b) The **Processing Toolbox** pane should appear on the right. Go to **Network Analysis | Shortest path (point to point)** and double click.

c) This will open up a window for the tool. Here are the parameters you will need to specifically set:

i) **Vector layer representing network:** PW_Street_Centerline

ii) **Path type to calculate:** Fastest

iii) **Start point:** Click on the … and then select the Juneteenth_Interview point on the map view

iv) **End point:** Click on the … and then select OakPark_Center on the map view

v) Select **Advanced Parameters**

vi) **Direction Field**: TRAFFIC_DIR

Note: These are attributes for all the roads of Minneapolis. Isn't it cool how much information the City provides for free!)

vii) **Value for <u>both</u> directions**: T

viii) **Default direction:** Forward

ix) **Speed Field:** SPEED_LIM

x) **Default speed:** 25

xi) **Shortest path:** Route_for_Interviewee.geojson

d) After double checking all those parameters, click **Run**

e) There's the fastest route to Oak Park Center (by driving)!