Introduction/Business problem:

Hyderabad is one of the most sought out location for job seekers and employees due to its developed infrastructure in IT, Pharmaceuticals industry, Consultancy organizations and Retail & Real Estate. While majority of job seekers or job holders are young in the age group, there are also elder age groups from other locations who are living away from their families for the sake of employment prospects.

Majority of these Bachelor lifestyle people needs ready availability of food as they hardly find time to cook for themselves. While there are many hotels in the city but the cost of bearing a meal on regular basis becomes ones out of budget. In addition, the current situation like Covid made hotels and restaurants unfeasible for takeaways as they were not used to in delivering takeaways at an affordable price. Moreover, the time taken for food preparation in such hotels due to 'make to order' concept made hotels not a preferable option for takeaways.

Owing to this situation, an exclusive food takeaway joint without any waiting time for preparation of food would become a successful business idea. Also, as the menu is pre-fixed and pre-prepared with estimation of a specific quantity of food as per regular local demand, the price also would come down which makes the Takeaway joint an affordable proposition.

Hence my project is to identify an ideal location in Hyderabad to open a Food Takeaway joint. In normal scenario without a machine learning approach, it is practically very difficult to identify an ideal location in Hyderabad as the city is quite widespread with numerous locations. Hence this project helps Entrepreneurs to identify a cluster among many locations to open new food takeaway joint.

Data Sources:

Following data is used

1) Pin code Data of various locations has been sourced from Indian government data.gov.in and Indian post website. However, for many locations geo spatial data was not available. Hence co-ordinates data has been taken from the following website

https://data.gov.in/resources/all-india-pincode-directory-contact-details-along-latitude-and-longitude

www.indiapost.gov.in/

2) For Co-ordinates data following global geo data has been used. The data is in Raw format and hence it has been converted to csv format

   http://www.geonames.org/

3) Finally Foursquare has been used to obtain venues from the latitude-longitude data obtained. Foursquare data found to be reliable, however the limitation of no. of queries per day posed a challenge while developing the project. Hence data has been acquired from Foursquare in optimized manner by careful planning of querying. When the query limit is reached and the communication interrupted, Client-Secret has been resettled and new client secret haw been used

   https://foursquare.com/developers/apps

Methodology:

After sourcing the data from above sources, data has collated into one CSV format. As Indian cities has District and Mandal concept instead of Boroughs, the district wise segregation gave more relevance to identify locations in Hyderabad as we are searching for city instead of rural areas. Further Hyderabad filter has been assigned as Borough because Hyderabad itself is a district as well as City.

Further Foursquare API has been used to identify locations that have major number of food spots. K-Means algorithm has been used to fetch and segregate different clusters of food joints based on major Populus public places.

Results:

Interesting results have been noticed. Among all the clusters, cluster 1 and cluster 3 have turned out to be major public floating places with cluster 1 being top choice for food joints as most of the locations in the cluster are major commercial business hubs. A choice of location in

this cluster would have not fetched business as it is already affluent with food joints. On the other hand, cluster 3 turned out be major residential center with not many economic food options. The north east suburbs of this cluster look promising as it is not far from city center as well it affluent with ATMs which shows the concentration of more population. Also, as there are many airport services in this cluster, a takeaway food joint in this cluster would be best fit if locations chosen are Dr A S Rao Nagar or ECIL.

Discussion:

Though Foursquare is used for this project, at times it reached its limitation of querying. I recommend using other APIs data which gives better and higher limit of query reach. Google API would be an alternative.

Conclusion:

For takeaway food joints, the results show cluster 3 to be promising cluster. Cluster 1 could also be closest neighborhood; however, one should look at factors like ease of setup and investment needed. As cluster 1 is prime business center it would need a higher investment when compared to same populous cluster as cluster 3. Hence, I recommend cluster 3, for someone who is looking to put up a takeaway food joint as a first-time entrepreneur.