CAPSTONE FINAL PROJECT

Finding a best city for starting multiplex in Andhra Pradesh

Business problem

- The problem is the customer wants to start new multiplex in Andhra Pradesh a state in India, which consist of some major and minor cities. He wants best city where he can get maximum audience and customers with less competition. The project aims to find best city for starting a multiplex to the customer. Targeted audience are businessmen those who want to construct a mall, multiplex and real estate people.

Data

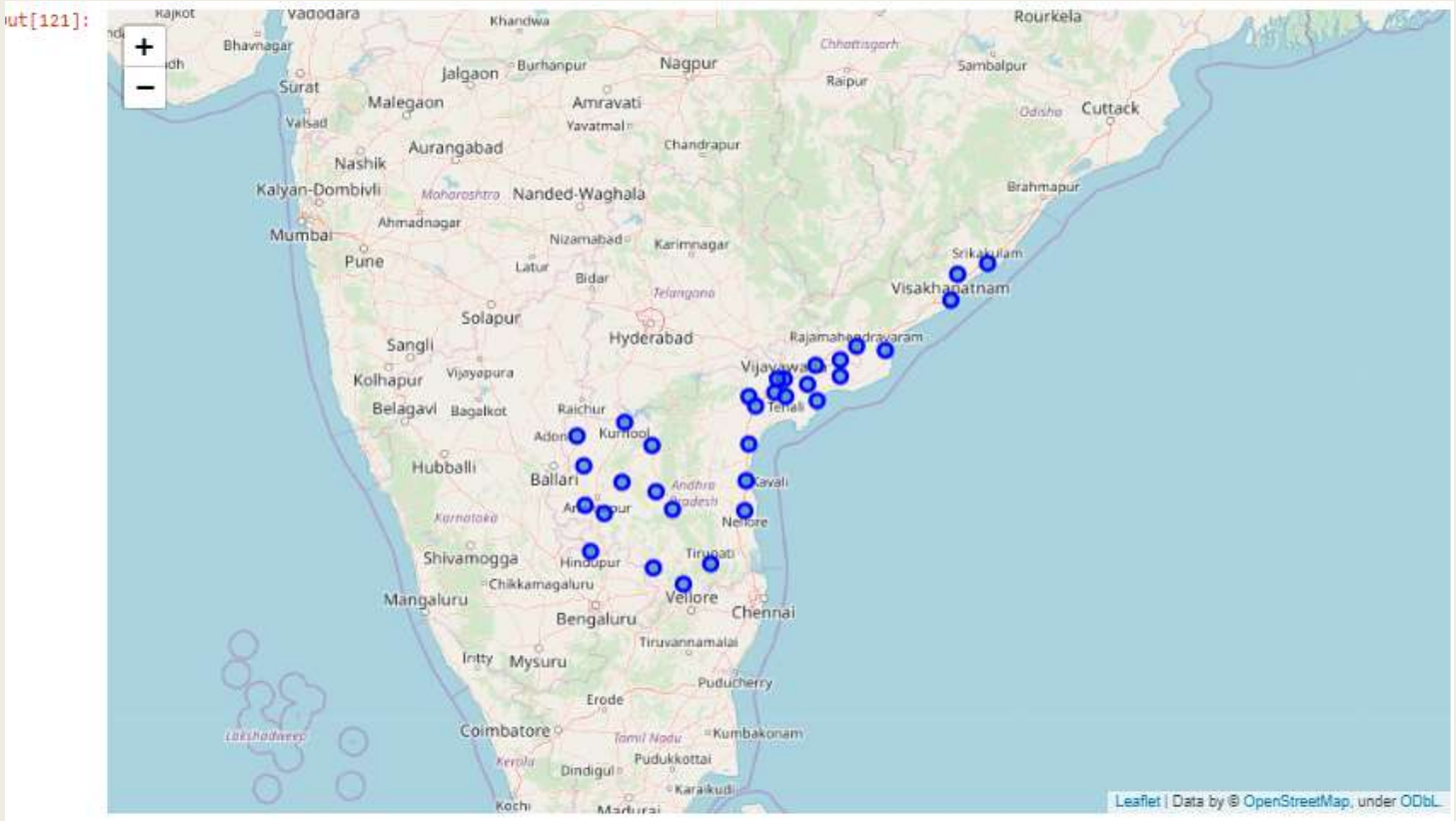
- For solving problem, i need data related to cities in Andhra Pradesh and Foursquare data.
- The cities in Andhra Pradesh, I got that data from Wikipedia by using this link
- https://en.wikipedia.org/wiki/List_of_cities_in_Andhra_Pradesh_by_population
- Along with cities I need latitudes and longitudes of those cities

The foursquare venues data I need:

- Multiplex data in each city
- School data in each city
- Universities data in each city
- Offices data in each city

City Data

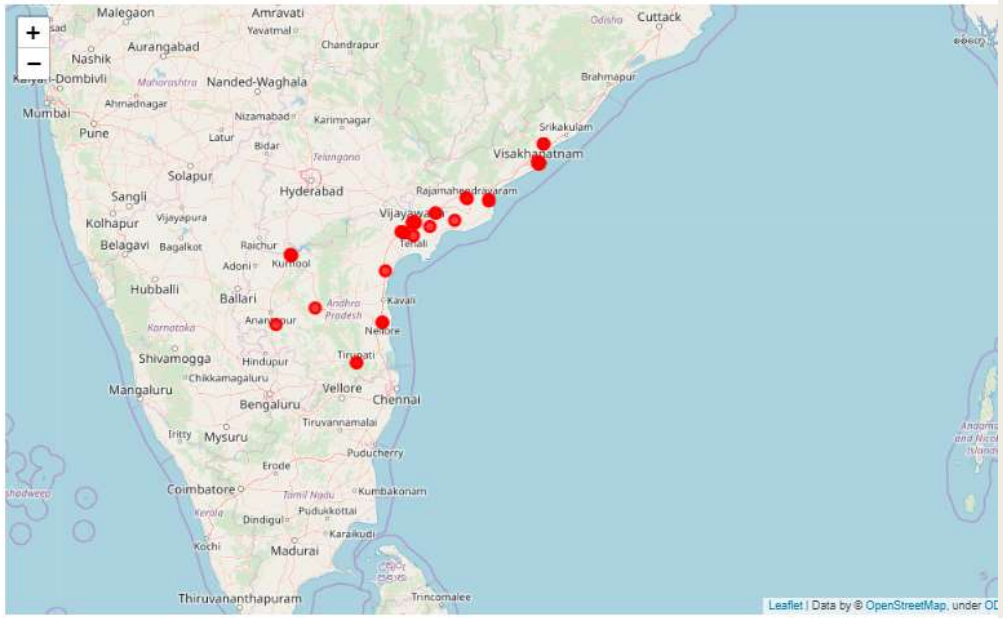
Out[121]:



Out[22]:

	cities	Latitude	Longitude
0	Visakhapatnam	17.723128	83.301284
1	Vijayawada	16.508759	80.618510
2	Guntur	16.291519	80.454159
3	Nellore	14.449372	79.987376
4	Kurnool	15.830925	78.042537
5	Rajahmundry	17.005045	81.780473
6	Kadapa	14.467149	78.822888
7	Kakinada	16.943738	82.235061
8	Tirupati	13.631637	79.423171
9	Eluru	16.710426	81.115382
10	Anantapur	14.550000	77.416667
11	Vizianagaram	18.115498	83.397881
12	Nandyal	15.473629	78.480659
13	Ongole	15.505871	80.049945
14	Adoni	15.625331	77.273089
15	Madanapalle	13.555798	78.500872
16	Machilipatnam	16.181939	81.135130
17	Tenali	16.237773	80.646422
18	Proddatur	14.755595	78.550153
19	Chittoor	13.303741	78.987701
20	Hindupur	13.826383	77.493772
21	Bhimavaram	16.542769	81.527344
22	Srikakulam	18.294940	83.893875
23	Guntakal	15.161098	77.376893
24	Dharmavaram, Anantapur	14.413840	77.720843
25	Gudivada	16.432998	80.993715

Out[127]:

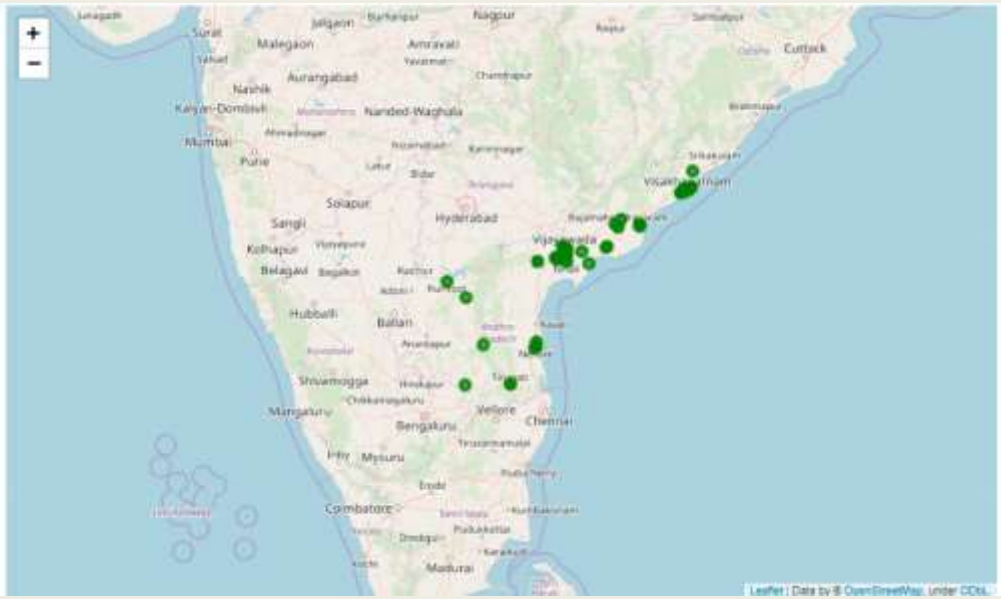


Out[153]:

	cities	city Latitude	city Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Visakhapatnam	17.723128	83.301284	Inox Chitralaya Mall	17.712356	83.301176	Multiplex
1	Visakhapatnam	17.723128	83.301284	Sangam Sarat	17.725549	83.326355	Multiplex
2	Visakhapatnam	17.723128	83.301284	Inox	17.734076	83.318304	Multiplex
3	Visakhapatnam	17.723128	83.301284	screen 4 varun inox	17.709473	83.312653	Multiplex
4	Visakhapatnam	17.723128	83.301284	Inox	17.711077	83.315785	Multiplex

MULTIPLEX DATA

Out[130]:

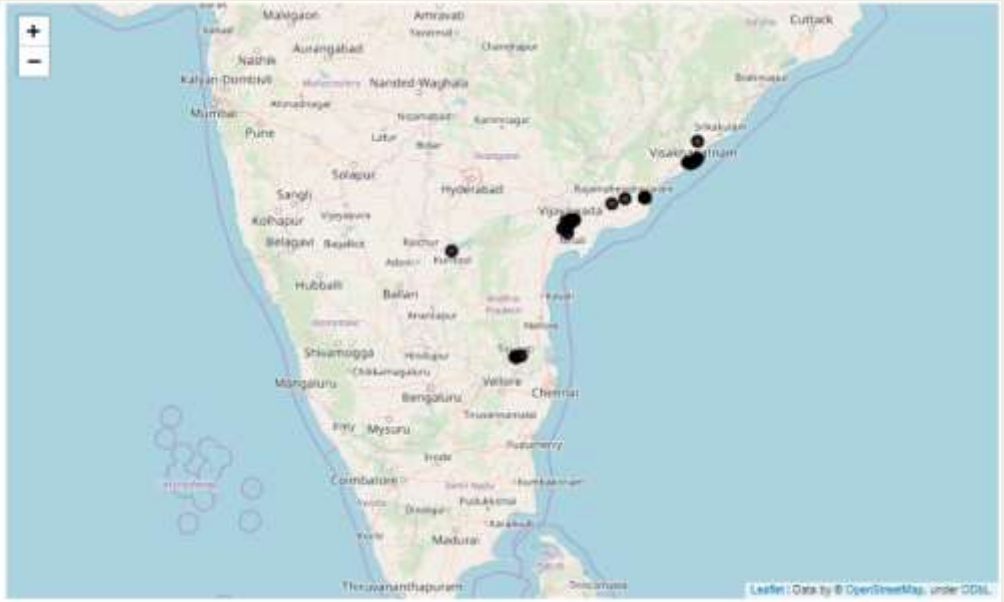


Out[128]:

	cities	city Latitude	city Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Visakhapatnam	17.723128	83.301284	Pollocks School	17.726652	83.305002	High School
1	Visakhapatnam	17.723128	83.301284	Silver Oaks International School	17.785889	83.378420	High School
2	Visakhapatnam	17.723128	83.301284	Mother Theresa English Medium School	17.765557	83.225806	High School
3	Visakhapatnam	17.723128	83.301284	Ramanath Secondary School	17.747763	83.234585	High School
4	Visakhapatnam	17.723128	83.301284	All saints convent	17.720388	83.309760	High School

SCHOOL DATA

Out[149]:

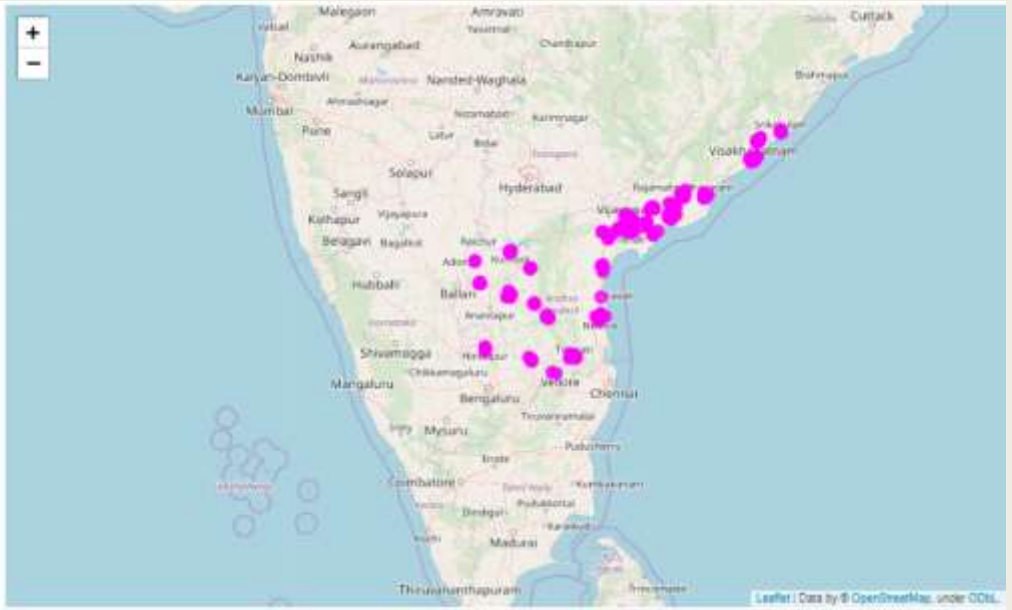


Out[131]:

	cities	city Latitude	city Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Visakhapatnam	17.723128	83.301284	gitam	17.736346	83.309425	University
1	Visakhapatnam	17.723128	83.301284	GITAM University	17.781064	83.376782	University
2	Visakhapatnam	17.723128	83.301284	Dept. of Education	17.721780	83.320506	University
3	Visakhapatnam	17.723128	83.301284	Andhra University Delta Studies	17.737383	83.327916	University
4	Visakhapatnam	17.723128	83.301284	Andhra University Civil Department	17.687468	83.212322	University

UNIVERSITY DATA

Out[131]:



Out[134]:

	cities	city Latitude	city Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Visakhapatnam	17.723128	83.301284	Divisional Railway Manager Office	17.724348	83.299380	Government Building
1	Visakhapatnam	17.723128	83.301284	Dwarakanagar	17.725860	83.306840	Parking
2	Visakhapatnam	17.723128	83.301284	Reliance Web World	17.726236	83.303430	Tech Startup
3	Visakhapatnam	17.723128	83.301284	Narasimha swamy temple	17.766856	83.249161	Temple
4	Visakhapatnam	17.723128	83.301284	Indus Hospitals	17.711569	83.302108	Hospital

OFFICE DATA

Methodology

For each city, all multiplex, school, university and office venues have been collected form foursquare, then for each city the sum of multiplex, school, offices and universities were computed. For each of these 4 categories, a weight was defined to find best city.

- Multiplex have been weighted with -4, because multiplex will reduce the profit
- Schools have been weighted with 1, because school students are good customers.
- Universities have been weighted with 2, because students will easily attract to movies.
- Offices have been weighted with 3, because employees are independent and good customers.

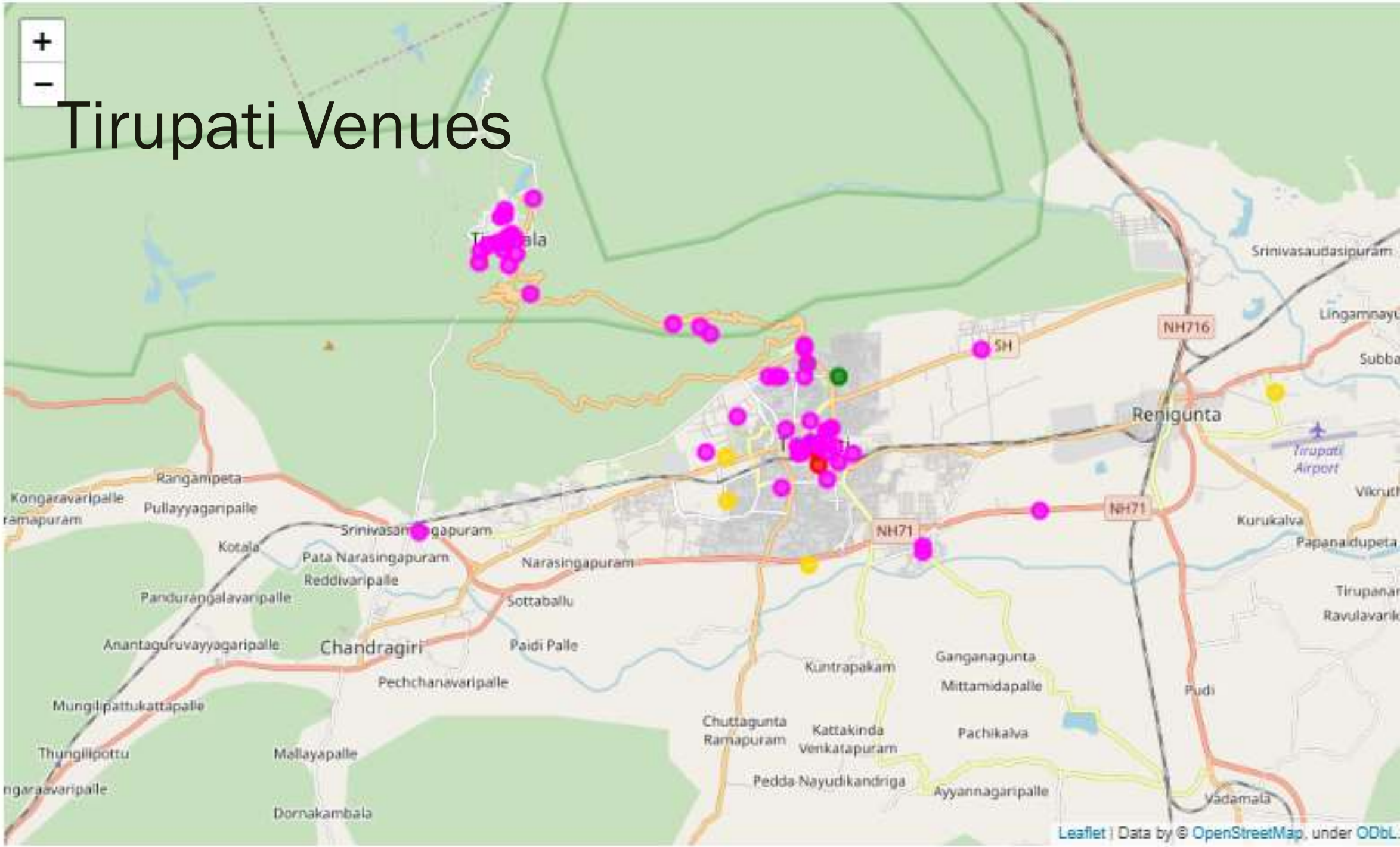
Results

After calculating the score, Tirupati has got highest score. The data is:

Out[143]:

	cities	Score
8	Tirupati	152.0
30	Amaravati (state capital)	148.0
0	Visakhapatnam	141.0
3	Nellore	140.0
21	Bhimavaram	139.0
11	Vizianagaram	135.0
7	Kakinada	130.0
2	Guntur	126.0
9	Eluru	124.0
5	Rajahmundry	123.0
4	Kurnool	70.0
13	Ongole	68.0
1	Vijayawada	67.0
6	Kadapa	61.0
17	Tenali	60.0
22	Srikakulam	45.0
16	Machilipatnam	34.0
20	Hindupur	33.0
25	Gudivada	33.0
28	Tadepalligudem	29.0
15	Madanapalle	25.0
12	Nandyal	25.0
27	Tadipatri	24.0
18	Proddatur	23.0

Out[ ]:


Tirupati Venues
Srinivasaudasipuram
NH716
SH
Renigunta
Tirupati Airport
NH71
Kurukalva
Papanaidupeta
Ranganipeta
Kongaravaripalle
Pullayyaganipalle
Kotala
Pata Narasingapuram
Reddivaripalle
Narasingapuram
Pandurangalavaripalle
Sottaballu
Anantaguruvayyagaripalle
Chandragiri
Paidi Palle
Pechchanavaripalle
Kuntrapakam
Ganganagunta
Mittamidapalle
Pudi
Mungilipattukattapalle
Chuttagunta
Ramapuram
Kattakinda
Venkatapuram
Pachikalva
Thungilipottu
Mallayapalle
Pedda Nayudikandriga
Ayyannagaripalle
Vadamala
Dornakambala
Leaflet | Data by © OpenStreetMap, under ODbL.

Conclusion and Future work

- From the result of the above work, I conclude that Tirupati city has more benefits for starting new multiplex because in Tirupati there are less number of multiplexes and more schools, universities and offices, means new multiplex will have less competition and more audience.
- We can also improve the result accuracy by considering life style of people in each city and their interest in movies and multiplex culture