Biarri Technical Challenge

Rules of the Challenge

- You can ask us as many questions as you like.
- You can attempt any of the challenge questions but are not required to do them all.
- Program in python but feel free to use any libraries.

The Challenge

Your client has some data which tracks the location of their employees throughout the day. You will receive one day worth of readings for two employees as well as some location data with areas of interest. As a note, the full data set would contain multiple employees and multiple days worth of data. They would like to know:

1. Which areas do workers spend the most time in?
2. Can you tell if a reading is "near" an area? In which areas are they spending the most time in *or* near?

It may also be useful to show them some more information about their dataset than they are aware of:

3. Challenge questions:
   a. Can you tell which areas are visited the most often? We would consider a 'visit' to be a series of consecutive readings in the same location
   b. For employee 2, can you determine their speed? (As this is not real data, employee 1's data is not valid for speed calculations, and the speeds of employee 2's data are not guaranteed to be reasonable)
   c. Is there any other information you can derive from the dataset that could be useful for the client?
   d. What sorts visualisations could you use to display relay the answers to these questions to the client?

The data:

We will provide you with the data. The general format of the data (column names may vary) will be:

Employee location readings (.csv):
- time
- employee name
- latitude
- longitude

Area of interest data (.shp):
- area name
- geometry (lat/longs that comprise the vertices of the area)