MapRoutes

October 13, 2021

1 Map of Selected Routes

[8]:
```
import numpy as np
import pandas as pd
import folium
import openrouteservice as ors
```

[9]:
```
key = "5b3ce3597851110001cf6248d72aa2cd1d544d549b16f94c14b65e0d"
```

[10]:
```
locations = pd.read_csv("Data/WoolworthsLocations.csv")
coords = locations[['Long', 'Lat']]
coords = coords.to_numpy().tolist()
```

[11]:
```
m1 = folium.Map(location=list(reversed(coords[2])), zoom_start=10)
m2 = folium.Map(location=list(reversed(coords[2])), zoom_start=10)

for i in range(0, len(coords)):
    if locations.Type[i] == "Countdown":
        iconCol = "green"
    elif locations.Type[i] == "FreshChoice":
        iconCol = "blue"
    elif locations.Type[i] == "SuperValue":
        iconCol = "red"
    elif locations.Type[i] == "Countdown Metro":
        iconCol = "orange"
    elif locations.Type[i] == "Distribution Centre":
        iconCol = "black"

    folium.Marker(list(reversed(coords[i])), popup=locations.Store[i],␣
 ↪icon=folium.Icon(color = iconCol)).add_to(m1)
    folium.Marker(list(reversed(coords[i])), popup=locations.Store[i],␣
 ↪icon=folium.Icon(color = iconCol)).add_to(m2)
```

[12]:
```
client = ors.Client(key=key)
coords_df = pd.read_csv("Data/WoolworthsLocations.csv",␣
 ↪index_col="Store")[["Lat", "Long"]]
```

```
regions = pd.read_csv("GeneratedFiles/WoolworthsRegions.csv",␣
↪index_col="Store")["Region"]
```

[13]:
```
routes = pd.read_csv("GeneratedFiles/WeekdaysSolution.csv")["Path"]
routes = [routes[i][2:-2].split("', '") for i in range(len(routes))]

for path in routes:
    region = regions[path[0]]
    if region == 1:
        colour = "red"
    elif region == 2:
        colour = "blue"
    elif region == 3:
        colour = "green"
    elif region == 4:
        colour = "purple"
    else:
        colour = "orange"

    path = ["Distribution Centre Auckland"] + path + ["Distribution Centre␣
↪Auckland"]

    route = client.directions(
        coordinates = [list(reversed(coords_df.loc[p].values.tolist())) for p␣
↪in path],
        profile = 'driving-hgv', # can be driving-car, driving-hgv, etc.
        format='geojson',
        validate = False
    )

    folium.PolyLine(locations=[list(reversed(coord)) for coord in␣
↪route['features'][0]['geometry']['coordinates']], color=colour).add_to(m1)

m1
```

[13]:
```
<folium.folium.Map at 0x2d3b955c640>
```

[15]:
```
routes = pd.read_csv("GeneratedFiles/SaturdaysSolution.csv")["Path"]
routes = [routes[i][2:-2].split("', '") for i in range(len(routes))]

for path in routes:
    region = regions[path[0]]
    if region == 1:
        colour = "red"
    elif region == 2:
        colour = "blue"
    elif region == 3:
```

```
        colour = "green"
    elif region == 4:
        colour = "purple"
    else:
        colour = "orange"

    path = ["Distribution Centre Auckland"] + path + ["Distribution Centre␣
↪Auckland"]

    route = client.directions(
        coordinates = [list(reversed(coords_df.loc[p].values.tolist())) for p␣
↪in path],
        profile = 'driving-hgv', # can be driving-car, driving-hgv, etc.
        format='geojson',
        validate = False
    )

    folium.PolyLine(locations=[list(reversed(coord)) for coord in␣
↪route['features'][0]['geometry']['coordinates']], color=colour).add_to(m2)

m2
```

[15]: <folium.folium.Map at 0x2d3b955c8e0>