Contents

Business Problem

New York City has probably the most competitive restaurant industry. With millions of tourists flocking to the big apple each year, apart from historical sites, the varied cuisines are equally an attraction. However, knowing the stiff competition, smart decisions need to be made to start a restaurant business that draws in clientele and makes a profit.

This analysis focuses on the following aspects of solving for a business case:

1. Which cuisines are prevalent in NYC?
2. Which cuisines are relatively absent in NYC?
3. Where is cuisine absenteeism seen the most?
4. Which sensible selections could be made as cuisines of choice for the business?
5. Which sensible boroughs of NYC could be chosen as target locations?

Data

NYC open source data is obtained from data.ny.gov.

The data is downloaded dynamically in the csv format and converted into a dataframe.

This data consists of the following relevant columns

1. DBA = restaurant name
2. ZIPCODE = location zip
3. Latitude
4. Longitude
5. CUISINE DESCRIPTION = tags the type of food served
6. Several other columns not necessarily relevant for this analysis

Issues

The Foursquare API was not used in this work because of the "Quota error". As a result a more open source data set as the one described above is used which does not have any quota issues for developers.

Methodology

A detailed stepwise process with related outcomes is explained in this section.

1. Necessary libraries are installed and/or imported
2. Data capture
   i. Data is obtained from the open source NYC government website using 'https://data.ny.gov/api/views/43nn-pn8j/rows.csv?accessType=DOWNLOAD&sorting=true'
   ii. This is converted to a pandas dataframe for further manipulation.
3. Cleaning
   i. The dataframe is assessed for non-existent borough names and these rows are removed
   ii. Rows with NaN values are removed that would typically be present in the Latitude/Longitude columns
   iii. Rows with no tag for the cuisines in the column CUISINE DESCRIPTION are also removed
4. EDA
   i. This step explores the counts of the restaurants per NYC borough by the cuisine descriptor
   ii. To look for a business opportunity, we focus on the lowest counts that indicates there's a shortage
   iii. Further, we look for non-specialty and specialty cuisines to focus on a handful of targets
5. Mapping
   i. General maps are made for NYC
   ii. Maps with selected cuisine types are also made
6. Observations and actionable insights

Results

Lowest counts of cuisines across NYC

The table below shows the lowest 25 cuisine types.

CUISINE	COUNT	Tag
Basque	7	Specialty
Chilean	34	Specialty
Czech	43	Specialty
Nuts/Confectionary	43	Non-specialty
Iranian	66	Specialty
Scandinavian	76	Specialty
Southwestern	80	Specialty
Fruits/Vegetables	82	Non-specialty
Cajun	86	Specialty
Californian	93	Non-specialty
Indonesian	121	Specialty
Soups	124	Non-specialty
Creole/Cajun	150	Specialty
Hotdogs	177	Fast Food
Portuguese	178	Specialty
Moroccan	182	Specialty
Egyptian	191	Specialty
Afghan	207	Specialty
Pancakes/Waffles	227	Specialty
Ethiopian	236	Specialty
English	244	Specialty
Hotdogs/Pretzels	305	Fast Food
Armenian	320	Specialty
Australian	431	Specialty
German	448	Specialty

Three cuisines are highlighted in red as they seem to be viable options with a relatively low number of existing establishments.
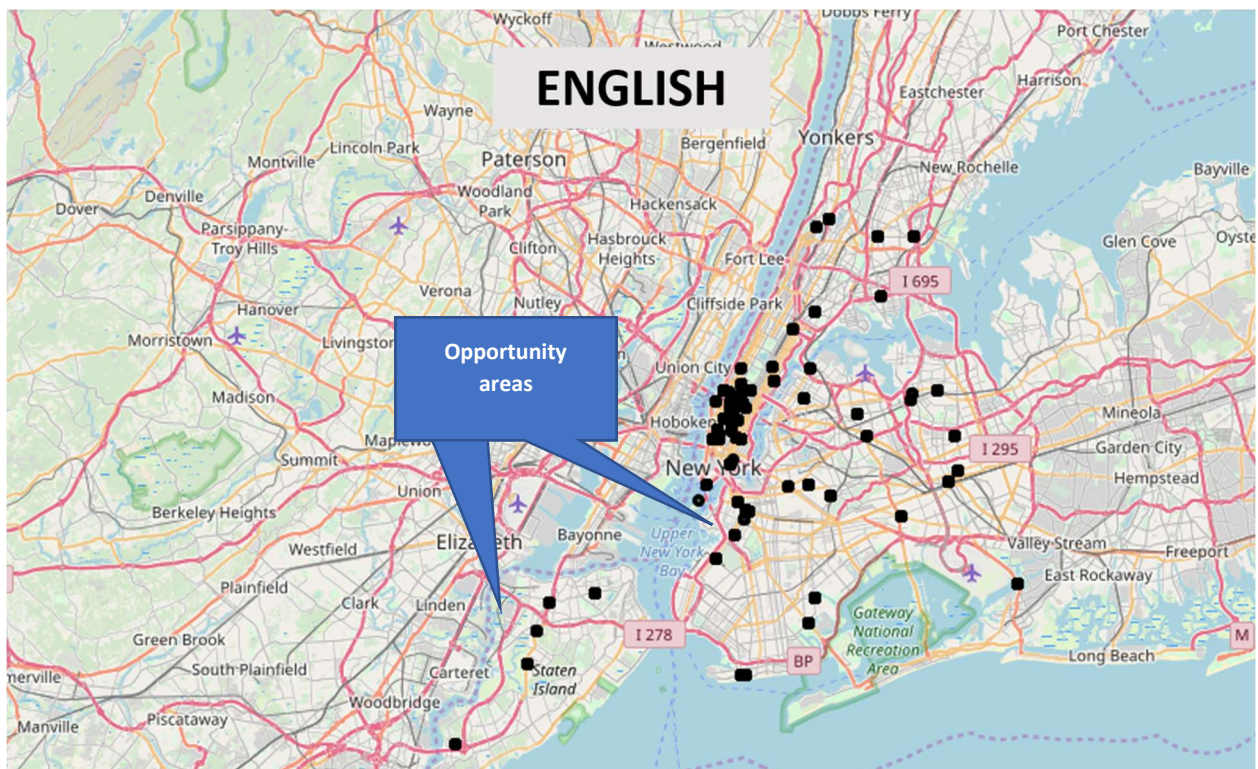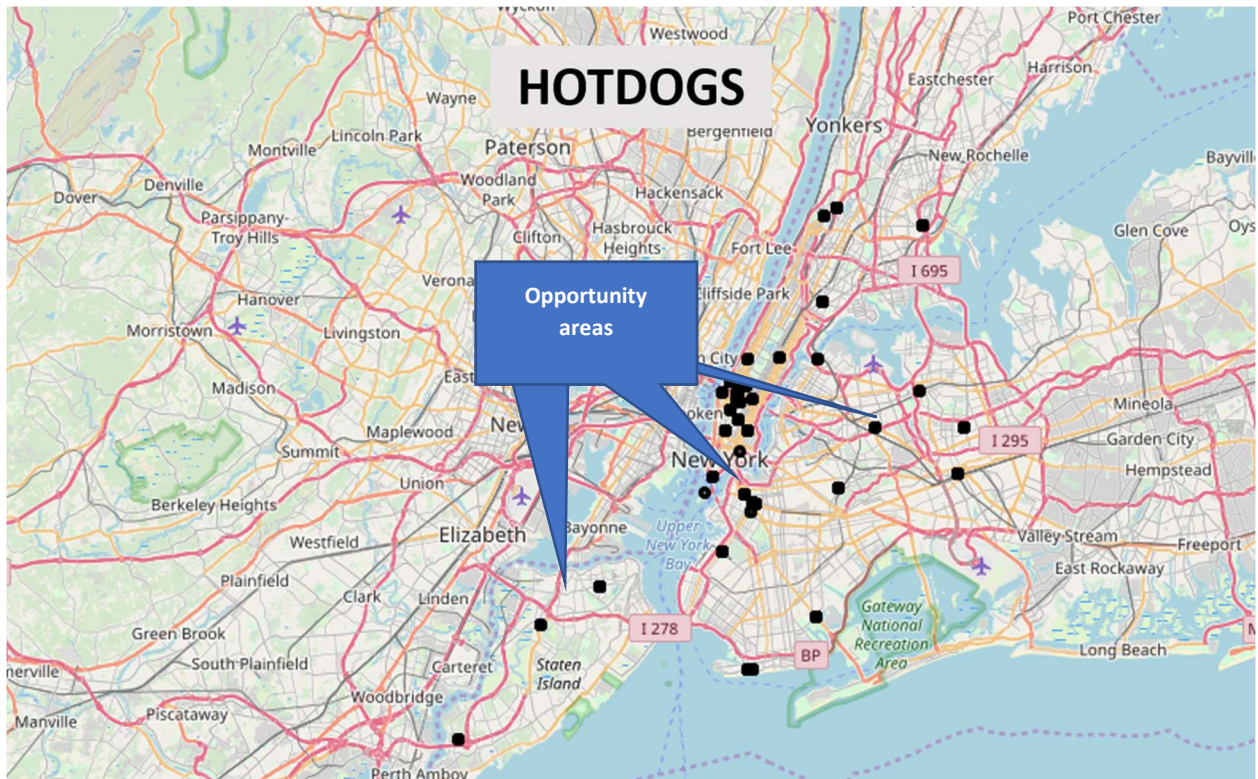
Lowest counts of cuisines per borough

The table below further details the cuisine counts per borough which were highlighted earlier to have a relatively low overall presence.
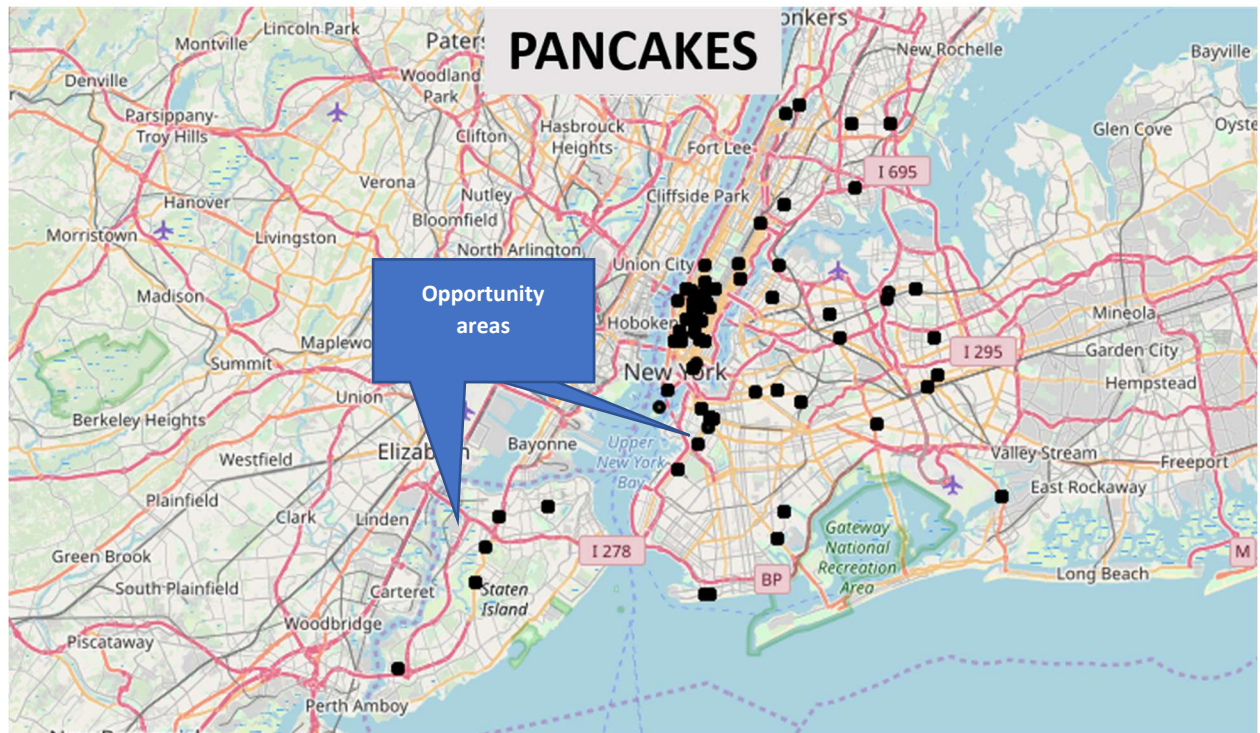
BOROUGH	CUISINE DESCRIPTION	COUNT
Bronx	Pakistani	3
Bronx	Hotdogs	4
Brooklyn	English	4
Bronx	Vegetarian	5
Manhattan	Creole/Cajun	6
Bronx	Armenian	7
Manhattan	Basque	7
Queens	Fruits/Vegetables	7
Staten Island	Continental	7
Staten Island	Tapas	7
Bronx	Czech	8
Staten Island	Soups & Sandwiches	8
Queens	Hotdogs	9
Brooklyn	Scandinavian	10
Queens	Cajun	12
Bronx	French	13
Staten Island	African	14
Brooklyn	Californian	15
Brooklyn	Nuts/Confectionary	15
Queens	Australian	16
Staten Island	Chinese/Japanese	16
Staten Island	Pancakes/Waffles	16
Brooklyn	Indonesian	17
Queens	Czech	17
Staten Island	Cajun	17
Staten Island	Steak	17
Brooklyn	Czech	18
Brooklyn	Fruits/Vegetables	18
Brooklyn	Filipino	19
Queens	English	19
Queens	Iranian	19
Queens	Moroccan	19
Staten Island	Vietnamese/Cambodian/Malaysia	21
Brooklyn	Soups	22
Manhattan	Creole	22
Manhattan	Southwestern	22
Staten Island	Hotdogs/Pretzels	24
Bronx	Eastern European	27
Bronx	Pancakes/Waffles	28
Bronx	Soups & Sandwiches	28

Here the lack of Hotdogs serving restaurants is further evident.

Mapping

Below are maps with the existing restaurants as indicated by the label.

Observations and Actionable Insights

Based on the analysis and mapping, the following insights could be derived.

1. There is a relative lack of restaurants across NYC for the following cuisines
   a. Hotdogs
   b. English food
   c. Pancakes
2. Based on visual mapping, the following observations could be made
   a. Staten Island is a clear opportunity as establishments there are few and sparse
   b. The area of Brooklyn closer to Manhattan is another opportunity with relatively low number of restaurants
   c. Further, a similar low density exists near both of NYC's major airports namely JFK and LGA