Käyttöohje _ Instructions

Data Structures Lab Course (start of summer 2023)

Setup:

Clone the repository or download the code to your local directory.

Please ensure the folder “templates” is in the same directory (**shortest_path**) as the python program **shortest_path.py**.

Ensure you have installed Python3, Flask and other necessary libraries before running the codes, use below installation instructions. Or install the requirements.txt file.

pip install flask

pip install requests

pip install networkx

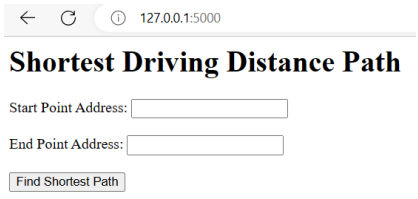
pip install geopy

pip install folium

pip install polyline

How to start up the program:

In the Windows cmd, go to the file’s directory, run the command **py shortest_path.py** to start the Flask web server. The homepage will be visible when open web browser with address **http://localhost:5000**. Users should see the Shortest Path Finder page with the input fields for the start and end points, as shown in below picture.



Note: The program will generate separate html file for each found path, and save it to” templates” folder locally.

```
177         # Construct the file name with the cache-busting parameter
178         file_name = f"shortest_path_{cache_bust}.html"
179         file_path = os.path.join("templates", file_name)
180
181         # Save the map as an HTML file to templates folder
182         m_map.save(file_path)
```

How to use the functionalities:

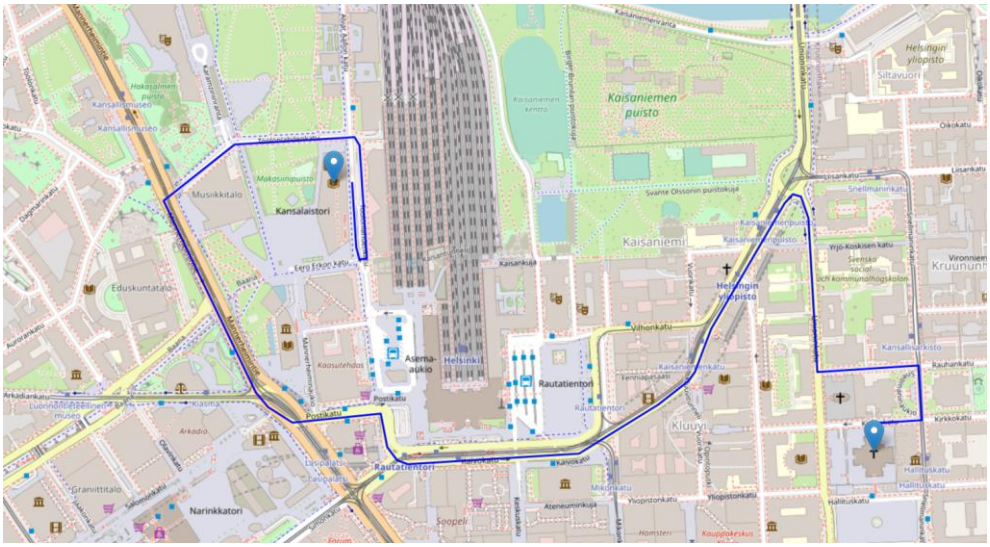
Input the start point address and end point address, then press the button “Find Shortest Path”, it will redirect users to the online map service Open Street Map (https://www.openstreetmap.org) with a blue path, which is the found shortest path.

From the backend, the program generates and saves the html file to the folder “templates”, and the html file will be rendered in the web browser.

For example, enter below addresses, the results will be displayed as below picture.

Start point: Töölönlahdenkatu 4, 00100 Helsinki

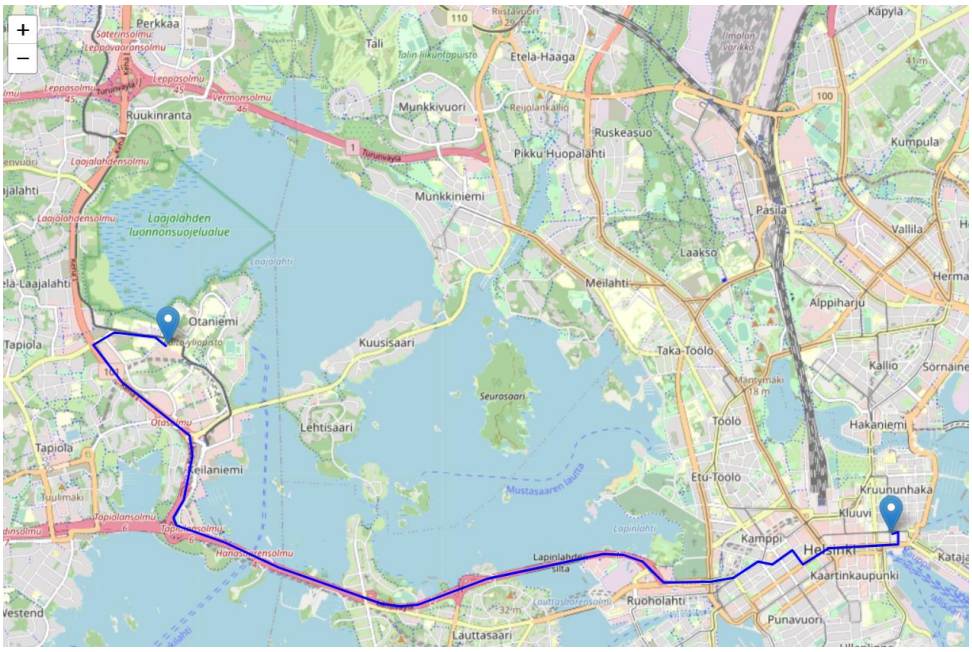
End point: Unioninkatu 29, 00170 Helsinki



Click browser’s go back, return to the home page, enter new addresses you can find another path marked on the map. For example:

Start point: Aleksanterinkatu 16-18, 00170 Helsinki

End point: Ekonominaukio 1, 02150 Espoo



What format of inputs does the program accept:

The allowed inputs are office addresses, such as Töölönlahdenkatu 4, 00100 Helsinki or, Oulu, 90100 Oulu. Other inputs such as number, meaningless letter, special signs (+, ?, & etc.) which cannot be converted into coordinates, will not produce path results but give error message “Unable to find coordinates for the given addresses.”. Empty value is not allowed, the application will request you fill the address field if the field is not filled up.