

Geocoder for Ireland

Geocoder provides the GPS coordinates for the given location.

Programming Language: Python

Coding Environment: Google Colab

Addresses in Ireland are generally formatted as such:

Resident Name,

Road or Local Area Name,

Townland,

Town/City,

County

For the given task, I have considered only County, Town/City, Townland and respectively referred datasets areas listed below:

County: <https://data.gov.ie/dataset/counties-osi-national-placenames-gazetteer2>

Town: <https://data.gov.ie/dataset/electoral-districts-osi-national-placenames-gazetteer3>

Townland: <https://data.gov.ie/dataset/townlands-osi-national-placenames-gazetteer3>

The sequence to search co-ordinates for the location will be as follow:

1. Townland
2. Town/City
3. County

Algorithm:

- 1) Any given location will be initially searched in the townland dataset, there can be 3 scenarios:
 - i) Finding the exact townland match, in this case, geo coordinates townland will be the output.
 - ii) Finding multiple matches: In this case, the corresponding town needs to search. There can be 2 cases:

- (a) Finding the exact town match. The output will be the closest co-ordinates of townland to the co-ordinates of the received town.
 - (b) Finding multiple matches for the town as well. We will search for the corresponding county.
 - 1. After searching for the corresponding county. Check for the closest coordinates of the town to county coordinates and return to the townland. Check for the closest co-ordinates of the townland to the co-ordinates of the town which returned by the previous function.
 - (c) No match for town, check for the county.
- iii) No match found for townland: check for the relevant town. 2 scenarios will be there:
- (a) Multiple matches for the town: check for county
 - (b) No match found: check for county
- 2) Finally, conversion of ITM (EPSG:2157) to usual GPS co-ordinates (EPSG:4326)