Best Locations in London, New York and Melbourne for Goila Butter Chicken's Cloud Kitchen

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Walkthrough of Analysis and Findings for London

Business Problem

- The location of any kind of restaurant is crucial to its success.

- In the cloud kitchen model however, the location doesn't have to do anything with footfalls, customer service, parking space or high-end sites, but should be purely chosen based on the customer demography and where there is a high demand for the food being offered.

- GBC wants to go global, has already launched its operations in London and is now looking to open 25 kitchens by 2021-end, and 100 by 2023-end. It also plans to launch in several new Indian cities, and in Dubai, New York, Melbourne as well.

- We aim to recommend few suitable locations in London, New York, and Melbourne for GBC to open its cloud kitchen by clustering and exploring the neighborhoods in each city.
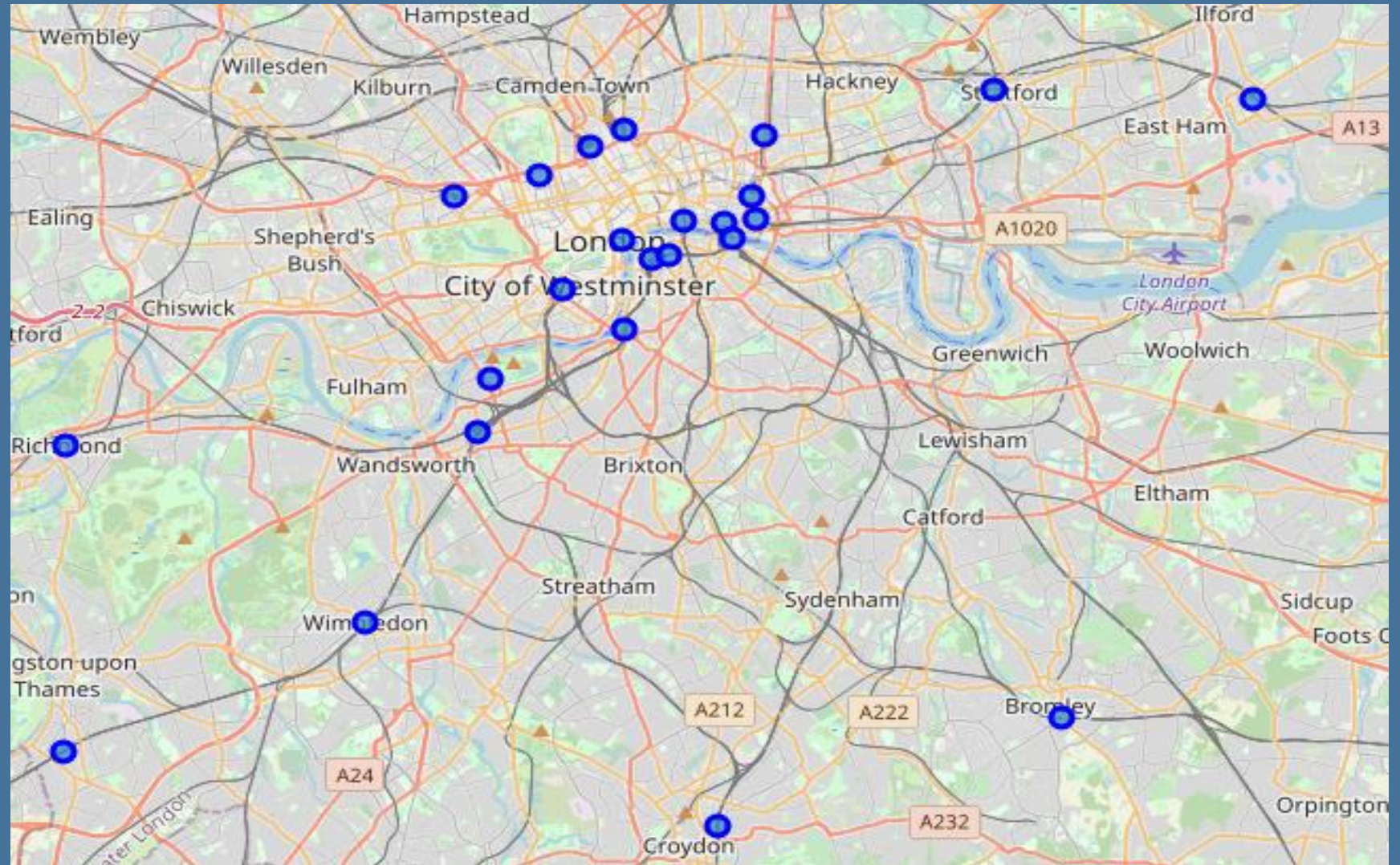
Data Acquisition

- List of neighborhoods in London, represented by underground station names and scraped from https://en.wikipedia.org/wiki/List_of_London_railway_stations.
  Stations in categories A and B were selected for analysis.

- List of neighborhoods in New York City, loaded using JSON file with list of boroughs and neighborhoods

- List of neighborhoods in Melbourne City, scraped from https://en.wikipedia.org/wiki/List_of_Melbourne_suburbs

- Geographical coordinates (Latitude and Longitude) of neighborhoods found above for 3 cities
  New York JSON file already provides the coordinates.
  Coordinates for London Stations and Melbourne Suburbs is obtained from https://nominatim.openstreetmap.org/ , by passing each neighborhood's name in the search query.

Visualizing London Neighborhoods

24 out of total 369 London underground stations in categories A and B

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['Barking',
 'Blackfriars',
 'Bromley South',
 'Cannon Street',
 'Charing Cross',
 'Clapham Junction',
 'East Croydon',
 'Euston',
 'Fenchurch Street',
 "King's Cross",
 'Liverpool Street',
 'London Bridge',
 'Marylebone',
 'Paddington',
 'Richmond',
 'Shenfield',
 'Stratford',
 'Surbiton',
 'Vauxhall',
 'Victoria',
 'Waterloo',
 'Waterloo East',
 'Watford Junction',
 'Wimbledon']
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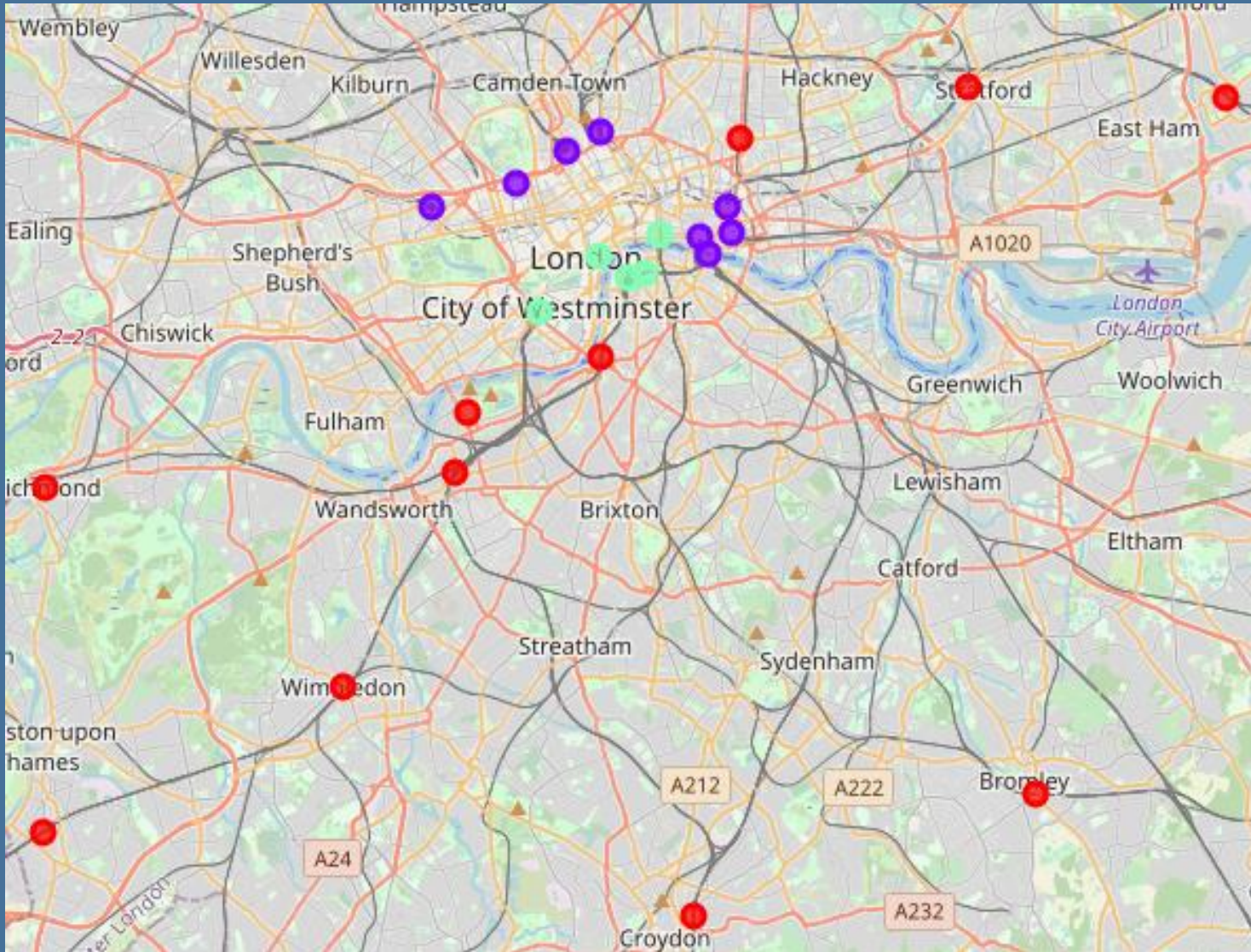
Neighborhood Venues and Venue Categories

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Barking	51.538992	0.080424	Barking Abbey	51.535352	0.076054	Park
1	Barking	51.538992	0.080424	Barking Park	51.545217	0.086134	Park
2	Barking	51.538992	0.080424	Cristina's	51.536523	0.076672	Steakhouse
3	Barking	51.538992	0.080424	The Gym London Barking	51.536193	0.078601	Gym
4	Barking	51.538992	0.080424	Nando's	51.539780	0.082297	Portuguese Restaurant

- Using Foursquare API, extracted venues in the radius of 2 kms, around the neighborhood centers (provided by their coordinates)

- Found 2316 different venues, belonging to 233 unique venue categories.

- All neighborhoods except Barking and Bromley South, have 100+ venue categories.

Visualizing Clustered Neighborhoods

Neighborhoods divided into 3 clusters based on venue categories

Cluster 0 (Red Circles):

Outer Neighborhoods (furthest from center) with pubs and cafes.

Cluster 1 (Purple Circles):

Inner Neighborhoods (closer to center) with Hotels, Coffee Shops, Cocktail Bars plus a variety of Restaurants. It seems to offer a lot of variety and lot of things to do attracting people from all walks of life.

Cluster 2 (Blue Circles):

Innermost Neighborhoods (closest to center) with Theaters, Hotels and Art Galleries and Museums. It seems to be the cultural and artistic center of London.

Top 10 Most Common Venue Categories in Cluster 1

Cluster	Latitude	Longitude	Neighborhood	Most Common Venue 1	Most Common Venue 2	Most Common Venue 3	Most Common Venue 4	Most Common Venue 5	Most Common Venue 6	Most Common Venue 7	Most Common Venue 8	Most Common Venue 9	Most Common Venue 10
1	51.511381	-0.090363	Cannon Street	Hotel	Coffee Shop	Cocktail Bar	Theater	Scenic Lookout	Grocery Store	Pizza Place	Gym / Fitness Center	Castle	Wine Bar
1	51.528287	-0.133875	Euston	Hotel	Coffee Shop	Bookstore	Theater	Cocktail Bar	Bakery	Beer Bar	Tapas Restaurant	Zoo Exhibit	Wine Bar
1	51.512054	-0.080184	Fenchurch Street	Coffee Shop	Hotel	Cocktail Bar	Scenic Lookout	Italian Restaurant	Restaurant	Steakhouse	Pizza Place	Pub	French Restaurant
1	51.532395	-0.123022	King's Cross	Coffee Shop	Hotel	Bookstore	Café	Breakfast Spot	Middle Eastern Restaurant	Bakery	Canal	Pub	Cocktail Bar
1	51.517134	-0.081643	Liverpool Street	Hotel	Coffee Shop	Cocktail Bar	Gym / Fitness Center	Steakhouse	Food Truck	Pizza Place	Beer Bar	French Restaurant	Bagel Shop
1	51.508049	-0.087672	London Bridge	Coffee Shop	Hotel	Cocktail Bar	Scenic Lookout	Italian Restaurant	Grocery Store	Steakhouse	Seafood Restaurant	Restaurant	Café
1	51.522059	-0.150455	Marylebone	Hotel	Coffee Shop	Juice Bar	Art Gallery	Clothing Store	Modern European Restaurant	Indian Restaurant	Hotel Bar	Cocktail Bar	Bakery
1	51.517086	-0.177542	Paddington	Hotel	Café	Pub	Garden	Gym / Fitness Center	Restaurant	Coffee Shop	Persian Restaurant	Juice Bar	Gastropub

Top Neighborhoods with Indian Restaurants

Neighborhoods with Indian Restaurants amongst Top 10 venues

Cluster	Latitude	Longitude	Neighborhood	Most Common Venue 1	Most Common Venue 2	Most Common Venue 3	Most Common Venue 4	Most Common Venue 5	Most Common Venue 6	Most Common Venue 7	Most Common Venue 8	Most Common Venue 9	Most Common Venue 10
0	51.400041	0.018277	Bromley South	Pub	Coffee Shop	Pizza Place	Clothing Store	Indian Restaurant	Park	Gym / Fitness Center	Supermarket	Café	Electronics Store
0	51.375845	-0.092732	East Croydon	Pub	Coffee Shop	Grocery Store	Park	Clothing Store	Mediterranean Restaurant	Fast Food Restaurant	Café	Italian Restaurant	Indian Restaurant
1	51.522059	-0.150455	Marylebone	Hotel	Coffee Shop	Juice Bar	Art Gallery	Clothing Store	Modern European Restaurant	Indian Restaurant	Hotel Bar	Cocktail Bar	Bakery
2	51.496369	-0.143152	Victoria	Hotel	Japanese Restaurant	Lounge	Café	Indian Restaurant	Plaza	Department Store	Boutique	French Restaurant	Park

Top 5 Neighborhoods with Indian Restaurants

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East Croydon      5
Victoria          4
Bromley South     3
Marylebone        3
Waterloo          2
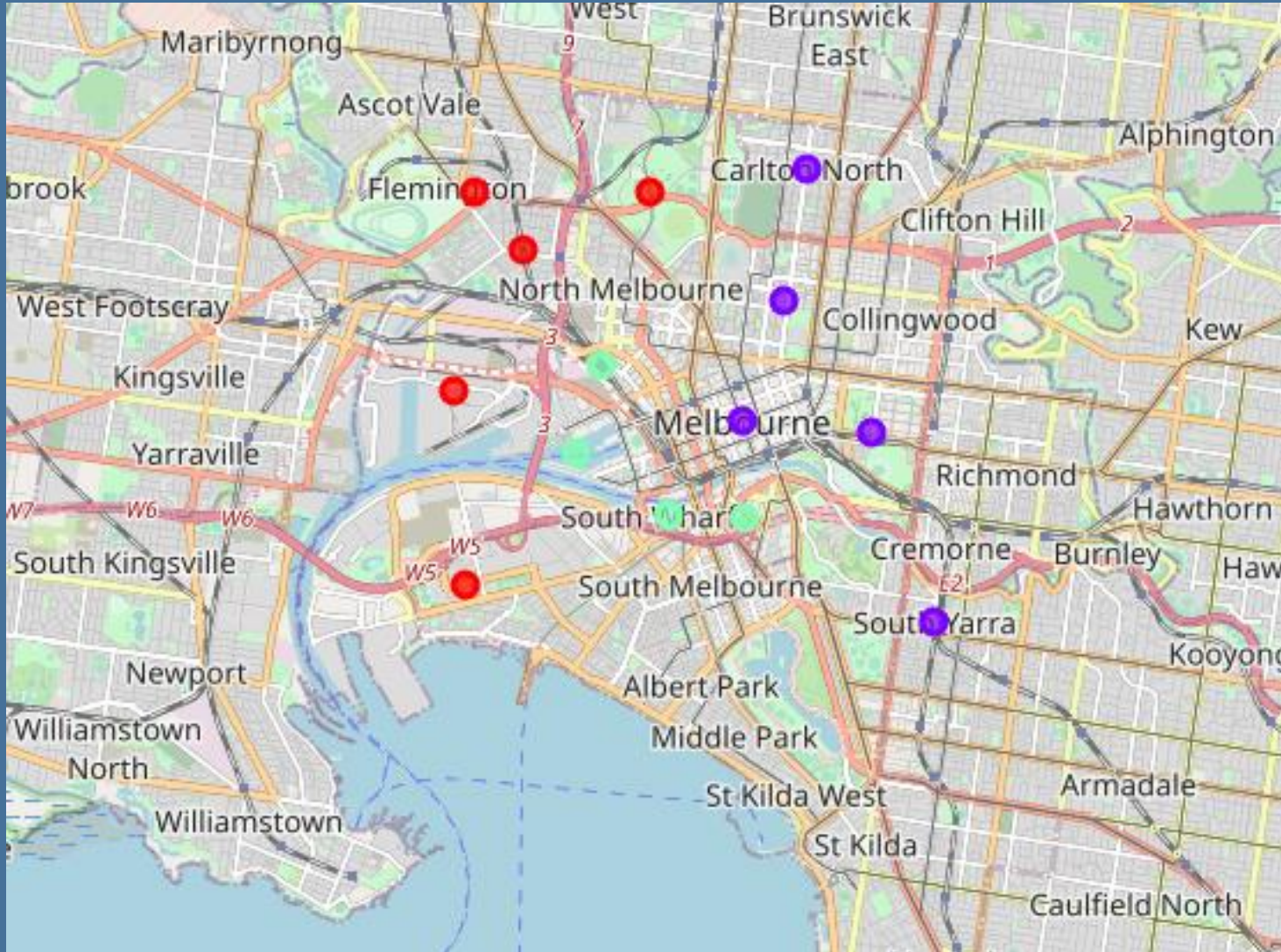```

# Observations and Recommendation for London

- Based on cluster analysis, we find Cluster 1 to be most suitable

- Top 5 neighborhoods with Indian Restaurants are East Croydon, Victoria, Bromley South, Charing Cross, Marylebone.

- We also found that among above East Croydon, Victoria, Bromley South, Marylebone also have Indian Restaurant amongst their top 10 venues. Out of these, Marylebone falls under Cluster 1.

- Having Indian Restaurants featuring in Top 10 venues, would also mean that these areas would have a good amount of Indian or Indian origin population, which fits our target audience as well.

- Looking at the map, East Croydon and Bromley South are far down south, so we would exclude these.

Based on these observations, we would recommend **Marylebone** *or* **Victoria** as the location for opening our new 'Goila Butter Chicken' Cloud Kitchen.

# Summary of Findings for Melbourne

# Visualizing Clustered Neighborhoods

Neighborhoods divided into 3 clusters based on venue categories



*Cluster 0  (Red Circles):*

Neighborhoods to the west of center with Cafes and Fast Food joints. Also, markets, stores, gyms, parks.

*Cluster 1 (Purple Circles):*

Neighborhoods to the east of center with Cafes, Coffee Shops, Bars and Restaurants. Seem to offer lots of wine and dine options. Also has City Centre in it.

*Cluster 2  (Blue Circles):*

Neighborhoods near to center with Cafes, Coffee Shops and lots of Asian Restaurants.

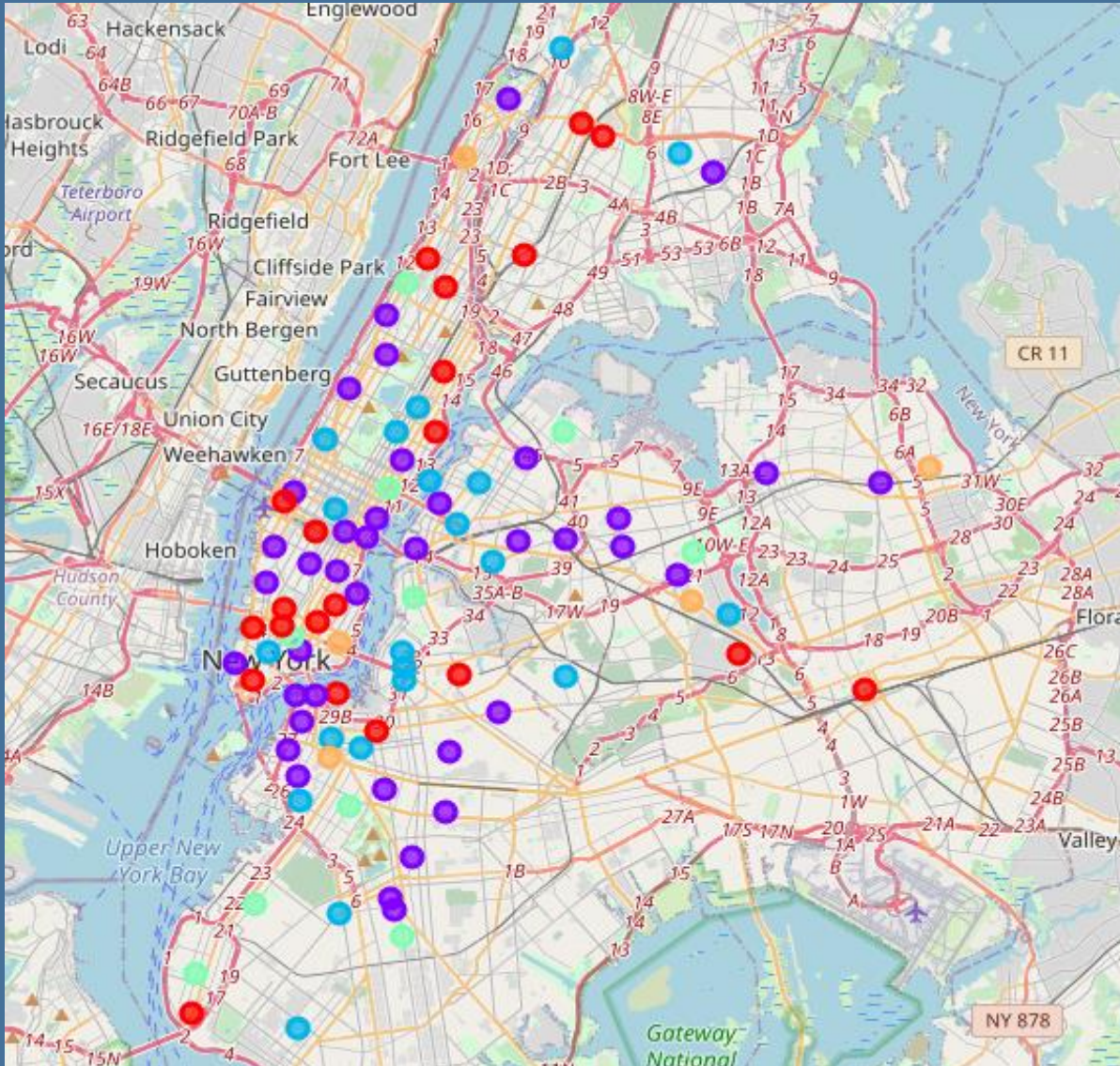# Observations and Recommendation for Melbourne

- We found 14 neighborhoods within main city of Melbourne. These neighborhoods have 2423 venues, belonging to 244 unique venue categories.

- It was difficult to zero in on any one cluster as all seem to have great neighborhoods offering variety of options. But looking at the map, neighborhoods - Kensington, Carlton, North Melbourne, East Melbourne and Docklands seem to be good choices

- Top 5 neighborhoods with Indian Restaurants were Carlton North, East Melbourne, Docklands, North Melbourne, Parkville.

- None of the neighborhoods had any Indian Restaurant in their top 10 venues.

- Looking at the map, we also noticed that Carlton could service both Carlton North and East Melbourne areas. Similarly, North Melbourne and Docklands can service areas towards west and south.

Based on these observations, we could recommend **Carlton, North Melbourne** or **Docklands** as the location for opening our new 'Goila Butter Chicken' Cloud Kitchen.

# Summary of Findings for New York

# Visualizing Clustered Neighborhoods

Neighborhoods divided into 5 clusters based on venue categories



*Cluster 0  (Red Circles):*

Mostly neighborhoods in Manhattan

*Cluster 1 (Purple Circles):*

Mix of neighborhoods in Manhattan, Queens, Brooklyn

*Cluster 2  (Dark Blue Circles):*

Mostly neighborhoods in Brooklyn

These 3 clusters were found to have most number of venues and all have good mix of restaurants and other categories.

# Observations and Recommendation for New York

- We found 5 boroughs with 306 neighborhoods. These neighborhoods have 20528 venues, with 485 unique venue categories.

- Filtered for neighborhoods with more than 100 venues. Left with 98 neighborhoods with 9964 venues (which still accounted for ~50% of venues)

- Top 10 neighborhoods with Indian Restaurants are Woodside, Jackson Heights, Sutton Place, Jamaica Center, Long Island City, Astoria, Yorkville, Queensbridge, Gramercy, Manhattan Valley.

- 8 places among above - Yorkville, Manhattan Valley, Gramercy, Astoria, Woodside, Jackson Heights, Jamaica Center, Sutton Place also have Indian Restaurants amongst their top 10 venues, and these neighborhoods fall in either Manhattan or Queens

Based on these observations, we can recommend any of the 8 neighborhoods – *Yorkville, Manhattan Valley, Gramercy, Astoria, Woodside, Jackson Heights, Jamaica Center, Sutton Place* – in **Manhattan** or **Queens** for opening our new 'Goila Butter Chicken' Cloud Kitchen.