



Suitable location for Kasaragod Govt. Medical College Hospital Complex

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Business Problem

□The objective of this capstone project is to analyse and select the best location in Kasaragod District for establishing a Government Medical College Hospital, Professor Apartment and Student's Hostel.

Motivation

❑ The endosulfan tragedy which occurred in Kasaragod district is now well known. There is no treatment and care facility in our district.



❑ During Monsoon season diseases like Chikungunya, Dengue, Rat fever, Viral fever are very common among People.

❑ lacks advanced medical facilities and shortage of efficient doctors.

❑ Less number of Hospitals and diagnosing centres in Kasaragod district

Data acquisition and cleaning

❑ Description about Kasaragod district

(Source:- https://en.wikipedia.org/wiki/Kasaragod_district.)

❑ Pincode of various Locations of Kasaragod

(Source:-<https://data.gov.in/resources/all-india-pincode-directory-contact-details-along-latitude-and-longitude..>)

❑ Longitude and Latitude

(Source:- Google API)

❑ Venue Details

(Source:- FourSquare API)

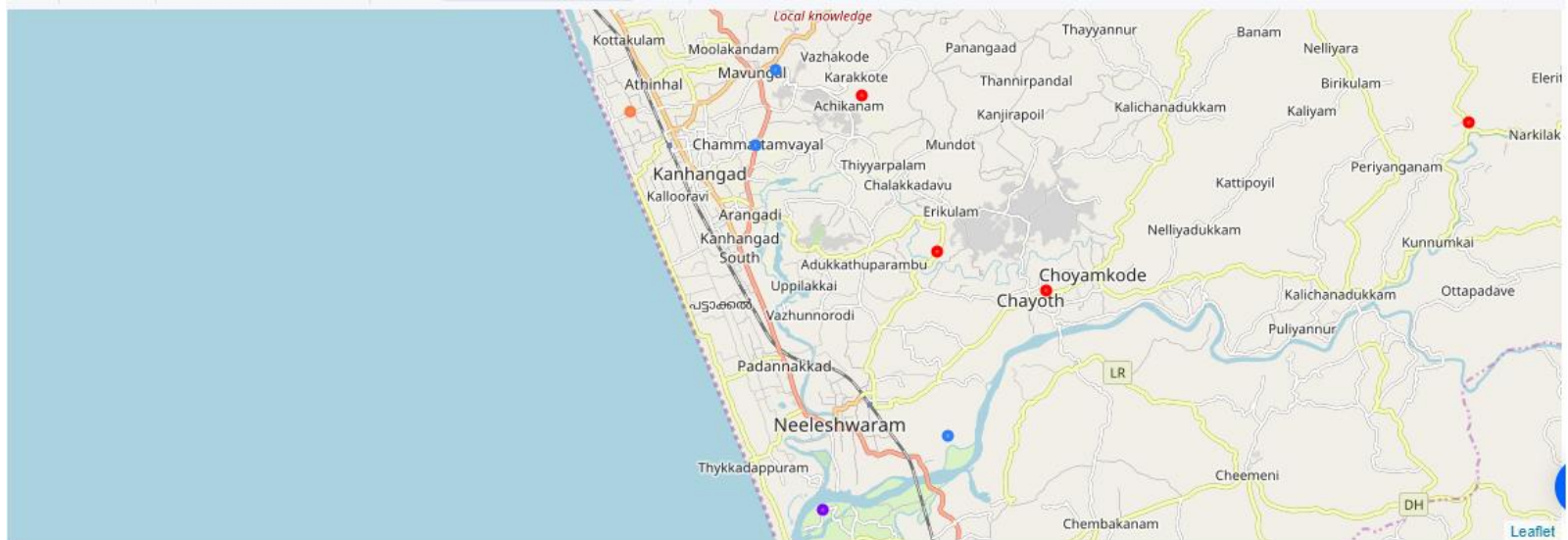
❑ Venue details of some pincodes are not available, I use dropna to remove those.

Geocode Kasaragod District using Google API

Out[4]:

	Location	Pincode	State	District	Latitude	Longitude
0	Achanthuruthi	671351	Kerala	Kasargod	12.229580	75.123890
1	Achikanam	671531	Kerala	Kasargod	12.332950	75.133900
2	Adkathbail	671121	Kerala	Kasargod	12.514748	74.977047
3	Adur	671543	Kerala	Kasargod	12.557546	75.180804
4	Ajanur	671531	Kerala	Kasargod	12.329081	75.074803
5	Alampady	671123	Kerala	Kasargod	12.534245	75.040736
6	Ammeri	671322	Kerala	Kasargod	12.714228	74.999097
7	Anandashrama	671531	Kerala	Kasargod	12.339283	75.111810
8	Anekallu	671323	Kerala	Kasargod	12.752339	74.993968
9	Angadimogaru	671321	Kerala	Kasargod	12.635864	75.014521
10	Arikady	671321	Kerala	Kasargod	12.611301	74.947181
11	Arivapadv	671551	Kerala	Kasarood	12.508002	74.988211

Visualization of Clusters



Cluster 1

In [27]: `Kasaragod_merged.loc[Kasaragod_merged['Cluster Labels'] == 0, Kasaragod_merged.columns[[0] + list(range(5, Kasaragod_merged.shape[1]))]]`

Out[27]:

	Location	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
11	Ariyapady	74.988211	0.0	Indie Movie Theater	Bakery	Movie Theater	Indian Restaurant	Diner	Udupi Restaurant	Currency Exchange	Asian Restaurant	Athletics & Sports	BBQ Joint
41	Chervathur	75.162615	0.0	Movie Theater	Udupi Restaurant	Diner	Asian Restaurant	Athletics & Sports	BBQ Joint	Bakery	Bus Station	Business Service	Clothing Store
47	Darkas	74.988211	0.0	Indie Movie Theater	Bakery	Movie Theater	Indian Restaurant	Diner	Udupi Restaurant	Currency Exchange	Asian Restaurant	Athletics & Sports	BBQ Joint
78	Karindala	74.988211	0.0	Indie Movie Theater	Bakery	Movie Theater	Indian Restaurant	Diner	Udupi Restaurant	Currency Exchange	Asian Restaurant	Athletics & Sports	BBQ Joint
80	Kasaragod	74.988211	0.0	Indie Movie Theater	Bakery	Movie Theater	Indian Restaurant	Diner	Udupi Restaurant	Currency Exchange	Asian Restaurant	Athletics & Sports	BBQ Joint
81	Kasaragod R s	74.988211	0.0	Indie Movie Theater	Bakery	Movie Theater	Indian Restaurant	Diner	Udupi Restaurant	Currency Exchange	Asian Restaurant	Athletics & Sports	BBQ Joint

Cluster 2

Out[28]:

	Location	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
7	Anandashrama	75.111810	1.0	Indian Restaurant	Udupi Restaurant	Diner	Asian Restaurant	Athletics & Sports	BBQ Joint	Bakery	Bus Station	Business Service	Clothing Store
42	Chimeni	75.233321	1.0	Indian Restaurant	Udupi Restaurant	Diner	Asian Restaurant	Athletics & Sports	BBQ Joint	Bakery	Bus Station	Business Service	Clothing Store
61	Iriya	75.167671	1.0	Indian Restaurant	Udupi Restaurant	Diner	Asian Restaurant	Athletics & Sports	BBQ Joint	Bakery	Bus Station	Business Service	Clothing Store

Cluster 3

Out[29]:

	Location	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
25	Bekal	75.023146	2.0	Scenic Lookout	Train Station	Udupi Restaurant	Diner	Asian Restaurant	Athletics & Sports	BBQ Joint	Bakery	Bus Station	Business Service
44	Chittari	75.065495	2.0	Ice Cream Shop	Udupi Restaurant	Diner	Asian Restaurant	Athletics & Sports	BBQ Joint	Bakery	Bus Station	Business Service	Clothing Store
58	Hidayathnagar	74.908820	2.0	Arcade	Asian Restaurant	Pharmacy	Concert Hall	Grocery Store	Train Station	Currency Exchange	Athletics & Sports	BBQ Joint	Bakery
103	Kottapuram	75.127735	2.0	Cruise	Udupi Restaurant	Train Station	Asian Restaurant	Athletics & Sports	BBQ Joint	Bakery	Bus Station	Business Service	Clothing Store

Cluster 4

Out[30]:

	Location	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
32	Bombrana	74.94572	3.0	Bus Station	Udupi Restaurant	Train Station	Asian Restaurant	Athletics & Sports	BBQ Joint	Bakery	Business Service	Clothing Store	Concert Hall

Cluster 5

Out[31]:

	Location	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
73	Kanhangad South	75.100097	4.0	Motorcycle Shop	Udupi Restaurant	Diner	Asian Restaurant	Athletics & Sports	BBQ Joint	Bakery	Bus Station	Business Service	Clothing Store

Cluster 6

Out[32]:

	Location	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
147	Nirchal	75.034829	5.0	Udupi Restaurant	Train Station	Asian Restaurant	Athletics & Sports	BBQ Joint	Bakery	Bus Station	Business Service	Clothing Store	Concert Hall

Cluster 7

Out[33]:

	Location	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
36	Charla	74.946158	6.0	BBQ Joint	Udupi Restaurant	Train Station	Asian Restaurant	Athletics & Sports	Bakery	Bus Station	Business Service	Clothing Store	Concert Hall
138	Mulleria	75.163294	6.0	BBQ Joint	Clothing Store	Udupi Restaurant	Train Station	Asian Restaurant	Athletics & Sports	Bakery	Bus Station	Business Service	Concert Hall

Conclusion

Analysing the Clusters and Places, Bekal with Latitude 12.420353 and Longitude 75.023146 best place for Establishing Hostel for students, Apartment for Professors and Govt. Medical College Hospital. Since Scenic Lookout is the first most common venue. The Nature-based intervention will improve mental

health(Reference: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5663019/>). That will improve the mood of students and teachers. Most of the other venues are almost common in all places. This is the best place for starting an Academic campus. It is connected via, Rail, Road. So, Patients in the District can be easily accessed. Bekal is in the middle of the district. So, People in the Kasaragod district can utilize the facility equally. I recommend this place for the Govt. College Project.

Thank you