Lesson 14 assignment report :

For this assignment required to add a notification, either a text message or an email, when the GPS coordinates are inside the geofence.

But its instructions require me to use Twilio and Azure functions to do it. And because I have trouble with having an Azure account for it, I have to look for an alternative

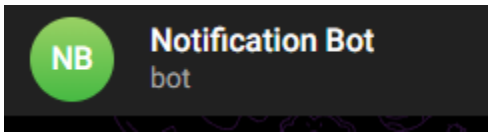
For this assignment, I will send the detection whether the GPS signals are inside or outside the geofence

Here is the geofence with 5 points I marked it :

And then I export it as a JSON file.

And for this assignment, I will be sending the message throughout Telegram using a bot function.

First, I set up a bot for it:



Then I input the Chat ID with the Bot info into the main.py

Inside the folder, there will be :

- geofence.json and gps_data.json: the geofence and 5 points I marked from above
- geofence.py: This program reads the Geofence.json and gps_data.json and compares the locations to decide whether a point is inside or outside the geofence.
- main.py: main file, which uses all the other files to run

Here is the result when I run the main.py file :

- The terminal screen :

```
Loading geofence from geofence.json...
Initializing Telegram notifier...
Reading GPS data from gps_data.json...
Found 5 GPS readings to process

Processing reading 1/5
Processing GPS reading: lat=11.10756541044833, lon=106.61818401506764
Point is outside geofence
Telegram notification sent successfully

Processing reading 2/5
Processing GPS reading: lat=11.108211950291818, lon=106.61526610346255
Point is inside geofence
Telegram notification sent successfully

Processing reading 3/5
Processing GPS reading: lat=11.105510327861793, lon=106.61065392060254
Point is outside geofence
Telegram notification sent successfully

Processing reading 4/5
Processing GPS reading: lat=11.104413508199386, lon=106.6073124411846
Point is outside geofence
Telegram notification sent successfully

Processing reading 5/5
Processing GPS reading: lat=11.105510327861793, lon=106.61452485978782
Point is inside geofence
Telegram notification sent successfully
```

- The telegram bot receives the signal and sends the message through the bot: