Documentation for the geocoding service software developed by Awantha Jayasiri

The project is to provide lattitude and longitude coordinates for an address provided by the user. The developed software includes two geocoding services. First, it will try to retrieve information from the primary geocoding service and if it is unsuccessful, it will try to obtain the required information from the secondary service. The primary service ised here is the geocoding service by google and the secondary is the geocoding service by HERE. It uses REST API and the json for data serilization. Figure 1 shows the flow chart for the software development.

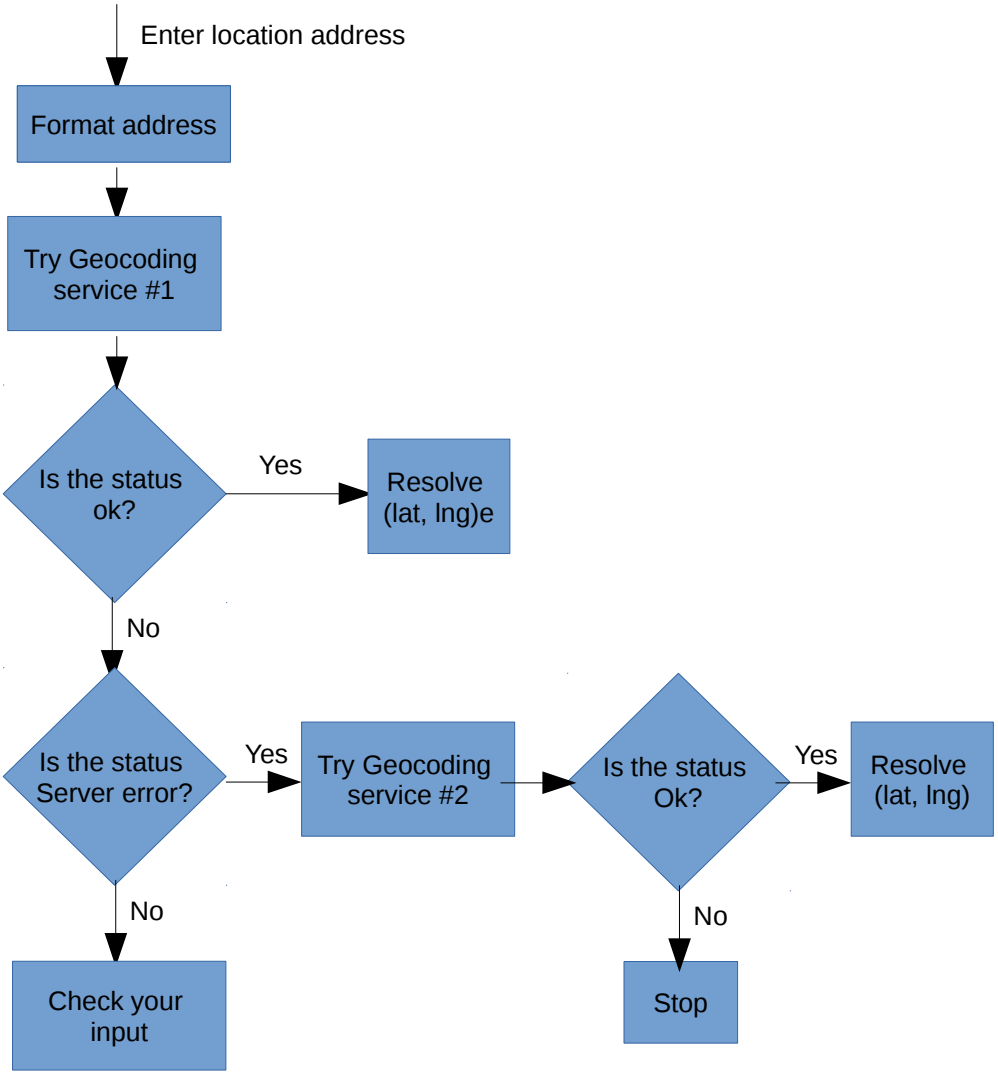

Figure 1: Flowshart for the gerocoding service

How to run the service

The software will ask user to enter the address of the location (eg: *1600 Amphitheatre Parkway, Mountain View, CA*) and it will generate the lattitude and longitude coordinates. It also tests whether the provided address is correct or the query is missing something and informs user accordingly. If there is a server error on the first service, it will try to resolve the lattitudes and longitudes using the second service. Comments are given in the code to explain the use of service API and other functions accordingly.

Example

Enter the address:1600 Amphitheatre Parkway, Mountain View, CA
You entered 1600 Amphitheatre Parkway, Mountain View, CA
Latitude: 37.4224082
Longitude: -122.0856086

Code

```
# Developer: Awantha Jayasiri
# Version:1.0
#Test_address=1600 Amphitheatre Parkway, Mountain View, CA
# Import basic python libraries
import urllib
import   json, time
# Geocoding from Google
base_add1="https://maps.googleapis.com/maps/api/geocode/json"
api_key1="AIzaSyAIDJzrlNokl_U0xU9fkEuN9_0ERVV2MLc"
#Geocoding from HERE
base_add2="https://geocoder.cit.api.here.com/6.2/geocode.json"
app_id="kZXILl2iXMyFg55fJ3Ep"
app_code="hX9oBaIno7fPWH4CXuGG4g"
# Enter the address you want to get the lat, lng
var = raw_input("Enter the address:")
var.replace(" ","+")
print("You entered " + var)
# URL constructing for google
GeoUrl1 = base_add1 +"?address="+var
# URL constructing for HERE
GeoUrl2 = base_add2 +"?searchtext="+var+"&app_id="+app_id+"&app_code="+app_code
# First check whether google geocoding works. If not try HERE geocoding
response = urllib.urlopen(GeoUrl1)
jsonRaw = response.read()
jsonData = json.loads(jsonRaw)
# Check status codes
if jsonData['status'] == 'OK':
      latitude = jsonData['results'][0]['geometry']['location']['lat']
      longitude = jsonData['results'][0]['geometry']['location']['lng']
      print 'Latitude:', latitude
      print 'Longitude:', longitude
elif jsonData['status'] == 'ZERO_RESULTS':
     print 'a non-existent address, Please check your address.'
elif jsonData['status'] =='INVALID_REQUEST':
     print 'Query is missing something. Please check'
else:   # For OVER_QUERY_LIMIT, REQUEST_DENIED and ERROR: try HERE geocoding
     response = urllib.urlopen(GeoUrl2)
     jsonRaw = response.read()
     jsonData = json.loads(jsonRaw)
     print 'Latitude:', jsonData['Response']['View'][0]['Result'][0]['Location']
['DisplayPosition']['Latitude']
     print 'Longitude:',jsonData['Response']['View'][0]['Result'][0]['Location']
['DisplayPosition']['Longitude']
```