Date:22.10.25

TASK:11

Implementation of Map Navigation.

CO1, CO2, CO3 S3

PROBLEM STATEMENT

To develop a Python-based interactive map navigation tool that allows users to visualize locations, add markers, and simulate basic route planning using latitude and longitude coordinates.

AIM

To implement a simple map navigation system using Python that enables users to interact with geographic data and visualize routes or points of interest.

OBJECTIVE

- Create an interactive map centered on a user-defined location.
- Add multiple markers to represent key locations.
- Simulate basic route visualization using lines.
- Export the map as an HTML file for web integration.

DESCRIPTION

This project uses the Folium library in Python to build an interactive map. Folium is a powerful wrapper for Leaflet.js, enabling map rendering directly from Python. The user can input coordinates, add markers, and visualize paths between points. This is especially useful for applications like delivery tracking, store locators, or travel planning.

ALGORITHM

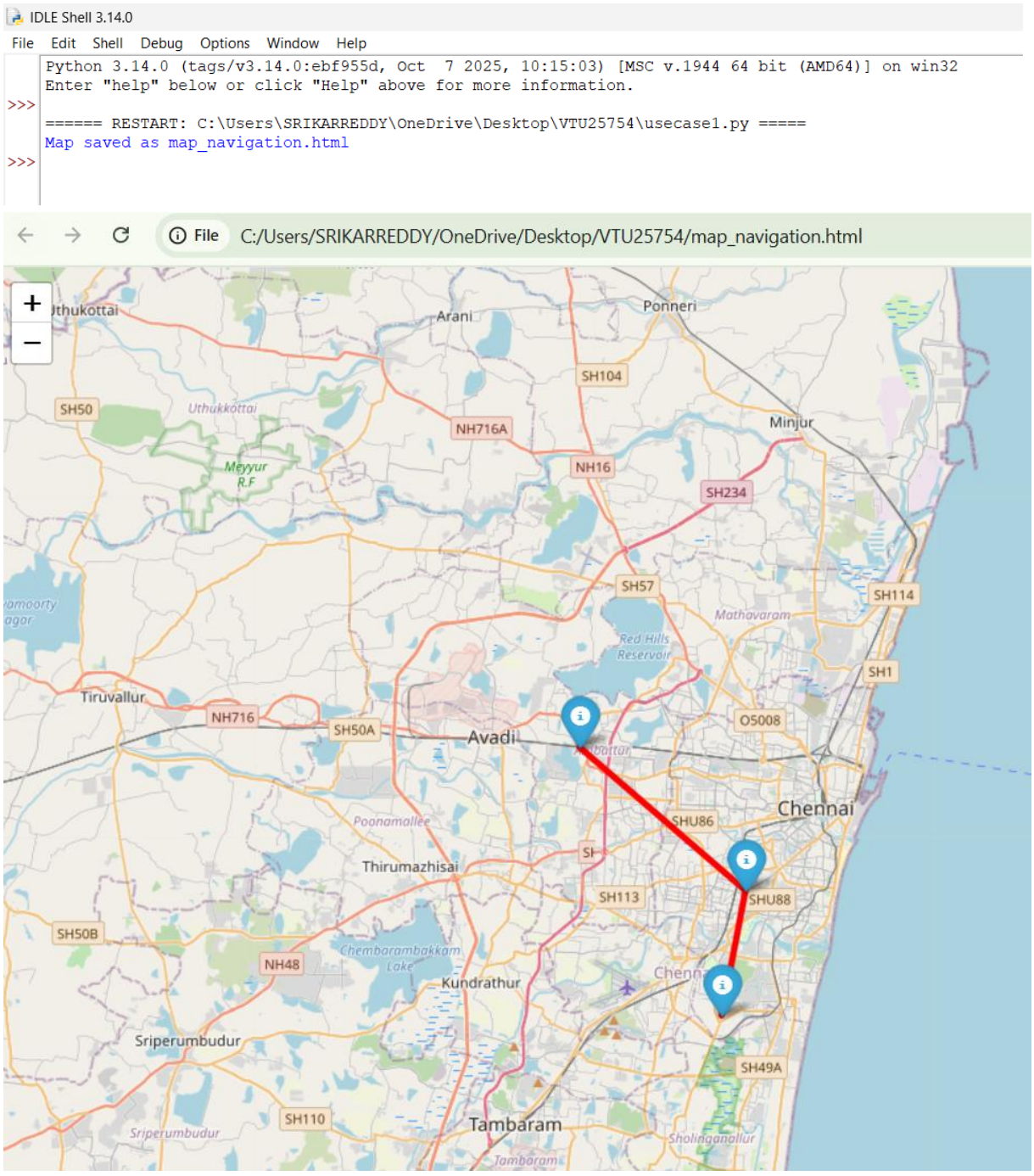
1. Import the required libraries.
2. Define the central location using latitude and longitude.
3. Initialize the map with the central location.
4. Add markers for various points of interest.
5. Draw a polyline to simulate a route.

6. Save the map as an HTML file.

PROGRAM

```
import folium

center_lat = 13.0827

center_lon = 80.2707

my_map = folium.Map(location=[center_lat, center_lon], zoom_start=12)

locations = {

   "Ambattur": [13.1143, 80.1480],

   "T Nagar": [13.0418, 80.2337],

   "Velachery": [12.9792, 80.2214]

}

for name, coords in locations.items():

   folium.Marker(location=coords, popup=name,
icon=folium.Icon(color='blue')).add_to(my_map)

route = [locations["Ambattur"], locations["T Nagar"], locations["Velachery"]]

folium.PolyLine(locations=route, color='red', weight=5).add_to(my_map)

my_map.save("map_navigation.html")

print("Map saved as map_navigation.html")
```

OUTPUT



CONCLUSION

This Python-based map navigation tool demonstrates how geographic data can be visualized interactively using Folium. It's a lightweight, customizable solution ideal for eCommerce delivery mapping, tourism apps, or educational tools. The project can be extended with real-time data, multilingual labels, or integration with APIs like Google Maps or OpenStreetMap.