FINDING AREAS FOR AN ETHNIC CUISINE

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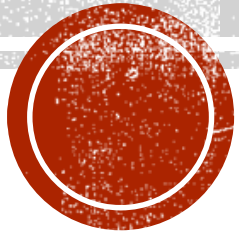

PROBLEM

If somebody is going to open a restaurant with ethnic cuisine, they should look for a location in areas, where many ethnic restaurants exist (which means that there is enough demand), but no restaurant of the cuisine they are going to open.

For example, I'm looking for a place for a new Thai restaurant. If I open it in area, where two other Thai restaurants exist, I risk meeting strong competition. If I open it on the city suburbs without other Thai restaurants nearby, my risk is low demand for such restaurant. However, if I open it in a neighborhood with several Chinese, Indian etc. restaurants, but no Thai restaurant, the chance of success will be higher.

Therefore, my application will create a map of a city and mark all areas with more than N different ethnic restaurants but no restaurant of selected ethnic cuisine.

I have chosen Thai restaurants in London as my example, but the application can be switched to any other big city and type of restaurant just by changing the link and the name of category.

TWO SOURCES OF DATA

1. Areas.

For areas, I use list of areas from Wikipedia. Here is, for example, London:

https://en.wikipedia.org/wiki/List_of_areas_of_London

It contains all areas with links to GeoHack service.

Eventually I create a list of areas with their latitude and longitude.

2. Venues.

For the list of restaurants, I will use Foursquare.

I download the venues with their category. I use this category to check if the venues is an ethnic restaurant.

METHODOLOGY (1 OF 3)

Step 1 and 2. Initialize libraries

First, I install Folium library to draw maps. Secondly, I import all other libraries necessary to work with data.

Step 3. Load Wikipedia page with areas

I download areas information from Wikipedia. In this example, I explore London. However, the same algorithm is applicable for many other big cities – they have the same wiki pages although some changes should be done in the page processing.

Step 4. Load areas and their coordinates

I use BeautifulSoup library to find the table with areas, load its name, then find the link to GeoHack and extract geographical coordinates from the link. The result is loaded into a pandas dataframe.

METHODOLOGY (2 OF 3)

Step 5. Count restaurants in each area

Now I call Foursquare service to get all venues in each area. I do not store the list of venues. Instead I just count the venues with category equal to my category ('Thai Restaurant') and with category equal to one of other ethnic restaurants.

Thus, I have created a list of areas with two variables:

- Number of Thai restaurants
- Number of other ethnic restaurants

My idea is that a good area for a new Thai restaurant is an area, where ethnic restaurants are popular, so we find a lot of them, but no Thai restaurant is presented now.

In the application, I have defined the threshold for other ethnic restaurants as 10. During the development I tried other thresholds and chose the number that gives me about a dozen recommended areas.

METHODOLOGY (3 OF 3)

Step 6. Draw the map.

Now we can put the data on the map. I draw the map of London and display all areas from my database marking recommended areas with red dots and all other areas with grey dots.

One can see recommended areas and explore them for possibility to open a new Thai restaurant.

RESULT


Cricklewood
Gospel Oak
Lower Holloway
Stoke Newington
Clapton Park
West Hampstead
Kentish Town
Shacklewell
Homerton
Stratford New Town
Willesden
Belsize Park
Ball's Pond
Kilburn
Camden Town
Hackney
Stratford
De Beauvoir Town
St. John's Wood
King's Cross
Hoxton
Old Ford
West Ham
Bethnal Green
West Kilburn
Maida Hill
Shoreditch
Bromley-by-Bow
Clerkenwell
Marylebone
North Kensington
Spitalfields
Canning Town
Paddington
St Giles
City of London
Stepney
Limehouse
Notting Hill
Mayfair
Covent Garden
St. George in the East
Poplar
Acton
London
Blackwall
Shepherd's Bush
Southwark
Kensington
City of Westminster
Elephant and Castle
Canada Water
Greenwich Peninsula
Chiswick
Hammersmith
Earl's Court
Millbank
Surrey Quays
Cubitt Town
Pimlico
Vauxhall
Walworth
Chelsea
South Bermondsey
East Greenwich
Kew
Walham Green
Kennington
Greenwich
Nine Elms
New Cross Gate
Deptford
Fulham
Camberwell
Peckham
Barnes
Battersea
North Sheen
Stockwell
Blackheath
East Sheen
Putney
Clapham Junction
Clapham
Lewisham
Wandsworth
Brixton
East Dulwich
Brockley
Lee