

Using trends in NYC to determine new business opportunities:

Finding cities similar to NYC that don't yet have certain venues that are popular in NYC

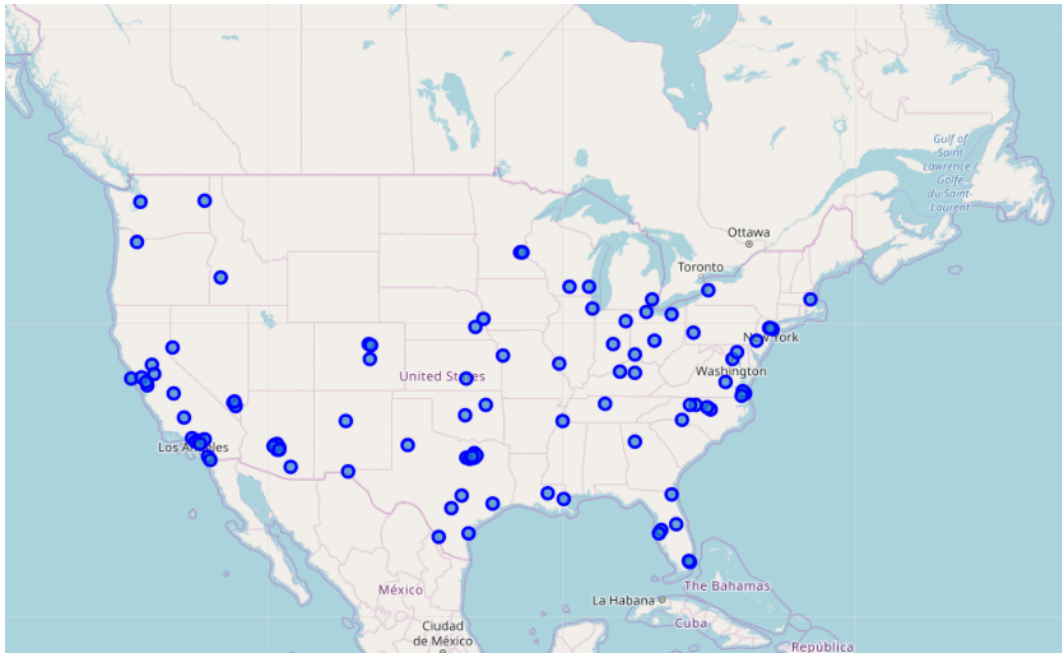
Assumptions:

- 1) NYC is a trend setting city. Businesses and venues that are popular there often become popular in other US cities later.
- 2) Cities that are similar to NYC, in terms of existing venues, will be more likely to pick up on popular NYC business trends
- 3) Predicting what new businesses will be popular in what cities would be beneficial when deciding where to open a new venue

Data used:

- Top 100 most populous cities in the US and their latitudes and longitudes (Wikipedia)
- The top ten most popular venues within 50 km from the city center were determined for each city (Foursquare)
- Cities were grouped by k-means clustering based on venue similarity (Foursquare)
- Cities in the NYC cluster had some venues in common with NYC but many NYC venues were not found in those cities (Foursquare)
- From these lists, the city of San Francisco was chosen to open a new Italian restaurant (Foursquare)
- We found that sushi restaurants were most highly correlated with Italian restaurants in NYC. So we found the neighborhood with the most popular sushi restaurants in San Francisco to place our new business. (Foursquare)

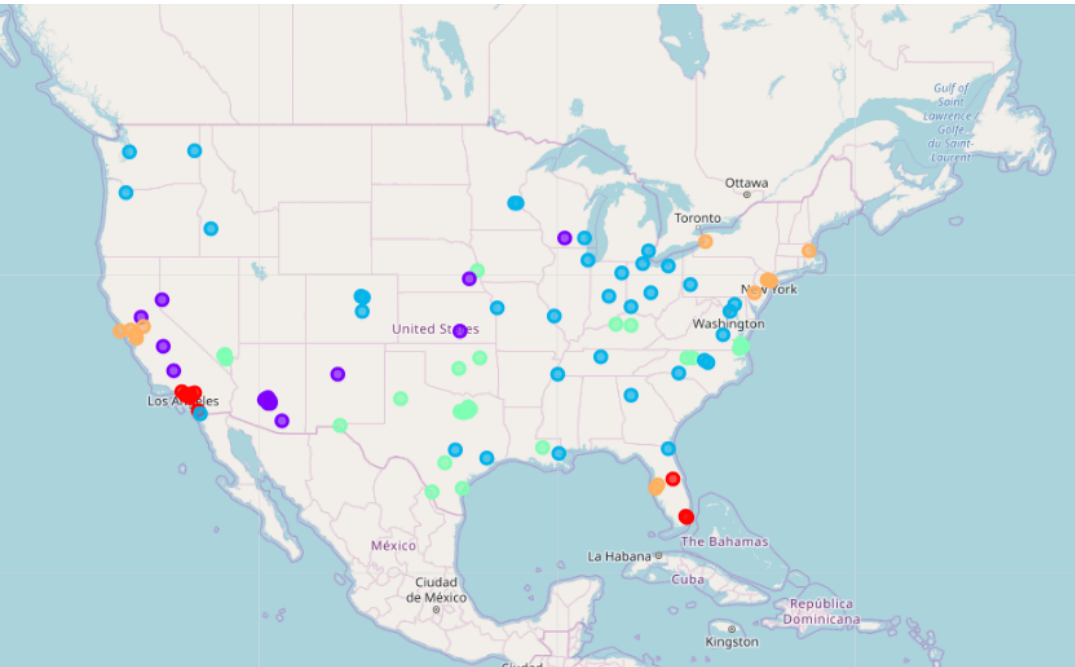
Top 100 most populated US cities and their locations



Sample from US cities list

City	Latitude	Longitude
New York[d]	40.6635	-73.9387
Los Angeles	34.0194	-118.4108
Chicago	41.8376	-87.6818
Houston[3]	29.7866	-95.3909
Phoenix	33.5722	-112.0901
Philadelphia[e]	40.0094	-75.1333
San Antonio	29.4724	-98.5251
San Diego	32.8153	-117.1350
Dallas	32.7933	-96.7665
San Jose	37.2967	-121.8189

K-means clustering of cities based on venue similarity



- Interesting features from the clustering:
- Orange cluster seems confined to coastal cities, includes NYC and San Francisco
 - Light green cluster contains mostly southern cities
 - Purple cluster is mostly midwestern and western with no cities on the east coast

City	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
New York[d]	40.6635	-73.9387	4	Park	Bookstore	Italian Restaurant	Yoga Studio	Theater	Wine Shop	Brewery	Indie Movie Theater	Ice Cream Shop	Garden
Philadelphia[e]	40.0094	-75.1333	4	Park	Brewery	Coffee Shop	Deli / Bodega	Café	Concert Hall	Pizza Place	Trail	Art Museum	Gym
San Jose	37.2967	-121.8189	4	Park	Trail	Beach	State / Provincial Park	Coffee Shop	Bakery	Yoga Studio	Climbing Gym	Wine Shop	Movie Theater
San Francisco[g]	37.7272	-123.0322	4	Park	Beach	Scenic Lookout	Trail	Bookstore	Bakery	Historic Site	Yoga Studio	Ice Cream Shop	Nature Preserve
Boston	42.3320	-71.0202	4	Park	Bakery	Brewery	Seafood Restaurant	Sandwich Place	Indie Movie Theater	Wine Shop	Gym	Mexican Restaurant	Hotel
Oakland	37.7698	-122.2257	4	Park	Yoga Studio	Coffee Shop	Trail	Brewery	Art Museum	Wine Shop	Bakery	Movie Theater	Café
Tampa	27.9701	-82.4797	4	Park	Scenic Lookout	Pizza Place	Convenience Store	American Restaurant	Theme Park Ride / Attraction	Ice Cream Shop	New American Restaurant	Wine Shop	Beer Garden
Stockton	37.9763	-121.3133	4	Park	Trail	Music Venue	Brewery	Coffee Shop	Grocery Store	Burger Joint	Bakery	Scenic Lookout	Café
Newark	40.7242	-74.1726	4	Park	Theater	Bookstore	Bakery	Italian Restaurant	Gym	Cycle Studio	Art Gallery	Ice Cream Shop	Taco Place
Jersey City	40.7114	-74.0648	4	Park	Bookstore	Italian Restaurant	Theater	Cycle Studio	Ice Cream Shop	Gym	Art Gallery	Taco Place	Bakery
St. Petersburg	27.7620	-82.6441	4	Beach	Park	Coffee Shop	Mexican Restaurant	American Restaurant	Scenic Lookout	Pizza Place	Ice Cream Shop	Brewery	Sandwich Place
Buffalo	42.8925	-78.8597	4	Park	Brewery	Café	Italian Restaurant	Scenic Lookout	Waterfall	Bakery	Coffee Shop	Performing Arts Venue	Ice Cream Shop
Fremont	37.4945	-121.9412	4	Park	Trail	Beach	State / Provincial Park	Brewery	Café	Movie Theater	Coffee Shop	Bakery	Climbing Gym

NYC cluster

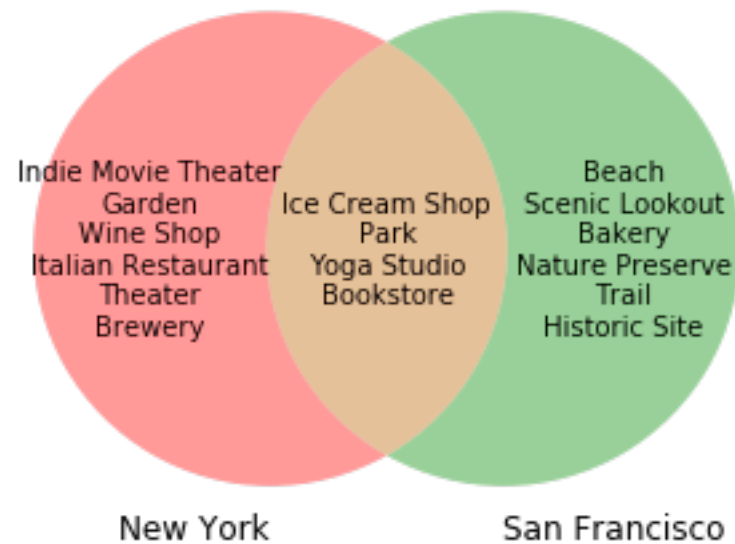
This list is venues that are popular in NYC that are not
found in the top ten of other cities in the cluster.

We chose San Francisco to open a new business in and will focus on it
for the rest of the presentation.

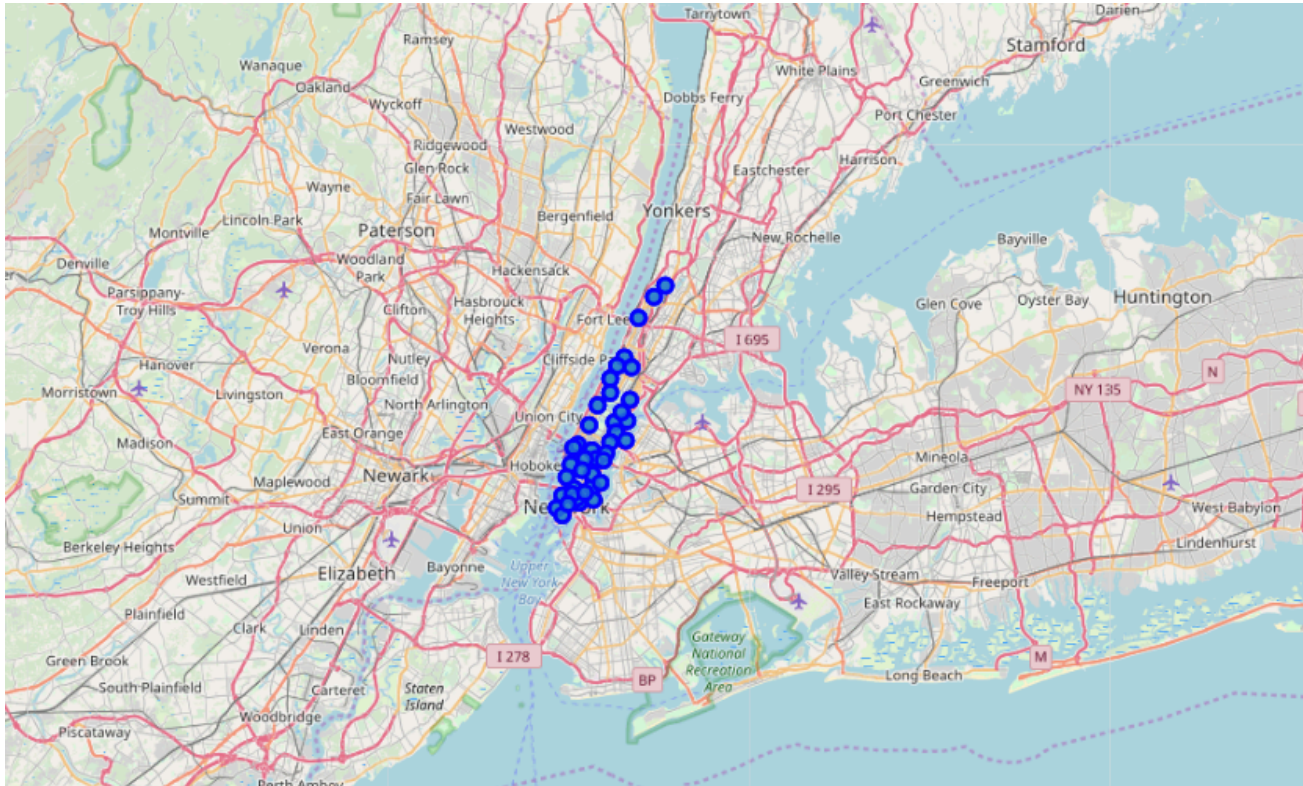
Philadelphia[e]	San Jose	San Francisco[g]	Boston	Oakland	Tampa	Stockton	Newark	Jersey City	St. Petersburg	Buffalo	Fremont
Bookstore	Bookstore	Italian Restaurant	Bookstore	Bookstore	Bookstore	Bookstore	Yoga Studio	Yoga Studio	Bookstore	Bookstore	Bookstore
Italian Restaurant	Italian Restaurant	Theater	Italian Restaurant	Italian Restaurant	Italian Restaurant	Italian Restaurant	Wine Shop	Wine Shop	Italian Restaurant	Yoga Studio	Italian Restaurant
Yoga Studio	Theater	Wine Shop	Yoga Studio	Theater	Yoga Studio	Yoga Studio	Brewery	Brewery	Yoga Studio	Theater	Yoga Studio
Theater	Brewery	Brewery	Theater	Indie Movie Theater	Theater	Theater	Indie Movie Theater	Indie Movie Theater	Theater	Wine Shop	Theater
Wine Shop	Indie Movie Theater	Indie Movie Theater	Ice Cream Shop	Ice Cream Shop	Brewery	Wine Shop	Garden	Garden	Wine Shop	Indie Movie Theater	Wine Shop
Indie Movie Theater	Ice Cream Shop	Garden	Garden	Garden	Indie Movie Theater	Indie Movie Theater	NaN	NaN	Indie Movie Theater	Garden	Indie Movie Theater
Ice Cream Shop	Garden	NaN	NaN	NaN	Garden	Ice Cream Shop	NaN	NaN	Garden	NaN	Ice Cream Shop
Garden	NaN	NaN	NaN	NaN	NaN	Garden	NaN	NaN	NaN	NaN	Garden

Similar and dissimilar venues in NYC and San Francisco

We chose Italian restaurant as the new venue to open.



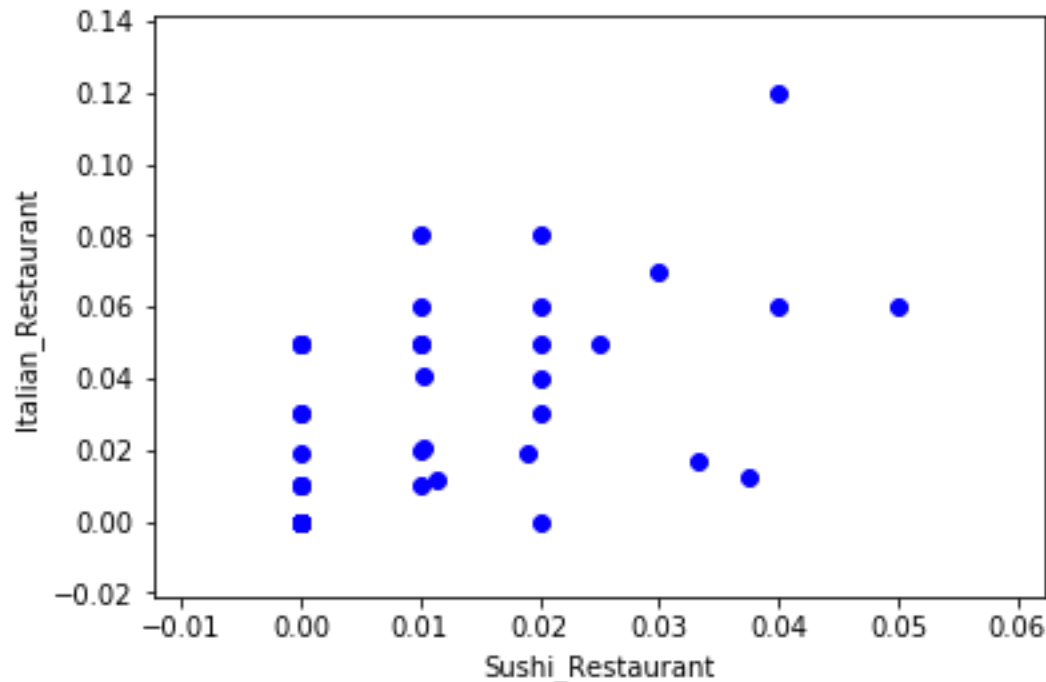
All the neighborhoods with Italian restaurants in NYC (Manhattan)



Pearson Correlation with Italian Restaurant

Italian Restaurant	1.000000
Sushi Restaurant	0.524317
Lebanese Restaurant	0.498653
Gaming Cafe	0.498653
Eastern European Restaurant	0.498653
Udon Restaurant	0.471621
Gourmet Shop	0.453924
Creperie	0.451432
Electronics Store	0.375364
French Restaurant	0.357963

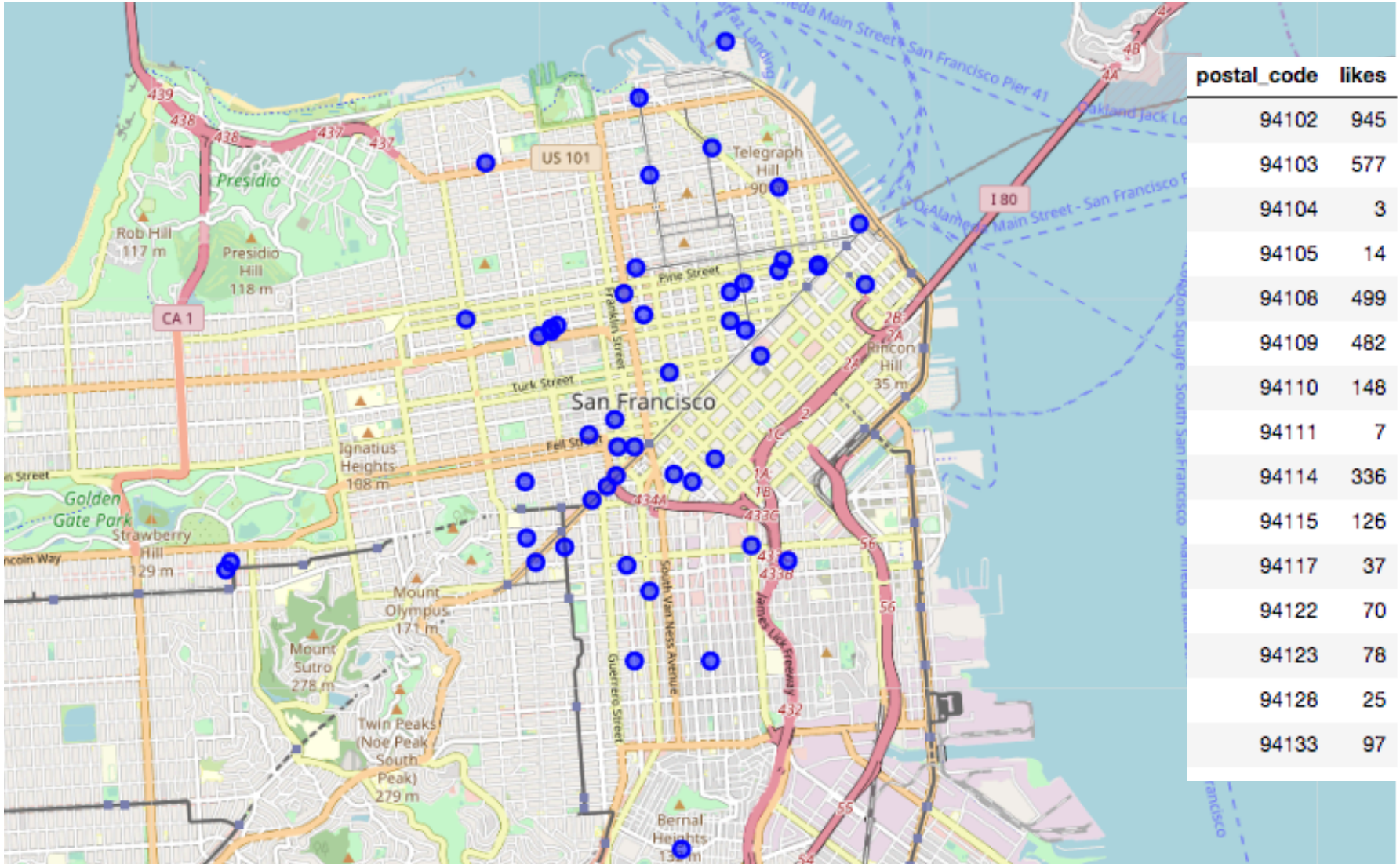
What venues are most associated with Italian restaurants in NYC? We found that sushi restaurants are most often associated in neighborhoods with Italian restaurants.



Finding San Francisco neighborhoods with popular sushi restaurants

We separated SF neighborhoods by zip code. To determine popularity of sushi in each neighborhood we summed all the “likes” from all the sushi restaurants in each neighborhood.

blue dots= sushi restaurants



Location of our new Italian restaurant in San Francisco

Placed in the neighborhood with most “liked” sushi restaurants

