CO2012 – 資料結構 (Data Structure)

Homework 1
Assigned: April 8 2020
Due: April 22, 2020

Developing a program to construct a fast search for finding out the overlapped routes of two persons.

1. Export daily route from google map to a KML document, say *Route.kml*. Parse the *Route.kml* for extracting all coordinates of your route. An example KML document is:

```
<?xml version="1.0" encoding="UTF-8"?>
<kml xmlns="http://www.opengis.net/kml/2.2">
<Document>
<Placemark>
  <name>New York City</name>
  <description>New York City</description>
  <Point>
    <coordinates>-74.006393,40.714172,0</coordinates>
  </Point>
</Placemark>
</Document>
</kml>
```

2. In this question, assume the input file *Route.kml* stores a number of **N** coordinates. You have to extract all coordinates of your route.
3. Get *Route.kml(s)* from your friend(s).
4. Determine whether your routes and your friend's routes are overlapping or not. The overlapping of two coordinates is defined as the distance between them is less than D meters, which is a system parameter you can determine.
5. Developing a function to search the overlapping coordinates and return the answer.

NOTE: As a real example, let's take a relatively larger file that you wish to test. The number of coordinates per KML file should be larger than 50 coordinates.