Coursera Capstone

City of Opportunity : Mumbai

Introduction

- Mumbai is the commercial capital of India.
- Mumbai developed a highly diversified infrastructure.
- With its diverse society, comes diverse infrastructure which decides the quality of living.
- When one moves to a new city like Mumbai, is where to find a good area to build and grow prosperously.
- The purpose is to help people in exploring better facilities around their neighborhood.

Business Problem

The questions I aim to answer in this project are the following:

1. List and visualize all major parts of Mumbai City with top existing infrastructure.

    2. What are the best locations in Mumbai as per infrastructure?

3. Which areas have the potential for the development of infrastructure of different kinds?

    4. Which all areas lack the infrastructure facilities?

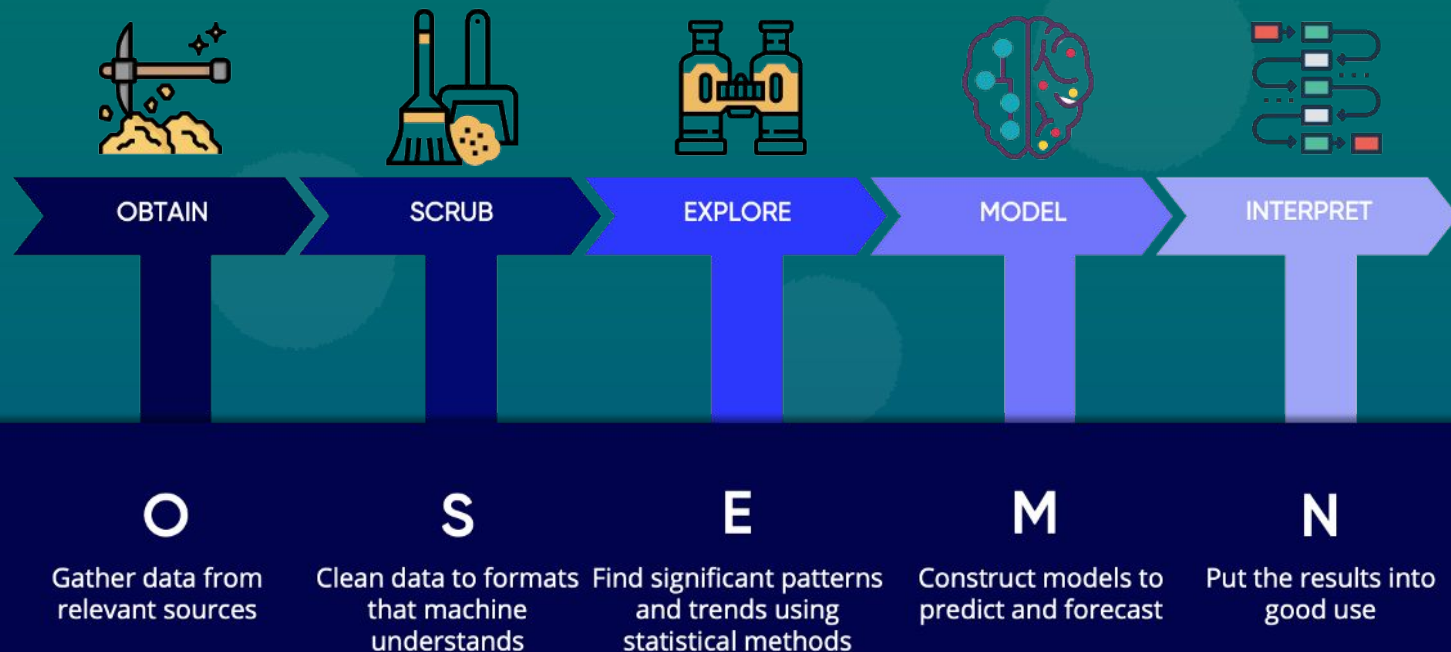5. What is the best place to stay within a city for all vital infrastructure facilities?

Data acquisition and cleaning

 For this project we need the following data:

1. Mumbai Pincode (Scraped from web source)
2. Mumbai City data (Geospace Data on Mumbai Pincode)
3. Different infrastructures in each neighborhood of Mumbai City data (Foursquare API)

Methodology

Data Science Process

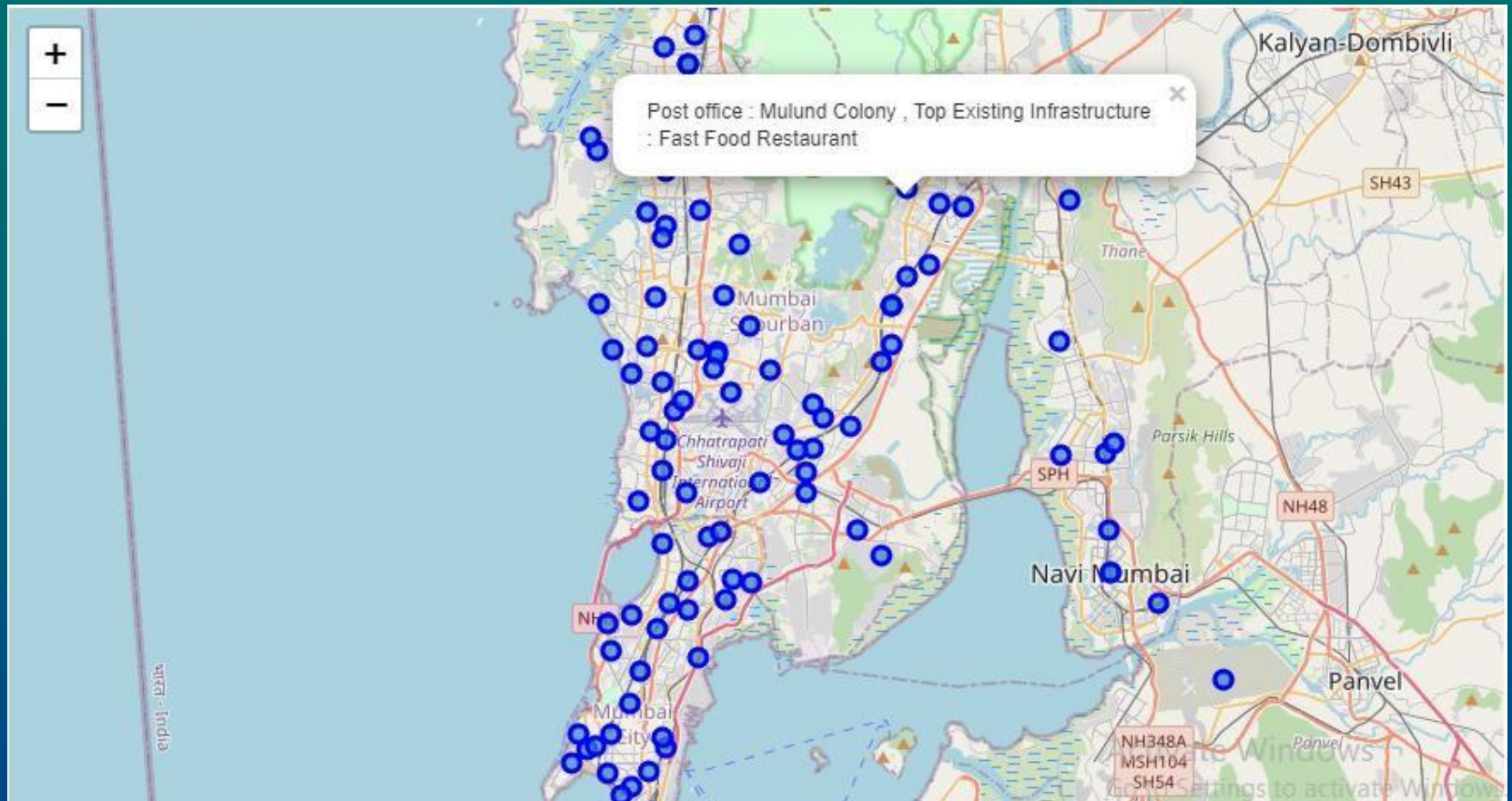| OBTAIN	SCRUB	EXPLORE	MODEL	INTERPRET
O	**S**	**E**	**M**	**N**
Gather data from relevant sources	Clean data to formats that machine understands	Find significant patterns and trends using statistical methods	Construct models to predict and forecast	Put the results into good use

Originally by Hilary Mason and Chris Wiggins

LEAD

Credit is provided below the image

Results

4. *Display the top existing infrastructure for each Postal Office in Mumbai.*

Results

§ *What are the best locations in Mumbai as per infrastructure?*

	9
Post Office	Bandra (West)
Pin Code	400050
City	Mumbai
Airport Terminal	0
Bank	0
Bus Station	0
Business Service	0
Café	10
College Auditorium	1
Electronics Store	1
Farmers Market	1
Garden	0
Government Building	0
Gym / Fitness Center	3
Hotel	1
Indie Movie Theater	1

Indie Movie Theater	1
Light Rail Station	0
Market	0
Monument / Landmark	0
Park	1
Pharmacy	0
Playground	0
Resort	0
Restaurant	1
Shopping Mall	1
Theater	0
Train Station	0
Total infrastructure	21

Results

§ *Which all areas lack the infrastructure facilities?*

Post Office	Pin Code	City
Agashi	401301	Thane
Anu Shakti Nagar	400094	Mumbai
Bassien	401201	Thane
Bhandup (East)	400042	Mumbai
Bhayander (East)	401105	Thane
Boisar	401501	Thane
Ghansoli	400701	Navi Mumbai
Jacob Circle	400011	Mumbai
Jakegram	400606	Thane
Jawhar	401603	Thane

Post Office	Pin Code	City
Jawhar	401603	Thane
Kopri Colony	400603	Thane
Krishi Utpanna Bazar	400705	Navi Mumbai
Mahim	400016	Mumbai
Nerul Mode	400706	Navi Mumbai
Santacruz P&T Colony	400029	Mumbai
Sopara	401203	Thane
Tagore Nagar	400083	Mumbai
Talasari	401606	Thane
Umbarpada	401102	Thane
Uran	400702	Navi Mumbai
Vasai East I/E	401208	Thane
Wadala	400031	Mumbai

Results

Q *Which of your choice areas have the potential for the development of infrastructure of different kinds?*

These are infrastructures with highest potential in Mantralaya area :
Airport Terminal
Bank
Bus Station
Business Service
College Auditorium
Farmers Market
Garden
Government Building
Indie Movie Theater
Light Rail Station
Market
Monument / Landmark
Park
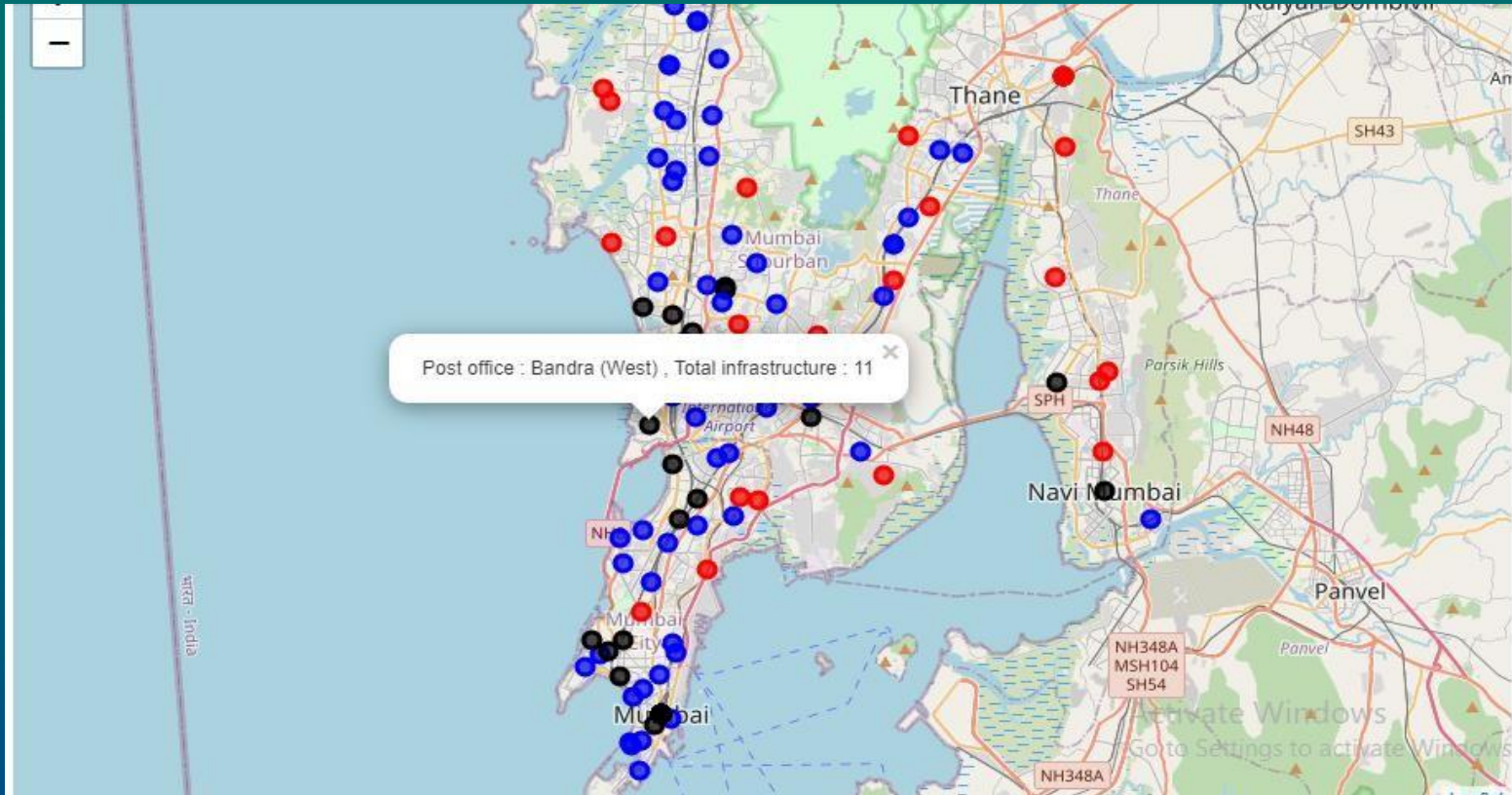Pharmacy
Playground
Resort
Train Station

Results

§ *What is the best place to stay within a city for all vital infrastructure facilities?*

Best place to stay within a city for vital infrastructure facilities :

	Post Office	Total infrastructure
18	Bhavani Shankar Road	13
28	Council Hall	13
29	Cumballa Hill	13
30	Dadar	13
34	F C I Mumbai	13
35	Ganeshpuri	13
38	Girgaon	13
43	I I T Mumbai	13
44	J B Nagar	13
45	JNPT Town Ship	13
67	Manor	13
79	Mumbai G P O	13
80	N I T I E	13
88	Papdi	13
92	Rajbhavan	13
97	Santacruz (East)	13

Clustering Based On Total Infrastructure

- **Cluster 1** (Red): Neighborhoods with a low number of infrastructures.
- **Cluster 0** (Black): Neighborhoods with a high number of infrastructures
- **Cluster 2** (Blue): Neighborhoods with a moderate number of infrastructures.

Discussion

- Bandra (West) is the best location in Mumbai as per infrastructure, with 10 Café boosting the number.

- 19 postal offices are the best postal office area for essential variety infrastructure.

- Most of the infrastructures are concentrated in the Southern areas of Mumbai city, with the highest number in cluster 0.

Recommendation

- Recommendation from Clustering :

- Cluster 1 with little to no competition - To open new infrastructures.

- Cluster 2 with moderate competition and supporting adequate no. of infrastructures – Ideal place to live prosperously and open unique infrastructures.

- Cluster 0 which already has a high concentration of infrastructures. – To settle in city and tough market to open new infrastructures.

Conclusion and future work

- This project made use of the free Sandbox Tier Account of Foursquare API - Limitations as to the number of API calls and results returned.

- Finding of these project will help relevant stakeholders i.e. **business developers** regarding the best locations to open a new infrastructure.

- The project also provides **visitors and immigrants** to the city regarding new postal office areas for growth and living prosperously.