Capstone -Battle of the Neighborhoods

July 2020
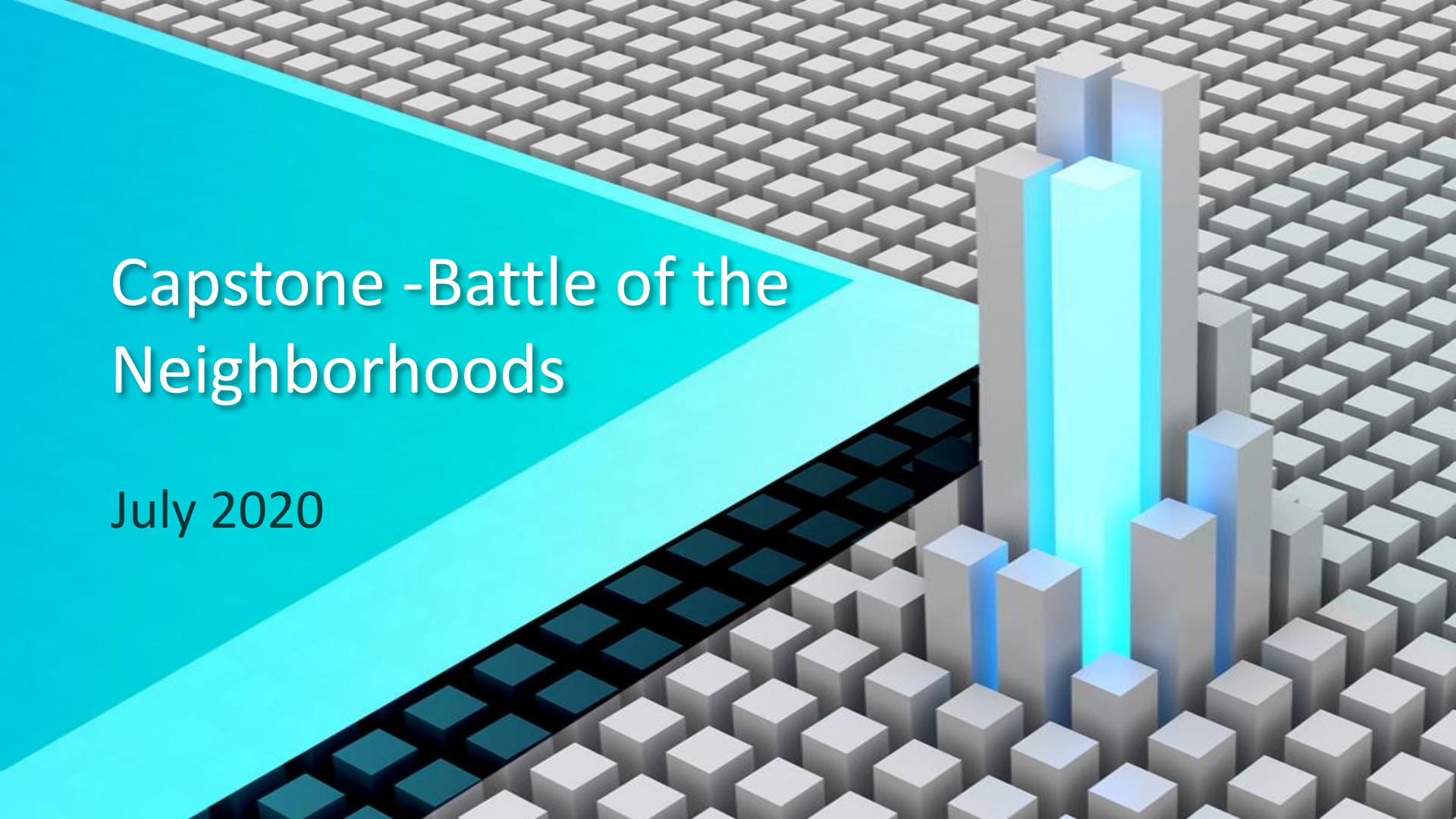
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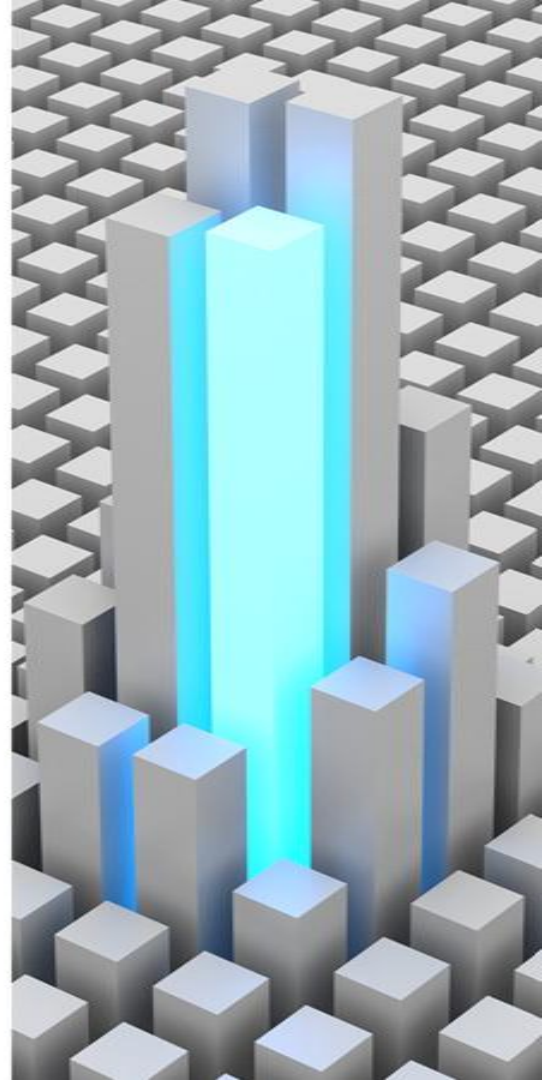
Introduction

Background

- The purpose of the project is to help XYZ Inc in scouting for a suitable location to open a **hotel/restaurant** in Salt Lake City so that they can make a conscious call on the investments made on the location of the hotel/ restaurant and aim to make it a profit making venture.

Location

- **Salt Lake City** is a well-planned satellite township in Kolkata located on the eastern part of India. The area is divided into multiple sectors, which are further sub-divided into various blocks. Dynamic and with a constantly evolving landscape with large green spaces and water bodies, Salt Lake is a vibrant part of the city comprising of both residential and commercial areas and is also the main IT hub of the city.

Key Ask

- Considering the substantial opportunity that the township offers in terms of the hospitality industry, the customer would like to have a study performed based on the current competitive landscape so that meaningful insights can be derived to help them decide on a viable location for opening a hotel/restaurant

Data

- **GeoPy Python** package would be used to obtain the latitude and the longitude coordinates of all the locations

- **Foursquare API** would be used to obtain information about

  o The existing hotels and restaurants in Salt Lake City

  o Explore additional venues and locations with in a specified radius

- All data is transformed into **pandas dataframe**

- **Folium** Python library would be used to visualize the results on a map

Methodology

- Co-ordinates of **Salt Lake City 22.5735344 °N,88.4132664° E** is obtained using Geopy Python Package and Four Square API

- Using **Foursquare API** , a **search** is performed for hotels, restaurants and cafes within 1.5 KM of Salt lake City core location

  - Get requests to obtain results of queries for hotels, restaurants and cafes

  - Relevant part of JSON is obtained and transformed into a pandas dataframe

  - Around 30 restaurants, cafes and hotels were found with in the specified radius
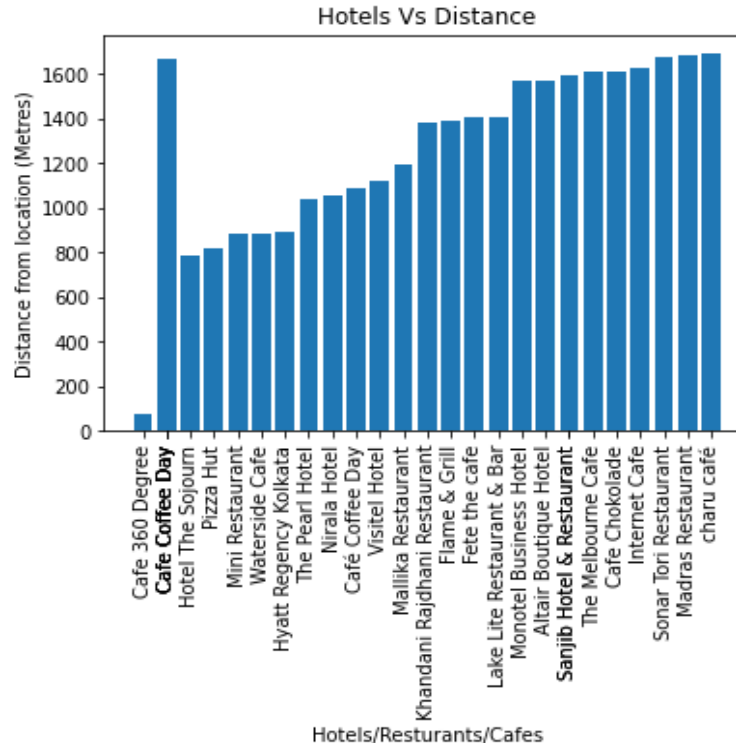
Methodology ....(Contd)

o Dataframe is cleaned up to show only relevant columns

o Location of hotels/ restaurants/cafes are to be displayed on a map using Folium map rendering library
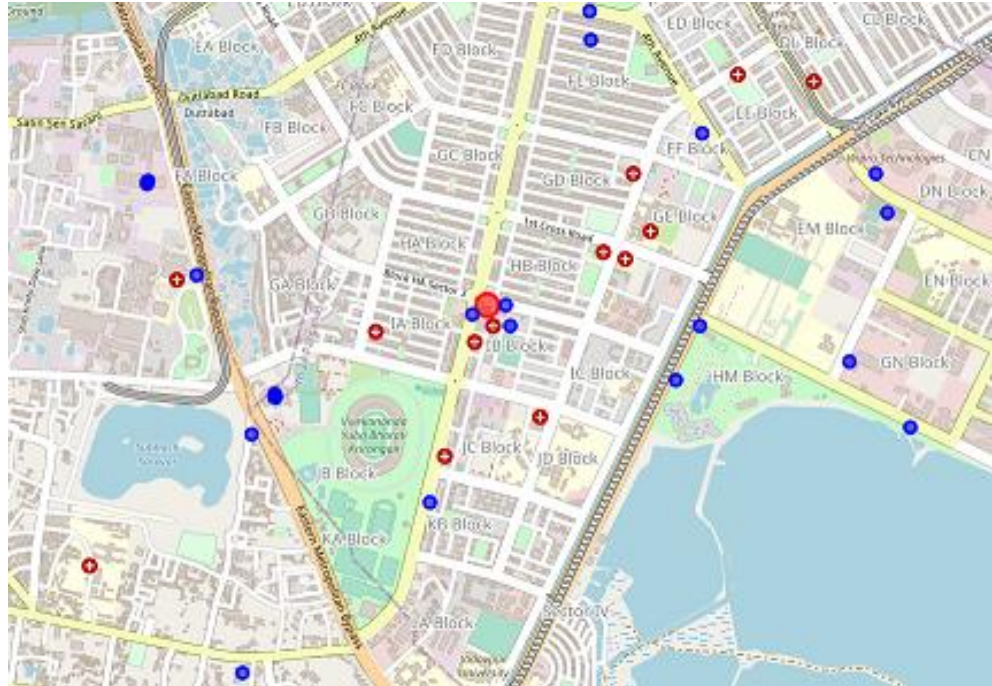
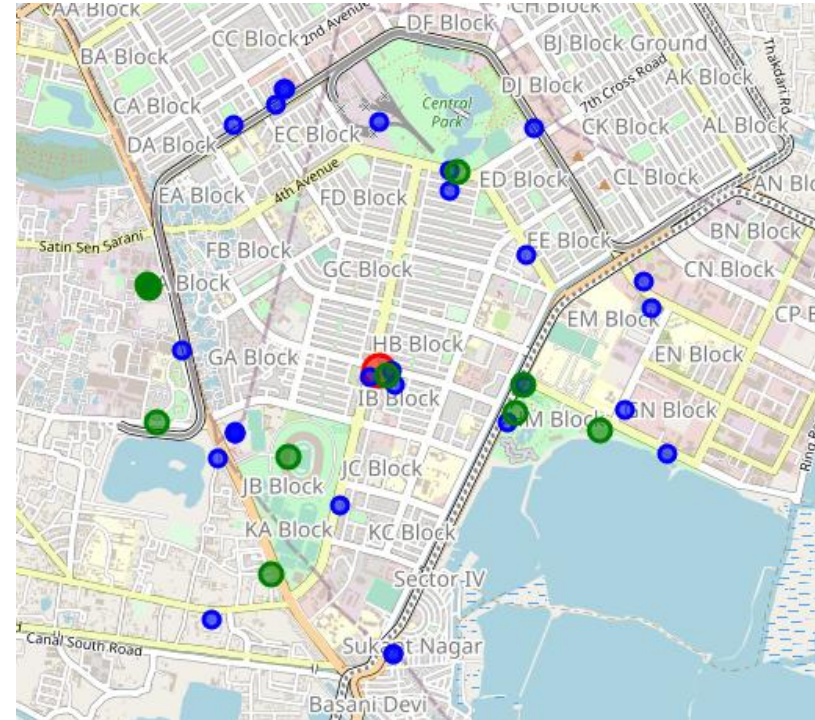Salt Lake core location 🔴 hotels/restaurants/cafes 🔵

Methodology ….(Contd)

o Average distance between hotels and core location is 1188 meters

Hotels Vs Distance

Methodology ....(Contd)

- Explore other venues in Salt lake using **Foursquare API explore** function
  - Around 40 venues are extracted which also contains hotels , cafes and restaurants.
  - Removing restaurants , hotels and cafes from the explored list 11 specific venues were obtained which were was displayed on a map using Follium

Salt Lake core location ● hotels/restaurants/cafes ● venues ●

Methodology ....(Contd)

- Clustering is done based on the venue locations and the potential location is collated based on the location of the centroid of all the clusters and proximity to the core location.

- Location of Core Location , Potential Location for restaurant, existing hotels/ restaurants/cafes and venue clusters
  are to be displayed on a map using Folium map rendering library
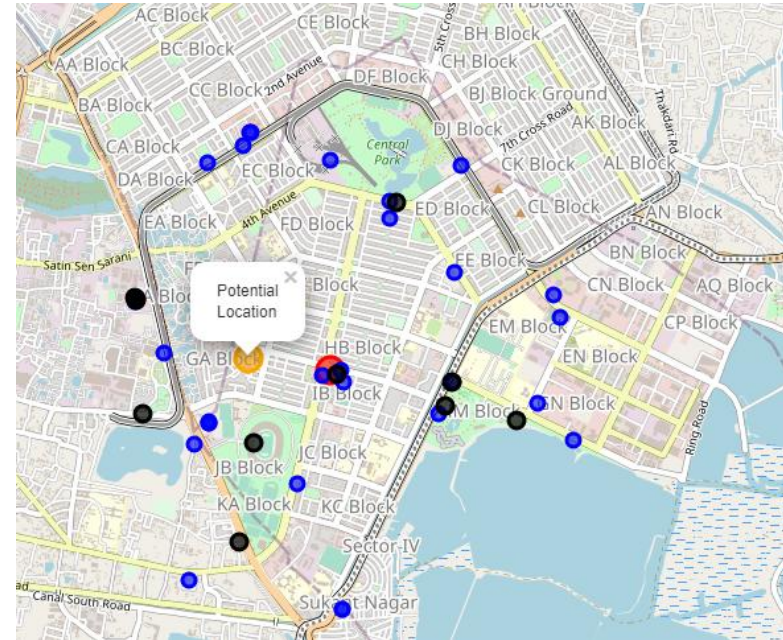
Salt Lake core location 🔴 hotels/restaurants/cafes 🔵
Potential location   🟠   Venue clusters ⚫

Results

- Considering a 1.5 km radius from the core location of **Salt Lake City** located at **(22.5735344 N, 88.4132664 E)** , around **30** restaurants, cafes and hotels were found using **Foursquare API search**. A broad classification is provided below:
  - Restaurants -12
  - Cafe-12
  - Hotel-4
  - Bed & Breakfast -1
- Average distance between hotels/ restaurants / cafes from the core location is 1188 meters, the closest ones are **Cafe 360Degrees, Cafe Coffee Day , Hotel The Sojourn**.

Results….(Contd)

- Around **40 venues** are found using **Foursquare API explore** with in 1.5 km radius of the core location of which **11** venues are considered after dropping all the hotels, restaurants, cafes and other food and drinks joints from the data frame.

- The **potential location** of the new restaurant **(22.574226346438508 N,88.40792437661369 E) at GA block** is collated based on the location of the centroid of all the clusters and proximity to the core location.

Discussion

- On further review it is noticed that the cuisine served in the restaurants around Salt Lake are predominantly:
  - **Indian**
  - **Vegetarian / Vegan**
  - **Italian**
  - **Mediterranean etc**.
- The search using Four Square API does not show any **Chinese or Continental** food joint which are also popular cuisines in the city .
- This can be deliberated further on the choice of cuisine to be served by the restaurant.
- The potential location has a few cafes nearby so there should not be much competition for the new restaurant with a different variety of cuisine.

Conclusion

- The identified venue for the new restaurant **(22.574226346438508 N, 88.40792437661369 E) at GA block** has limited competition while being close to the core location and accessible from the main venues in the area which could potentially ensure footfall.

- Type of cuisine to be served like **Chinese** or **Continental** can be analyzed further.

- Limitation: Analysis is performed using the data available using Four Square API, this can be further enhanced using data available from additional sources.

Thank You