First mile and Last mile Optimization

GEOCODING ADDRESSES

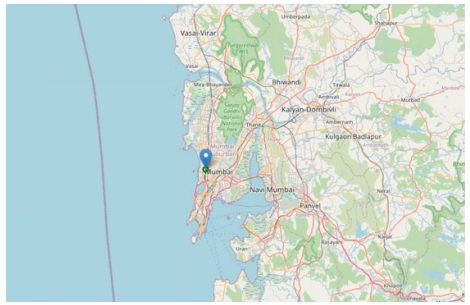
Daily Tonnage Movement

Route Optimization

Optimize the vehicle route by minimizing the total distance traveled
Perform Deliveries and Pickups simultaneously with the same vehicle



Step -1: GEOCoding Addresses



Location string given as input

Results derived using Geopy

Visualization using Folium

Step 3 - Route Optimization with Simultaneous Pickup and Delivery

Step 2 - Daily Tonnage Movement

Extracting the Daily Tonnage Movement between each customer location and warehouse.



OBJECTIVE

Minimize total distance covered

To find the optimal route for each vehicle, whose route starts with a warehouse and ends with a warehouse.

INPUT PARAMETERS

01 VEHICLE CAPACITY

02 AMUNT OF PICK UP GOODS ON BOARD

03 AMOUNT OF DELIVERY GOODS ON BOARD

04 NUMBER OFVEHICLES

SOLUTION APPROACH

- GUROBI solver