In [1]:
```
######   install  ##########
#  !pip install routingpy  #
#  !pip install folium     #
##############################
```

- more for routingpy
- more for folium

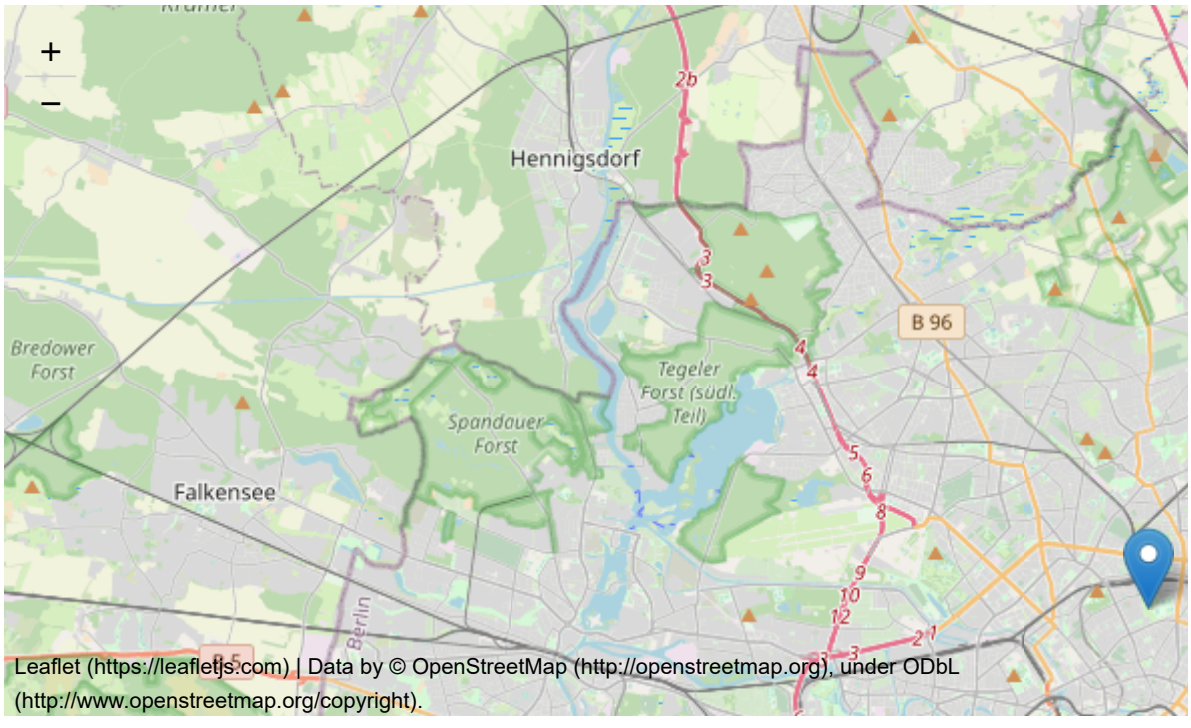
In [3]:
```
from routingpy import MapboxValhalla
import folium

import pandas as pd
from pprint import pprint
```

Finding routes between two points using open api

- this is somewhere in berlin
- Point A (52.543373, 13.401947) ** to
- Point B (52.490202, 13.413706)

In [11]:
```
# Plotting the start and end point on the map
map_osm = folium.Map(location=[52.519, 13.4219], zoom_start=11)
folium.Marker([52.543373, 13.401947], popup="Point A").add_to(map_osm)
folium.Marker([52.490202, 13.413706], popup="Point B").add_to(map_osm)
map_osm
```

Out[11]:



Proflie options

In [15]:
```
# finding the routes
coords = [[13.401947, 52.543373], [13.413706, 52.490202]]
```

```
client = MapboxValhalla(api_key='pk.eyJ1Ijoic2lkZGhhcnRobm9iZWxsIiwiYSI6ImNrbjAxc3Rz

## see above link for profile options
route_auto = client.directions(locations=coords, profile='auto')
route_bus = client.directions(locations=coords, profile='bus')
route_truck = client.directions(locations=coords, profile='truck')

#isochrones = client.isochrones(locations=coords[0], profile='bus', intervals=[600,
#matrix = client.matrix(locations=coords, profile='bus')
```

In [23]:

```
# creating points for folium format
folium_route_dict = {}
for route in ['route_auto', 'route_bus', 'route_truck']:
    route_folium = []
    for pt in eval(route).geometry:
        route_folium.append([pt[1], pt[0]])
    folium_route_dict[route] = route_folium
```

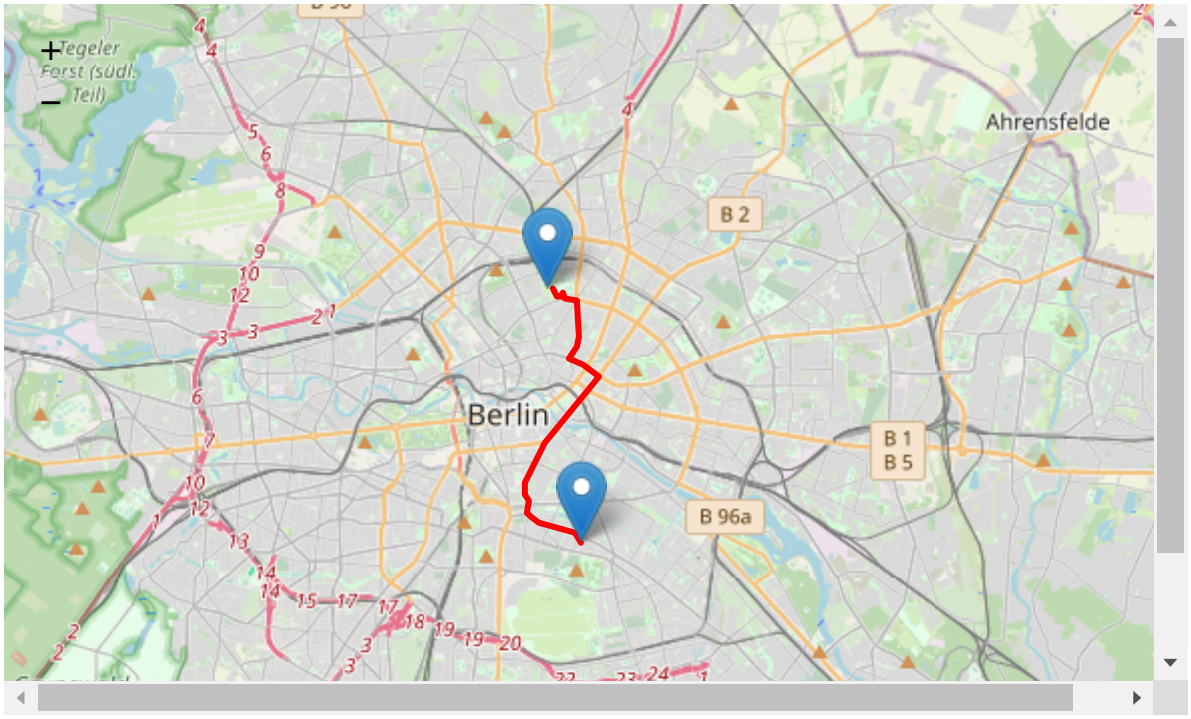
In [31]:

```
# plotting the route
def plot_route(route, color):
    map_osm = folium.Map(location=[52.519, 13.4219], zoom_start=11, width=600, heigh
    folium.Marker([52.543373, 13.401947], popup="Point A").add_to(map_osm)
    folium.Marker([52.490202, 13.413706], popup="Point B").add_to(map_osm)
    folium.PolyLine(route, color=color).add_to(map_osm)
    return map_osm
```

In [32]:

```
# Plot auto
plot_route(folium_route_dict['route_auto'], 'red')
```

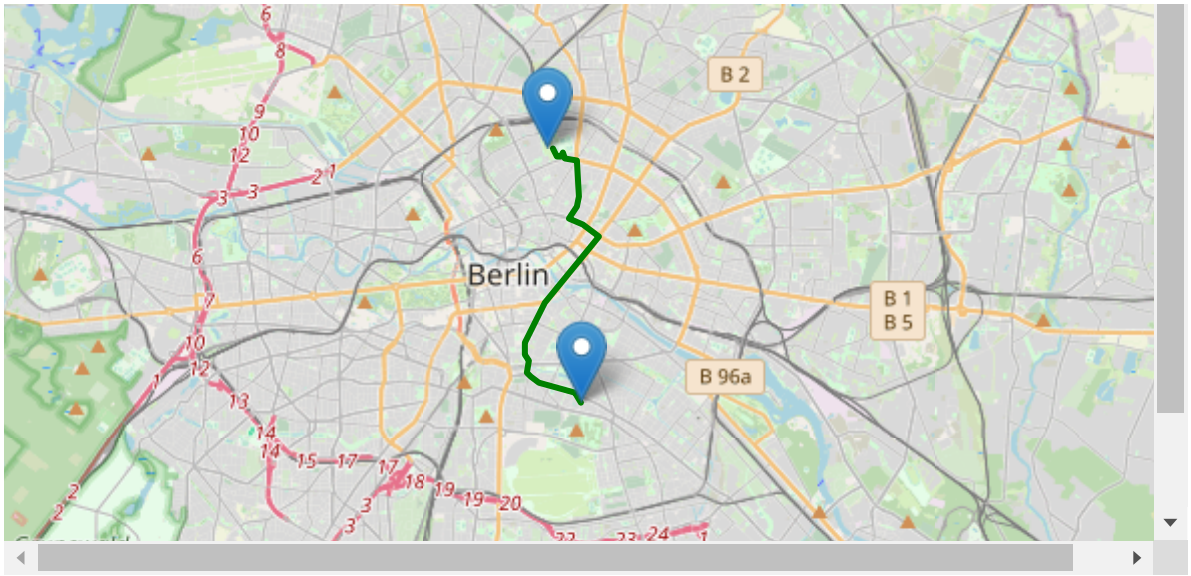
Out[32]:



In [33]:

```
# Plot bus
plot_route(folium_route_dict['route_bus'], 'green')
```

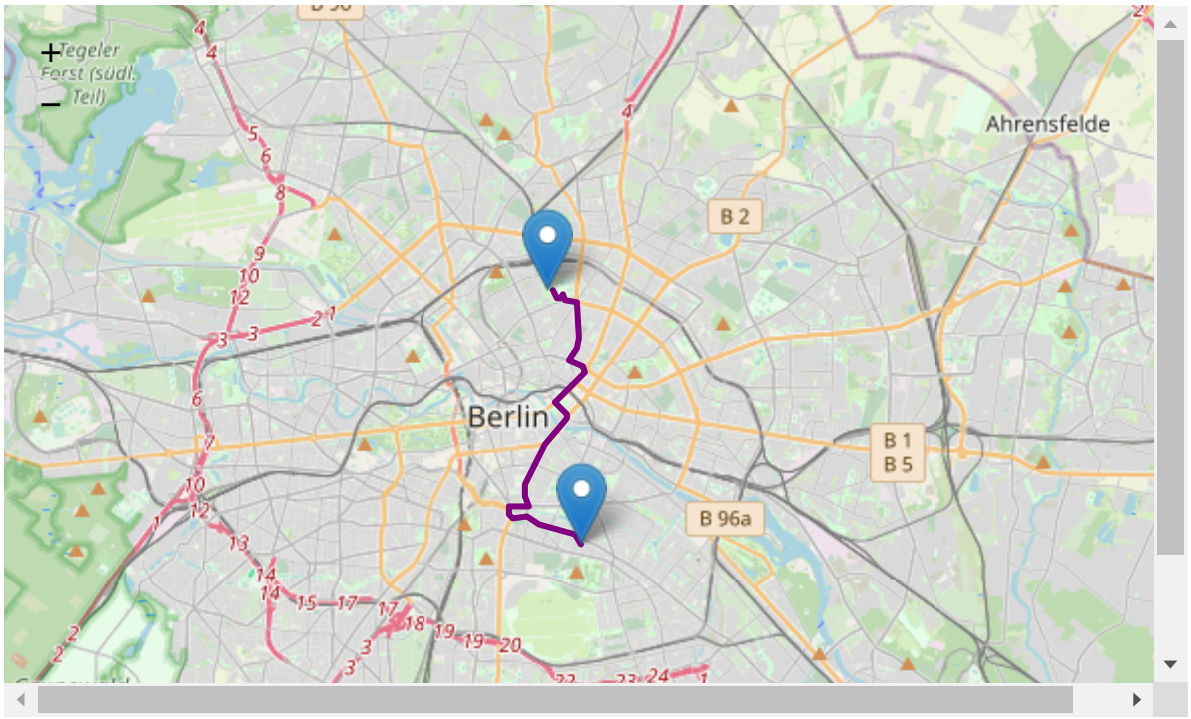
Out[33]:



In [34]:

```
# Plot truck
plot_route(folium_route_dict['route_truck'], 'purple')
```

Out[34]:



In [ ]: