IBM Applied Data Science Capstone
The Battle of Neighborhoods

By
SK Ahammad Fahad

Potential Business opportunity in Coax's Bazar: Comparative Data Analysis with equivalent Cities of India and Malaysia

Introduction

Bangladesh is full of natural beauty. Rivers, coasts and beaches, archaeological sites, religious places, hills, forests, waterfalls, tea gardens surround it. The Sundarban, Historic Mosque in the city of Bagerhat, Ruins of the Buddhist Vihara at Paharpur are the three world heritage sites in Bangladesh among 1007. To observe the beauty of nature, huge amounts of domestic and foreign tourists visit the country and its tourist attraction sites. Natural beauty is a redeeming feature that gives rise to fresh revenues. In terms of existing tourist products, both inbound and home market, Rajshahi, Sylhet, Chittagong, and Khulna Division are the main tourist divisions. Chittagong Division offers natural and ethnic diversity. Situated in this part of Bangladesh it is one of the world's longest natural sandy sea beaches (120 km) including mudflats, Cox's Bazar, and the only coral island named Saint Martin's Island.

Bangladesh is a fresh tourism destination. She has a vast perspective to develop tourism primarily because of its attractive unadulterated natural beauty, heroic historical background and archeological resources, which can experienced throughout the land. The tourism sector can play a positive impact on enhancing the Gross Domestic Product (GDP). Many countries are now dependent on this sector for foreign currency earnings. Every destination country is trying to achieve more gain by developing this industry. The expansion of tourism throughout the world has increased. Countries are trying to attract more tourists by adopting appropriate marketing techniques and strategies. The research revealed that the country has a positive trend in arrivals and earnings, and it can increased to a significant level if the country can undertake appropriate promotion measures by increasing the allocation for this purpose. The country also needs to employ creative people for this purpose, and the quality of the promotional materials needs to be developed.

One paper written by Majbritt Thomsen, and published by the Danish Embassy in Dhaka, Bangladesh. This paper have a great SOAT analysis, which indicates, there is a lack of knowledge about demand in the Bangladeshi tourism business. The accessibility to tourist destinations and accommodations negatively affected by the non-availability of adequate infrastructure. Existing beach life, Bangladeshi style, includes mudflats destinations loathed during high season. This cannot sell as a typical western mass tourism sea destination. The low existing inbound tourism demand indicates that fundamental product and promotion improvement is required. Tourism products should relate to the fact that Bangladesh is a Modern Muslim society and a densely populated developing country, which has been historically isolated. Sustainable tourism product is one such solution. Tourists, especially inbound tourists, need a guide or a high level of knowledge to travel safely and responsible (culture and nature awareness) in Bangladesh.

Problems to Handle

Bangladesh is located conveniently on the east-west air corridor making it a gateway to the Far-East. It endowed with resources and has great potential for the tourism industry. In the southeast, the country has a 120 km world's longest unbroken beach of soft silvery sand. Miles of golden sands, tall Cliffs, surfing waves, rare conch shells, colorful pagodas, Buddhist temples and tribes, delightful sea-food all these make Cox's Bazar a rich destination. To the local travel market, these places have become popular and loathed sea, sand and sun holiday destinations. Coax's Bazar is a place that can attract domestic tourists as well as foreigners. The other attractions of Coax's Bazar include a Buddhist monastery at the hills, Himchari picnic spot, and just about eight km from Coax's Bazar. Innani Beach, 32 km away from the city, Sonadia Island that rarely experiences footsteps of tourists. Teknaf peninsula and some 80 km from town and picturesque St. Martin Island to the south at 13 km distance from the mainland. All these places are easily accessible from Coax's Bazar by bus, jeep, and water. As a result, Coax's Bazar became a hub of tourism for a long time. Moreover, Coax's Bazar located at 152 km. from the South of Chittagong connected both by air and by road with Dhaka and Chittagong.

The major source of the economy of Cox's Bazar is tourism. Many people are involved in hospitality related businesses. Several people are also involved in fishing and collecting seafood and sea products for their livelihood. The socio-cultural and economic statistics including the literacy rate of Coax's Bazar is far below the national average. Nearly two million people visit Coax's Bazar in peak season from November to March. The visitor's checklist includes a walk along the beaches, sea bathing, shopping from the Rakhine stalls. Among Labonee, Kalatoli, Himchari, and Innani, Labonee beaches are reportedly one of the most heavily visited tourist destinations in the country. There are more than 300 hotels, motels, cottages, rest and guest houses and restaurants developed by both private and government for tourists and this initiative has provided opportunities to lots of unemployed youths.

Coax's Bazar is a place that strikes the majority and it frames Bangladesh more beautifully. Seven different factors namely infrastructure development, criminal tendency, public services, economic development, business scope, investment opportunities, and environmental awareness might significantly influence flourishing tourism development while other five factors namely community bonding, living standard, lifestyle, price of commodities and cultural development might not implicitly affect flourishing tourism development in Coax's Bazar. However, this project focused on the business opportunities that can makes Coax's Bazar more adorable to foreign tourists and open up the opportunity to invest local people as a startup. This neighborhood project outcome can use to deliver new opportunity in Coax's Bazar. In addition, the implementation will grab more tourist's attraction in future.

Data to Analyze

To perform a comparative analysis, this project needs two different data. Data for comparison and including the data to discriminate. It requires the data of Coax's Bazar, what it exists presently. In addition, the data currently exists in East Medinipur and Langkawi. This data requires assembling from separate sources.

The local governance web site of Coax's Bazar, East Medinipur and Langkawi is the primary source of the data. We get the postal information about Coax's Bazar from the website of the Ministry of Post and Telecommunication of the Government of Bangladesh. The same process applied to East Medinipur, West Bangle postal services website used to collect the postal information. In the case of Langkawi, the Malaysian national Postal Service POSMalaysia website used to collect postal information. After collecting primary resources, we used the foursquare developer service to collect the subsequent data.

Foursquare is a location technology platform. They allowed the user to explore. They build their map by the crowdsourcing also the clients who use their developer tools, including Uber, Tencent, Apple, Samsung, and Twitter. They have a developer API service that helps developers use their location service for good reason.

In the case of primary data, which I collect from local governance, it was containing the important location name on the selected area with the location coordinate. By foursqure, I get the venue information, with the venue's location coordinate and the venue category data. Those based on the primary locations. This data helps to perform on analysis and compare to the actual opportunity of Coax's Bazar.

Methodology:

Such a context, comparing the successful with the same sub-continent and culture can indicate what Bangladesh needs to improve. Transportation, security and national events are not including in the project. However, in this project, the city of coax's bazar going to compare with two cities. Those are successful as a beach city, have a similar natural resource, located in the same subcontinent, similar culture, etc. Considering all the aspects and possibilities, a lot of previous researchers and tourism expert suggests coax's bazar should follow East Medinipur (Digha and Mandarmani) and Langkawi.

Digha is a seaside resort town of East Medinipur district and, at the northern end of the Bay of Bengal, is the most popular seaside resort of West Bengal. Renowned for its beaches, Digha visited by thousands of tourists every year. Mandarmani is a small virgin beach on the Bay of Bengal under Kalindi Gram Panchayat, only 14 km from Digha-Contai Road from Chaulkhola Bus Stop. It is a small fishing harbour and a fast developing tourist spot. Langkawi Island given a World Geopark status by UNESCO. Three of its main conservation areas in Langkawi Geopark are Machincang Cambrian Geoforest Park, Kilim Karst Geoforest Park, and Dayang Bunting Marble Geoforest Park (Island of the Pregnant Maiden Lake). These three parks are the most popular tourism area within Langkawi Geopark. In 2014, UNESCO issued a "yellow card" warning threatening the status of the Geopark.

East Medinipur have the same language and culture as Coax's Bazar. The only difference is Muslims are the majority of coax's bazar along with a lot of Hindu. Reverse pictures in East Medinipur, Hindus are the majority with lots of Muslims. Food habit, culture, even they followed the same regional calendar named Bengali calendar. Both people are spiking Bengali as their mother tong. Historically the both locally are the same nation but they divided into different country. As like Langkawi, coax's bazar is also multicultural. Langkawi have Malay culture with Indian and Chinese mixed up. Coax's bazar also have bangle culture that mixed up with aboriginal people.

First, the initial steps are to take off our Environmental setup on developing the project. After installing them, the necessary library also imported to apply to development. After that, the Foursquare API setup completed by assigning the CLIENT_ID with CLIENT_SECRET. Getting the Geographical coordinates of Coax's Bazer, East Medinipur, and Langkawi, from the geocoder, Next step taken to visualize the actual maps of the locations. Folium library used to create the maps of the three cities with the locations.
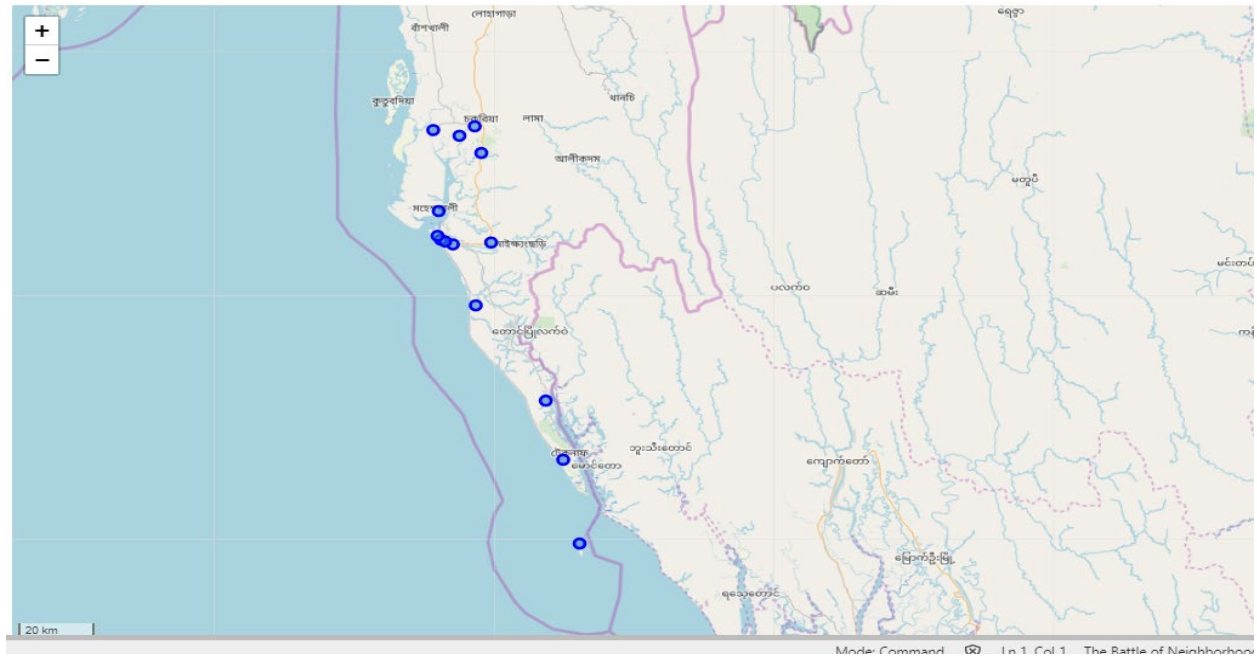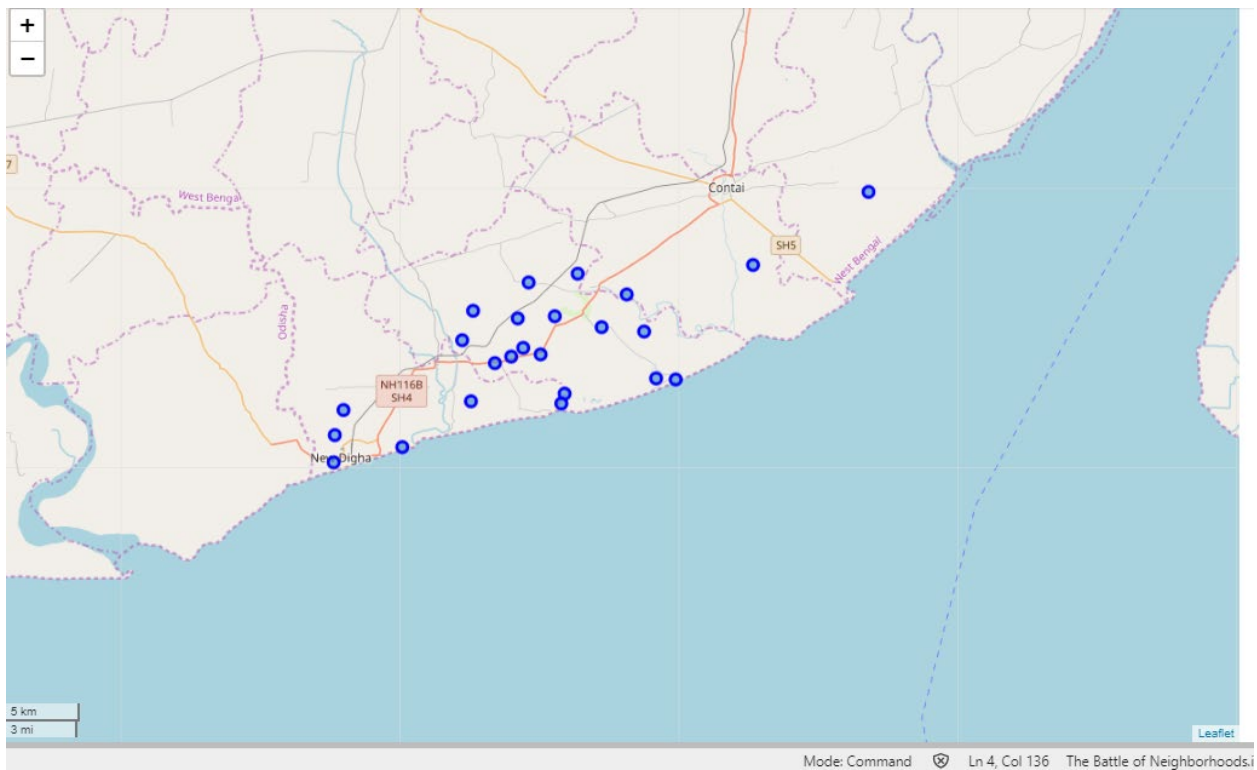
Fig: Map of Coax's Bazar
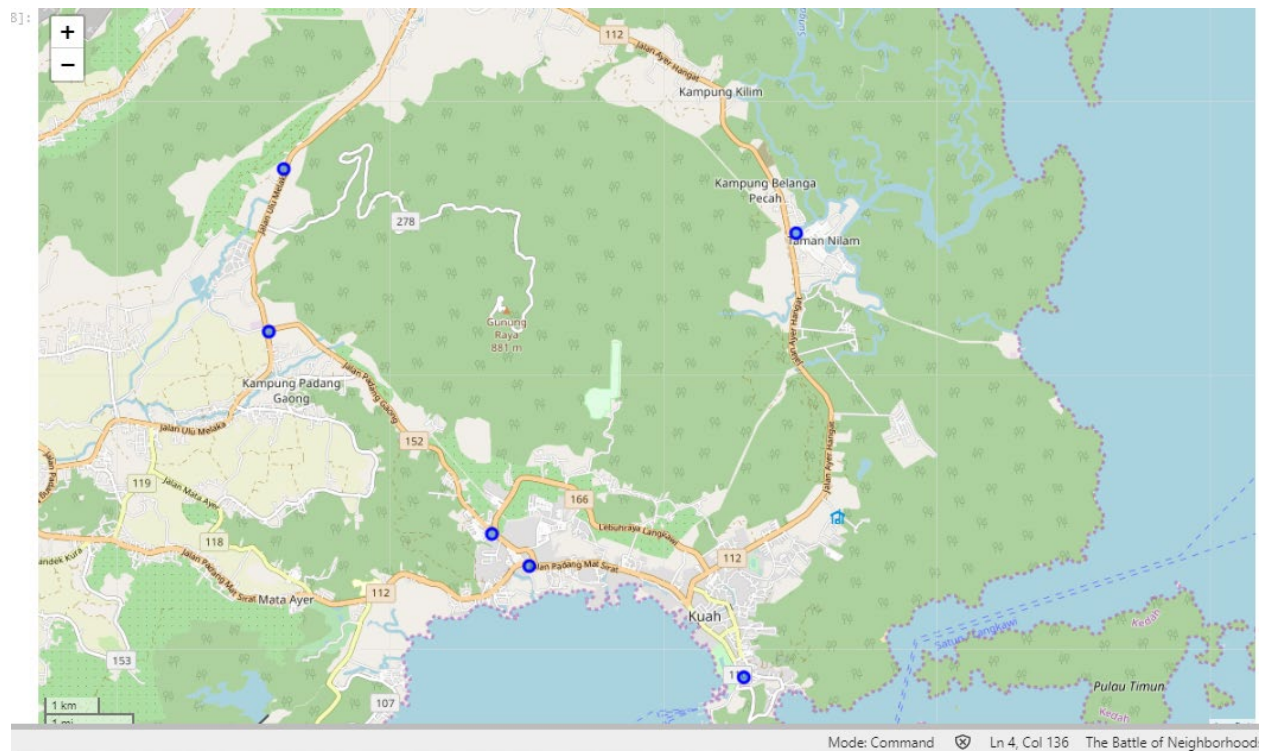

Fig: Map of East Medinipur

Fig: Map of Langkawi

After visual inspection, it needs to get more data for further analysis. Foursquare API used to take the nearby venue information to further analysis. Foursquare API returns the JSON file. Jason files are too messy with many tags. To getting the only necessary information, we define a function named getNearbyVenues. By this function, we filter the JSON file and only keep four information about nearby venues. Those are; Venue name, Venue Category, Venue Latitude, and Venue Longitude. That valuable information used to further analysis by grouping them, counting, sorting and many more ways. Those are brifly described in the result section. To understand the analysis properly, we used a waffle chart to visualize our results. This is one of the popular and powerful methods of visualization. Only the top 10 types of venue categories used to visualize the chart.
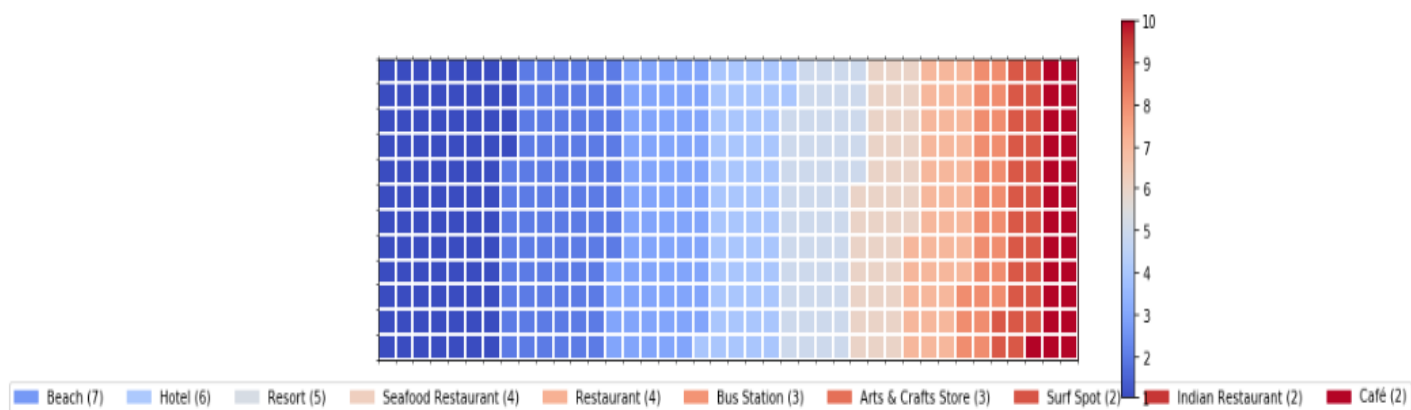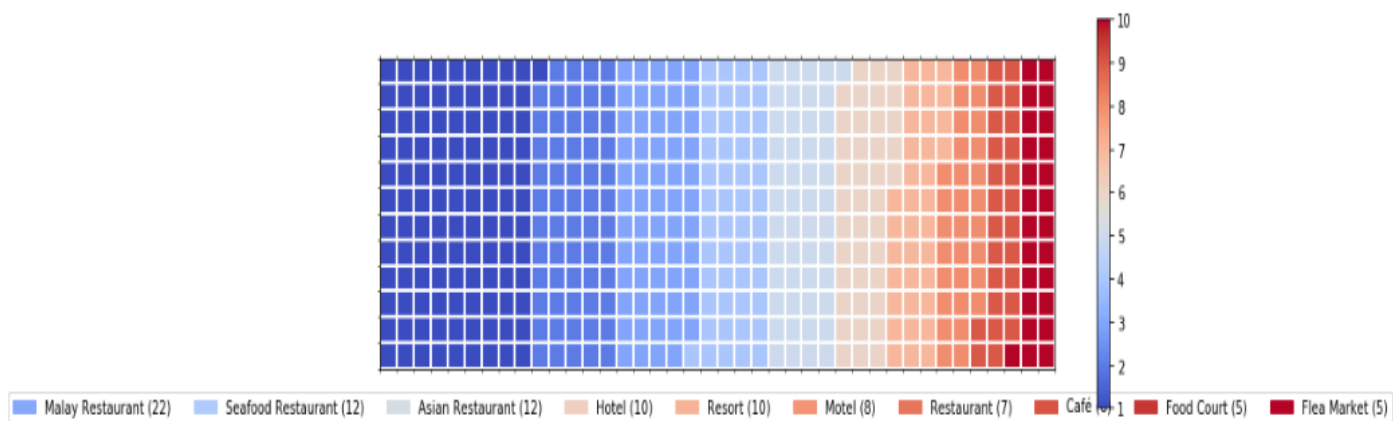
Fig: waffle chart of Coax's Bazar

Beach (7)   Hotel (6)   Resort (5)   Seafood Restaurant (4)   Restaurant (4)   Bus Station (3)   Arts & Crafts Store (3)   Surf Spot (2)   Indian Restaurant (2)   Café (2)

Malay Restaurant (22)   Seafood Restaurant (12)   Asian Restaurant (12)   Hotel (10)   Resort (10)   Motel (8)   Restaurant (7)   Café (6)   Food Court (5)   Flea Market (5)

Fig: waffle chart of East Medinipur

Hotel (14)   Beach (9)   ATM (4)   Train Station (2)   Resort (2)   Indian Restaurant (2)   Multicuisine Indian Restaurant (1)
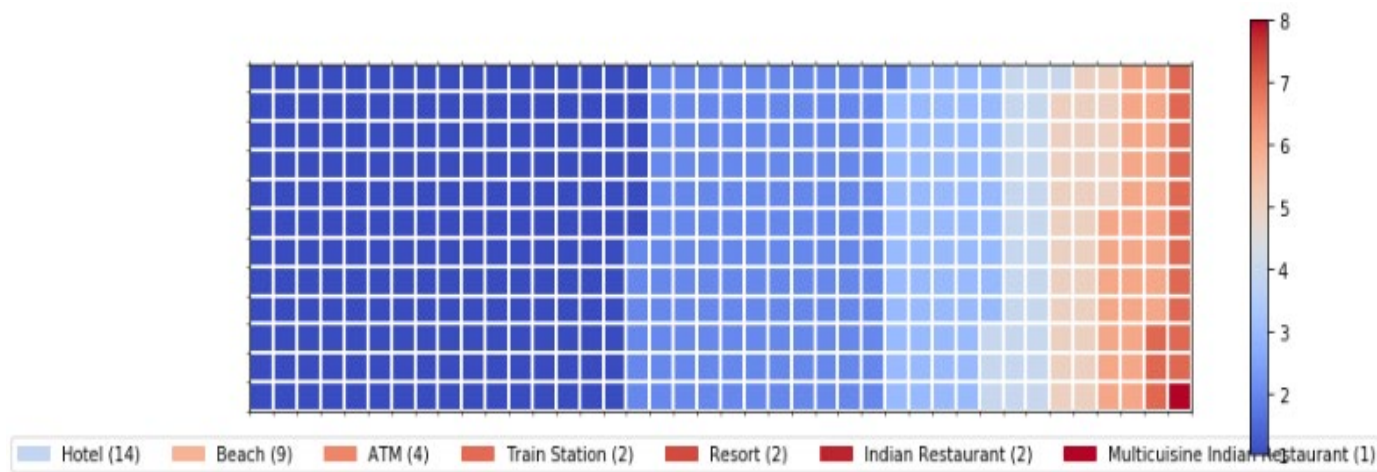
Fig: waffle chart of Langkawi

Results

After analyzing, we found many Business opportunities for Coax's Bazar. Some of the major types of business are missing in Coax's Bazar. Number of unique Venue Category in Coax's Bazar: 16 where the Number of unique Venue Category in Langkawi: 69. Multicaulisin Restaurant and Train Station make East Medinipur more adorable and, missing of these, types of venues take down the reputation of Coax's Bazar. Few categories need to improve and those can be consider as huge Business opportunity, few listed below,

- Theme Park
- Racetrack
- Garden Center
- Soccer Field
- Music Store
- Bowling Alley
- Coffee Shop
- Spa
- Ice Cream Shop
- Candy Store
- Wine Bar
- Smoke Shop
- Athletics & Sports
- Scenic Lookout
- Boutique
- Liquor Store
- Playground
- Tennis Court
- Surf Spot
- Pizza Place
- Nightlife Spot
- Dessert Shop
- Gym
- Golf Course

Those can be preferable to start in Coax's Bazar.

Discussion

Few types of venues are in Coax's Bazar but the number needs to increase with variety. In terms of restaurant, In Lankawi, there have more than 20 types of restaurants and shop for food lover but Coax's Bazar has three types of restaurants.

Foursquare is a crowdsourcing database. In the context of Coax's Bazar and East Medinipur, both are from a developing country. Because of that, we did not get a specific response like Langkawi. When we catch data of New York or Toronto by Foursquare API, those data are more organized and specific. Because foursquare is a crowed sourced visualization tools, It will obviously depend on the number of users and Under developing countries like Bangladesh didn't get the full potential benefits like the USA, Canada or Malaysia.

Conclusion

After applying Neighborhood data science technology in three-city, we find valuable outcomes. In context to suggest new business opportunities in Coax's Bazar. This project tries to gather data with the same procedure for two-tourist destination East Medinipur (Digha-Mandarmani) and Langkawi. By analyzing the crowed source database, we explore the city is opportunities and visualized them to understand deeply. Finally, we are able to suggest several categories of business can be stub list in cox Bazer. By analyzing the data, we can confirm the existence of those types of Business in other successful tourist attraction; those are similar to the natural aspect.