Exploring the Historical Districts of Istanbul to Create a Historical Travel Planner

1. Introduction

1.1 Background

Istanbul is a major city in Turkey that straddles Europe and Asia across the Bosphorus Strait. Its Old City reflects cultural influences of the many empires that once ruled here. In the Sultanahmet district, the open air , Roman-era Hippodrome was for centuries the site of chariot races, and Egyption obelisks also remain. The iconic Byzantine Hagia Sophia features a soar

1.2 Problem

Travelling to a city as historical and exciting as Istanbul can be overwhelming. Utilizing a planner can maximize valuable time, priotrize must-see historical places and plan for easier and faster traveln between attractions. This project aims to create an efficient travel planner that saves time, includes must-see attractions, and make suggestions for what to see taking into account distance, time and location.

1.3 Interest

Millions of visitors make the pilgrimage to Istanul every year to visit its historical attractions. These visitors would be interested in the results of this project for their visit to Istanbul. Even Istanbul population can find benefits for exploring their hometown or a new arrondissement with the results of our analysis using location data.

2.Data

2.1 Data Source

Venue data pulled from Foursquare's Places API would be used to perform the analysis. To get a reasonable amount of data points, they would be pulled from the search and explore points. Both of these endpoints return data on venues that are within a specified radius of the central location provided.

The search API returns data on venues near a given location. The data returned can be tuned using the category parameter, and this parameter is used to narrow the results to only match venues categorized as Historical.

2.2 Data Cleaning

Most of the data that was provided by the search results was delivery information or redundant location data. The data provided by Foursqures APIs included both the latitude and the longitude of every venue it returned. This was used for creating a map to visualize the density of historical places in the area.

The categories feature was also returned by Foursquare and was used to get the type of the historical place. The name and the addresss of the historical place was also kept to provide the user with more useful information.

3. Methodolgy

I have used python folium to visualize geographic details of Istanbul its historical places and I created a map of Istanbul with historical location superimposed on it. I've used Latitude and Longitude to get the visualise as below.

I utilized the Foursquare API to search for the Historical places and segment them. I made the Blue Mosque as the search centre and the the radius of 50 km around it.

4.Feature Selection

The features returned by Foursquare API has been refined and names, categories, addresses, latitude and longitude of each venue have been kept and re-arranged.
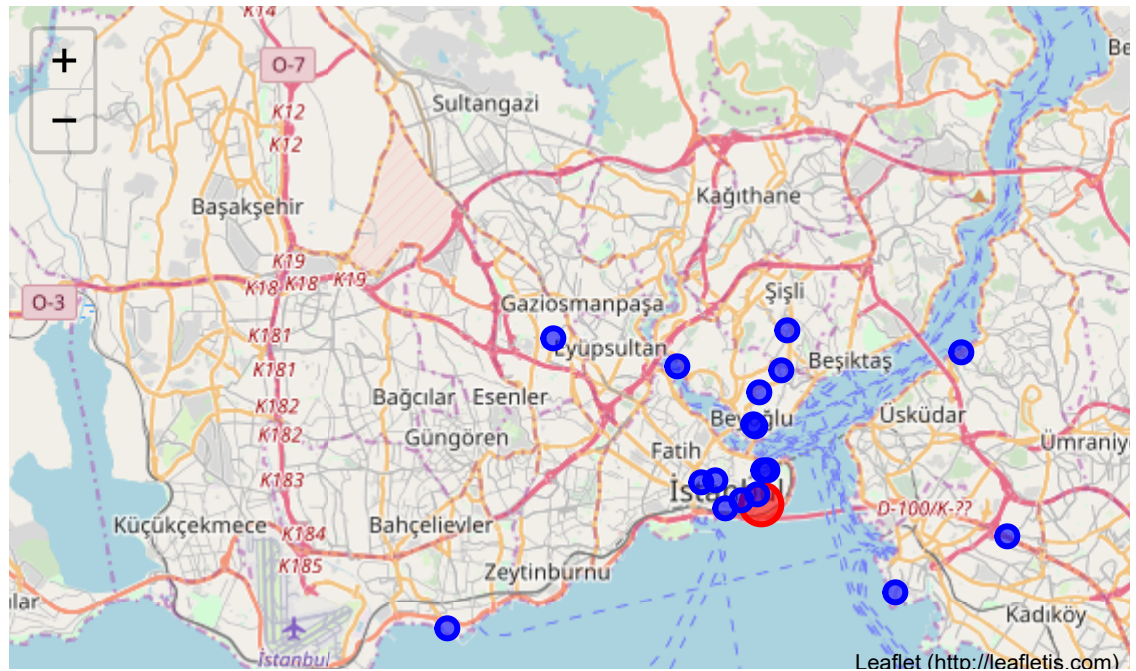
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Out[12]:

	name	categories	address	city	distance	lat	lng
0	Galata Kulesi	Historic Site	Bereketzade Mah. Büyük Hendek Cad. Galata	Beyoğlu	2312	41.025948	28.974301
1	Historical GedikPaşa Bath Turkish Hammam	Spa	NaN	NaN	299	41.007799	28.975671
2	Historical Kumkapı Restaurant	Seafood Restaurant	NaN	İstanbul	1024	41.004365	28.964739
3	Historical Peninsula	Other Great Outdoors	NaN	İstanbul	591	41.006127	28.969930
4	Historic Hamam and Sauna	Well	NaN	NaN	7284	41.044666	29.046116
5	Historical Preffered Hotel	Housing Development	NaN	NaN	1008	41.014194	28.978896
6	Historical Preferred Hotel Old City	Hotel	Nöbethane Cad. No:30 Sirkeci Fatih	İstanbul	1011	41.014333	28.977525
7	Halat by Divan	Restaurant	Rahmi M. Koç Müzesi Hasköy Caddesi No:2 Hasköy...	İstanbul	4666	41.041223	28.948326
8	Historical Vezneciler Turkish Bath	Spa	Bozdogan Kemeri Cad. No. 2	İstanbul	1475	41.011254	28.961208
9	Historical Flat	Residential Building (Apartment / Condo)	NaN	NaN	2232	41.025257	28.974894
10	Historical Martial Arts Association of İstanbu...	Martial Arts Dojo	Caferağa, Moda Cad, No. 250	İstanbul	4642	40.982603	29.023261
11	Historical Roman Arena	Football Stadium	NaN	NaN	7176	40.996810	29.061559
12	Taşhan Historical Bazaar	Shopping Mall	Laleli	İstanbul	1806	41.010798	28.956662
13	Blueway Hotel Hıstorıcal	Residential Building (Apartment / Condo)	NaN	NaN	5073	41.050282	28.986289
14	Nur Hamamı Taksim Tarihi Turk Hamamı Historica...	Bath House	Kamerhatun Mahallesi no 14	Beyoğlu	3259	41.034543	28.976319

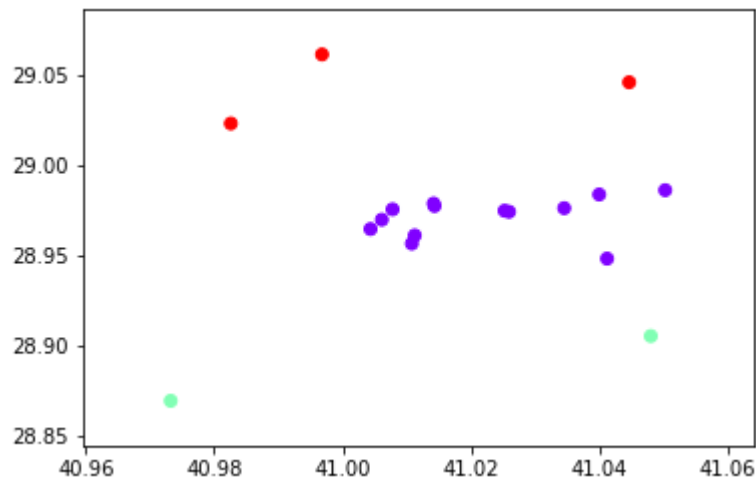|	name	categories	address	city	distance	lat	lng
15	Kervansaray Historical Hotel	Hotel	Kervansaray Historical Hotel Cesme	Cesme	3911	41.039996	28.983892
16	Panorama 1453 Historical Museum	History Museum	NaN	NaN	7662	41.048038	28.905389
17	Mini Historical Bazaar	Souvenir Shop	Ataköy 1. Kısım Mahallesi Rauf Orbay Caddesi N...	İstanbul	9702	40.973236	28.869480

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Out[13]:

5. Model

I decided that the best model to use for my purpose was a cluster. I used the Latitude and Longitude of each venue in the data to create Cluster Groups. I chose to do this because it creates clear distinctions within the data and makes visualising the data simple and understandable.

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Out[21]: <matplotlib.collections.PathCollection at 0x1e4426ec748>

6.Results

Based on the cluster maps the best number of clusters to show the group of the Histoical Places in Istanbul is 3. Thsi is the optimum no of days that can cover visiting all of these 17 Historical places in Istanbul. As a matter of fact the time each vistor spend in each venue also has a governing factor of the number of days he spends to visit all of these places in Istanbul.

7.Conclusion

Here are the tables including the name, category and address of each Historical place which can be visited in Istanbul each day.

Day1

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Out[31]:

	name	categories	address
0	Galata Kulesi	Historic Site	Bereketzade Mah. Büyük Hendek Cad. Galata
1	Historical GedikPaşa Bath Turkish Hammam	Spa	NaN
2	Historical Kumkapı Restaurant	Seafood Restaurant	NaN
3	Historical Peninsula	Other Great Outdoors	NaN
5	Historical Preffered Hotel	Housing Development	NaN
6	Historical Preferred Hotel Old City	Hotel	Nöbethane Cad. No:30 Sirkeci Fatih
7	Halat by Divan	Restaurant	Rahmi M. Koç Müzesi Hasköy Caddesi No:2 Hasköy...
8	Historical Vezneciler Turkish Bath	Spa	Bozdogan Kemeri Cad. No. 2
10	Historical Martial Arts Association of İstanbu...	Martial Arts Dojo	Caferağa, Moda Cad, No. 250
11	Historical Roman Arena	Football Stadium	NaN
13	Blueway Hotel Hıstorıcal	Residential Building (Apartment / Condo)	NaN
14	Nur Hamamı Taksim Tarihi Turk Hamamı Historica...	Bath House	Kamerhatun Mahallesi no 14
15	Kervansaray Historical Hotel	Hotel	Kervansaray Historical Hotel Cesme

Day2

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Out[32]:

	name	categories	address
4	Historic Hamam and Sauna	Well	NaN
9	Historical Flat	Residential Building (Apartment / Condo)	NaN
12	Taşhan Historical Bazaar	Shopping Mall	Laleli

Day 3

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Out[33]:

	name	categories	address
16	Panorama 1453 Historical Museum	History Museum	NaN
17	Mini Historical Bazaar	Souvenir Shop	Ataköy 1. Kısım Mahallesi Rauf Orbay Caddesi N...

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