A recommendation system for food stalls aimed at students

Introduction:

Mumbai, India is an extremely densely populated city (one of the most dense), with more than 18 million residents.

Obviously it is tough to start a business here due to high real estate costs. So, an entrepreneur aiming at a student centric market (13 - 20 year old demographic) should know the best places to set up shop.

A large population of Mumbai lies in this student demographic (more than 50 schools), and eating snack foods out is more popular and convenient than ever, hence we will find the best places in Mumbai to set up a food shop/ restaurant

Target audience:
Entrepreneurs and small-scale businessmen/women interested in the food/ snacks industry, aiming at the student demographic

Data:

1. We need a list of the most populated schools in Mumbai. Their latitude and longitude will be calculated using geopy Nominatim.
   This data can be found on Wikipedia, as well as the school websites.
   For instance: https://en.wikipedia.org/wiki/List_of_educational_institutions_in_Mumbai
2. Then we can use the FourSquare API to find the number of eateries in a 1km radius around each school. The API will provide us with Postal Code, Neighborhood, Venue, Venue Summary and Venue Category.
3. We can also use the FourSquare API to find all food related categories that we will filter.

4. Processing the Retrieved data and creating a structured DataFrame for all the venues, grouped by schools.
5. Selecting relevant venues (food related only).

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Methodology:

1. Collected a list of populated schools and college within Mumbai.
2. Used the Nominatim library to find their latitudes and longitudes.
3. Used the FourSquare venues API to find the food related categories to be looked at.
4. Devised a function to find categories of a given venue from our data
5. Used the FourSquare API to find the venues within a 750m radius of each institute, and plotted these venues accordingly, to a unique colour scheme.
6. Analysed the number of eateries near each institute and used historical data to find the most profitable institute to set up shop near.

Results:

I found that IIT Bombay, one of the most prestigious Engineering institutes across India had a severe lack of eateries near it.

Recommendations and Conclusion:

Through this analysis, I found that all popular institutes in Mumbai, India have a few eateries around them, but there is still scope for expansion into these territories.

Any decently priced eatery opened near IIT Bombay would be profitable due to sheer lack of competition and high population of clients.