Final Project

Description of the Data

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Data: NYC Dataset Link: https://geo.nyu.edu/catalog/nyu_2451_34572

	Borough	Neighborhood	Latitude	Longitude
0	Bronx	Wakefield	40.894705	-73.847201
1	Bronx	Co-op City	40.874294	-73.829939
2	Bronx	Eastchester	40.887556	-73.827806
3	Bronx	Fieldston	40.895437	-73.905643
4	Bronx	Riverdale	40.890834	-73.912585

Fig 1 – NYC Dataset

How to use the data to solve the problem?

- Using Geopy to get the geological location by address name.
- Using Foursquare API to get Chinese restaurants' category list of New York City
- Using Foursquare API to get Chinese restaurants' records of New York City
- Using Heatmap to show the density of Chinese restaurants in each neighborhood
- Using Pandas corr() function to get the standard correlation coefficient of different variables in restaurant detail records
- Using K-means Machine Learning algorithm to cluster the restaurant data

And the Data get by Foursquare API is as following:

	Venue Id	Name	Rating	Price	Likes	Photos	Tips
0	4dabc3dc93a04642f09ccabd	Xing Lung Chinese Restaurant	7.0	1.0	6	0	0
1	4b9d6b45f964a52078ab36e3	Mr. Q's Chinese Restaurant	7.7	1.0	9	11	10
2	4e4d0387bd413c4cc66dfd72	Hung Hing Chinese Restaurant	6.0	1.0	5	1	2
3	4e2e08021838f1c552b6b8eb	Choi Yuan - Chinese Restaurant	6.3	1.0	6	4	8
4	566f33e7498e44c2501bda81	Panda Express	7.6	1.0	12	14	2
5	4bbe0e0407809521db5bdb91	Green Dragon	7.6	2.0	10	16	7
6	4b89b62df964a520ff4c32e3	Sabor Latino Seafood Restaurant	7.0	2.0	5	12	8
7	4c28cca7ed0ac9b6b2c160aa	New China	6.5	1.0	2	3	4
8	4ca4fda4d971b1f77da5f2e0	Golden Phoenix Chinese Restaurant	5.7	1.0	4	1	1
9	4d9a695ee5fd6ea8e3096df5	Lucky House Chinese Restaurant	7.4	1.0	5	0	2

Fig 2 – Chinese Restaurants Details Record in NYC

	Venue Id	Rating	Price	Likes	Photos	Tips	Borough	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	4dabc3dc93a04642f09ccabd	7.0	1.0	6	0	0	Bronx	Eastchester	40.887556	-73.827806	Xing Lung Chinese Restaurant	40.889785	-73.831226	Chinese Restaurant
1	4b9d6b45f964a52078ab36e3	7.7	1.0	9	11	10	Bronx	Pelham Parkway	40.857413	-73.854756	Mr. Q's Chinese Restaurant	40.855790	-73.855455	Chinese Restaurant
2	4e4d0387bd413c4cc66dfd72	6.0	1.0	5	1	2	Bronx	Bedford Park	40.870185	-73.885512	Hung Hing Chinese Restaurant	40.871181	-73.886738	Chinese Restaurant
3	4e2e08021838f1c552b6b8eb	6.3	1.0	6	4	8	Bronx	Bedford Park	40.870185	-73.885512	Choi Yuan - Chinese Restaurant	40.873078	-73.889086	Chinese Restaurant
4	566f33e7498e44c2501bda81	7.6	1.0	12	14	2	Bronx	Fordham	40.863997	-73.896427	Panda Express	40.863001	-73.900894	Chinese Restaurant

Fig 3 – Chinese Restaurants grouped by Neighborhood