

The background is a gradient of green and blue, transitioning from a lighter green at the top to a darker blue at the bottom. On the left side, there are several circular patterns, including a large scale with numbers ranging from 140 to 260. The scale is a semi-circle with tick marks and numbers. There are also smaller circles and arcs, some with arrows, scattered across the background. The overall aesthetic is technical and data-oriented.

MANHATTAN JUICE BAR

IBM DATA SCIENCE CAPSTONE PROJECT

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INTRODUCTION

- Health & Wellness Industry is \$4.2 Trillion
- Nutrition segment is \$702 Billion
- Strong co-relation between healthy habits

PROJECT OBJECTIVES

Provide optimal location information for healthy food providers in Manhattan by analyzing locations of fitness centers, existing juice bars and synergistic businesses.

DATA

Data needed:

1. Locations of Fitness Centers
2. Locations of Existing Juice Bars
3. Locations of Existing Health and Wellness Markets

Sources:

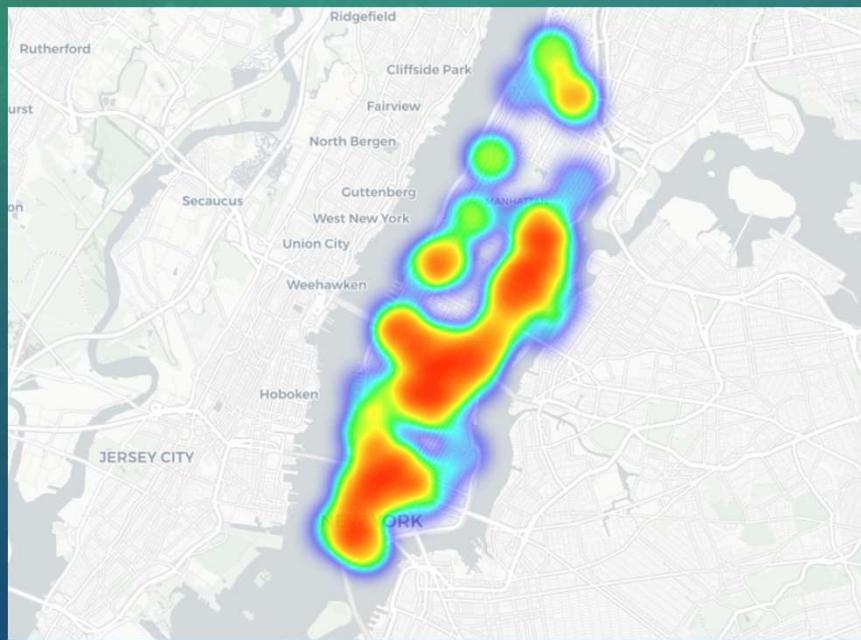
1. NYU Spatial Data Repository - 2014 New York City data
2. Foursquare API – Business/ Landmark location

METHODOLOGY

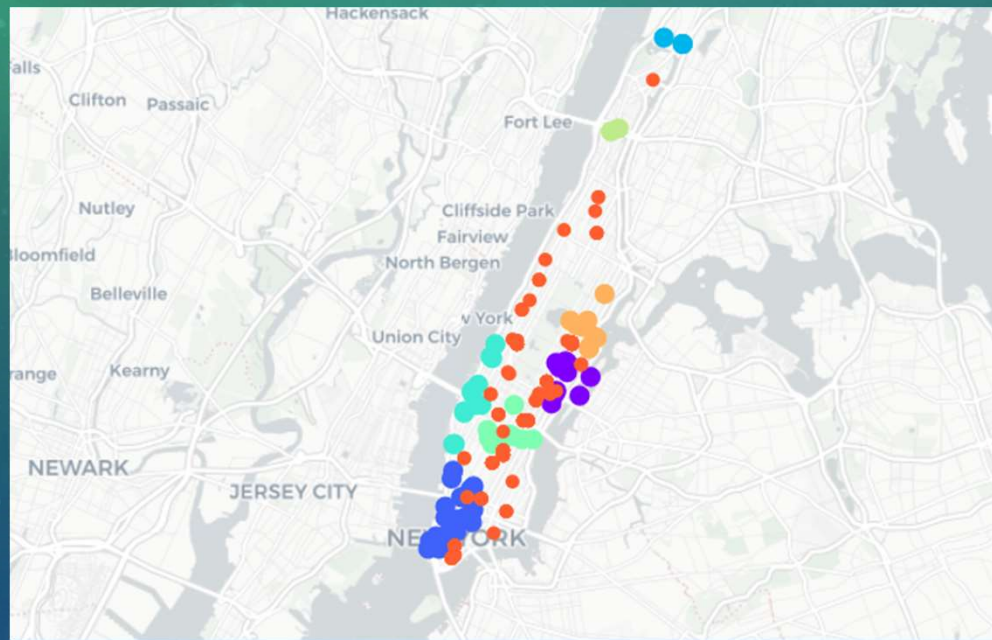
Data was analyzed in 4 steps:

1. The location data of the fitness centers in Manhattan was extracted and visualized using a heat map. The red zones broadly indicate the potential locations of the juice bars.
2. The location data of existing juice bars was extracted. This data was collated against nearby fitness centers to determine which fitness centers should be excluded from the analysis.
3. K-means Clustering algorithm was used to cluster the fitness centers and refine the potential locations.
4. The location data of synergistic businesses was then extracted. This data was then analyzed to see if they are close to the potential locations as determined from the clustering step above.

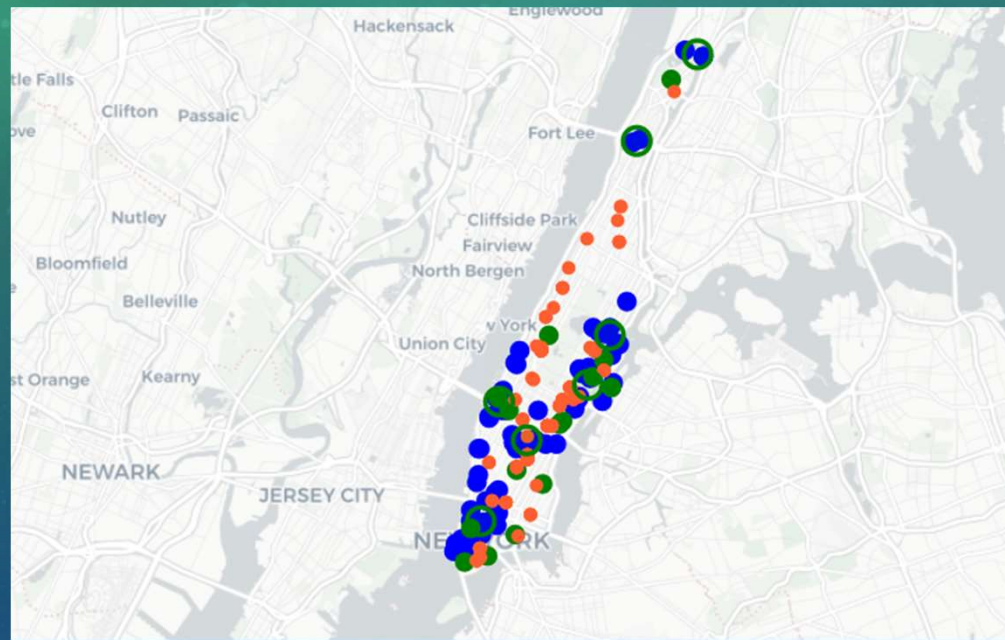
HEAT MAP OF FITNESS CENTERS



MAP OF FITNESS CENTER CLUSTERS



MAP OF POTENTIAL LOCATIONS



RESULTS – 1/3

1. Lenox Hill, Clinton, Civic Center - Clusters 0,1,2

Clear targets:

	Neighborhood	Market Name	Market Latitude	Market Longitude	Distance to Cluster Center
Cluster Label					
0	Lenox Hill	A Matter of Health	40.768028	-73.955933	359.929642
1	Clinton	Sunac Natural Food	40.760725	-73.998425	130.053516
1	Clinton	Terra Market	40.756864	-73.993737	472.221335
2	Civic Center	Tribeca Greenmarket	40.716802	-74.010880	456.535864

RESULTS – 2/3

2. Carnegie Hill - Cluster 6

Carnegie Hill has a good concentration of fitness centers and there are no competing juice bars near the cluster center. However, this location may need significant investment to setup a physical location near the cluster center as there are no existing synergistic businesses that can be leveraged. More cost-benefits analysis need to be performed to proceed.

3. Marble Hill, Washington Heights - Cluster 3,5

The concentration of fitness centers is really low in these neighborhoods therefore may not justify the capital required to setup a juice bar. There is a possibility to serve these clusters from a central location with a synergistic business: Inwood Farmers Market, Inwood, NY. However, there could be competition from a nearby juice bar in Inwood.

RESULTS – 3/3

4. Midtown South - Cluster 4

Midtown South has a good number of fitness centers however there is competition and no compatible businesses. This should be the last target.

DISCUSSION

Need to be mindful of the following items for recommendations to be relevant:

- Data quality and recency
- Assumptions
- Constraints

CONCLUSION

The objectives of the project have been achieved

