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Where is the Best Pizza in New York City?

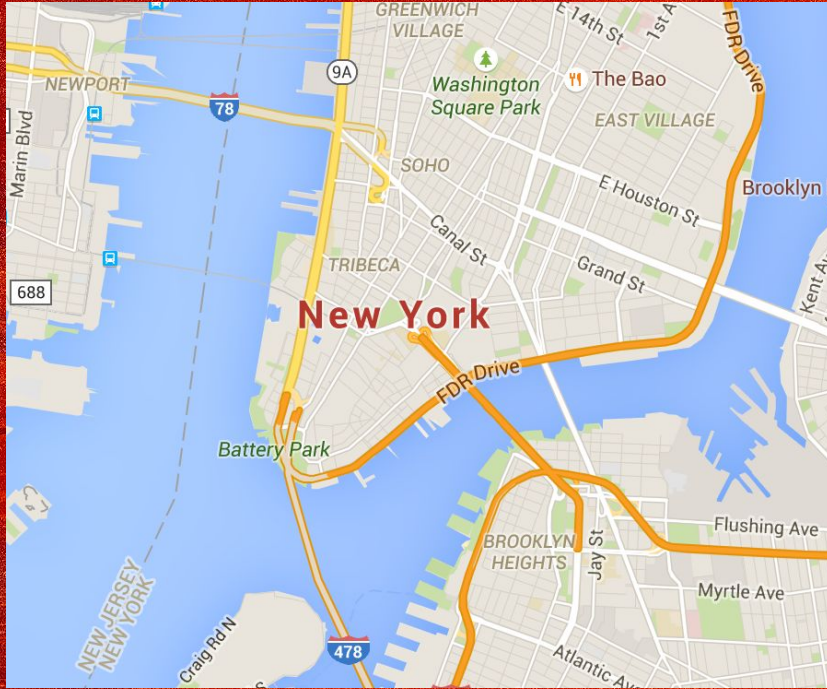
A Natural Language Processing Driven Approach

-Jason Keung



Where can I find the best pizza
in New York City?

Why is this Important?



\$38 billion

Annual pizza sales in America

3 billion

Number of pizzas sold in the U.S. each year

350

Slices of pizza sold every second

46

Slices of pizza the average American eats each year

70,000

Number of pizzerias in the U.S., according to *Pizza Today*

9,000

Number of pizzerias in New York!!

Sources: Atlantic Wire, The Daily, Food Industry News,, GE, National Association of Pizza Operators, *Pizza Today*, *Packaged Facts*

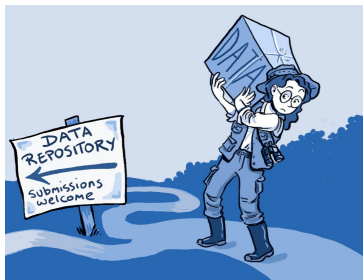


Methodology

Get Data

Score

Visualize





Getting the Yelp Data



- Retrieved Yelp Reviews for all 'pizza' restaurants within a 1000m radius using the Yelp API and Web Scraping
- Look at only reviews with the mention of 'pizza'
- Get sentiment scores for each sentence with the word pizza
- Obtain average sentiment score for each restaurant.



Retrieved all Yelp Reviews using the Yelp API and Web Scrapping

Yelp Developers

[Manage API access](#)[API console](#)[Documentation](#)[Introduction](#)[Authentication](#)[Search API](#)[Business API](#)[Phone Search API](#)[iPhone Apps](#)[Errors](#)[Additional Resources](#)[Display requirements](#)[Support group](#)[Code samples](#)

Search API

Request

Name	Method	Description
/v2/search	GET	Search for local businesses.

General Search Parameters

Name	Data Type	Required / Optional	Description
term	string	optional	Search term (e.g. "food", "restaurants"). If term isn't included we search everything.
limit	number	optional	Number of business results to return
offset	number	optional	Offset the list of returned business results by this amount
sort	number	optional	Sort mode: 0=Best matched (default), 1=Distance, 2=Highest Rated. If the mode is 1 or 2 a search may retrieve an additional 20 businesses past the initial limit of the first 20 results. This is done by specifying an offset and limit of 20. Sort by distance is only supported for a location or geographic search. The



Retrieved all Yelp Reviews using the Yelp API and Web Scraping



Evie R.
**Bloor-West
Village, Toronto,
Canada**

👤 3 friends

📄 3 reviews

★★★★★ 8/7/2015

Ingredients were fresh and pizza was delicious! Large selection and variety--I already know what I want to try next time. Very casual & loved that it was BYOW. Felt very authentic. The owners were lovely and connected with each customer--truly cared about our experience. Highly recommend for a break from some of the noisy/stuffy nearby restaurants.

Was this review ...?



Useful 1



Funny



Cool 1



Wanmeng Z.
Barcelona, Spain

👤 1 friend

📄 37 reviews

★★★★★ 8/31/2015

📍 1 check-in

Amazing truffle pizza, legit the best truffle tasting pizza I have ever had!!! Their special of the night, a shrimp lemon pizza, oh god the lemon flavor just oozed out!! So damn good. I wasn't a big pizza person but man it tasted amazing

Was this review ...?



Useful



Funny



Cool





Look at only reviews with the mention of 'pizza'



Their pizza is amazing, and the parmigiana di melanzane was also very very good. I loved the bread and ricotta they give you at the beginning.

The service was great too, and when they turn up the music with traditional Neapolitan songs you feel like you are in Napoli.



Look at only reviews with the mention of 'pizza'



11/12/2015

Delicious food and warm hospitality! Family owned and so the food taste of true love. Everything looks and taste fresh. Must try the fried bread with Nutella dessert. Real decadence. Will definitely come back soon.



Look at only reviews with the mention of 'pizza'



9/7/2015

After a visit, I understand why this place seems to be on every ordering service out there: they're not popular despite the location and the reviews, and on my visit for an Eat24 pickup order* were run by two guys who understood nothing I was saying yet handed me my pizza (which I'd legitimately already paid for) no questions asked anyway. Margherita Pizza (12" Pizza) for \$13.00+ was nothing mind-blowing anyway.



“Their pizza is amazing, and the parmigiana di melazane was also very good.”

TextBlob identifies this sentence with
a polarity score of **0.755**



“Margherita Pizza (12” Pizza) for \$13.00+ was
nothing mind-blowing anyway.”

TextBlob identifies this sentence with
a polarity score of **0.00**



“The pizza is pretty horrible, especially since it’s cooked on a screen, but as they say you get what you pay for at \$0.99 cent joing.”

TextBlob identifies this sentence with
a polarity score of **-0.25**

Average Sentiment Score

Σ (Sentiment Score for All Sentences that Contain 'Pizza')

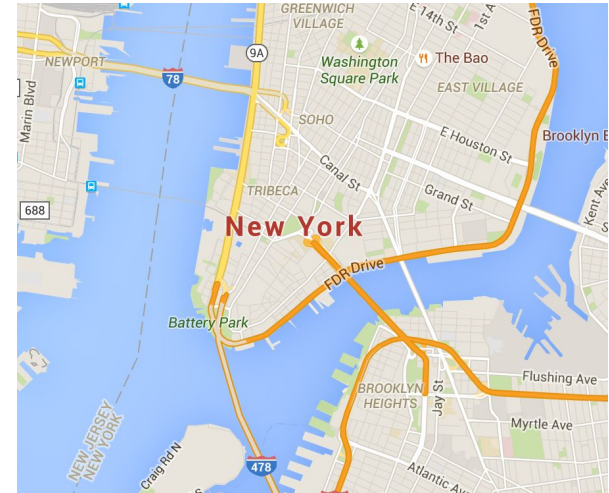
Number of Sentences that Contain 'Pizza')

So... What are the Top Pizza Restaurants?

Restaurant	Sentiment Score	Rating	Trending Words	Neighborhood
Friendly Gourmet Pizza	0.85	4.0	"pizza" "good" "one" "great" "go"	Financial District
Charlys	0.75	3.5	"pizza" "good" "night" "chicken" "get"	Financial District
Dona Bella Pizza	0.7	3.0	"pizza" "like" "good" "slice" "place"	TriBeCa Civic Center
Saluggi's	0.6225	4.0	"pizza" "good" "place" "great" "best"	TriBeCa
Friendly Pizzeria	0.508571428571	4.0	"pizza" "best" "place" "slice" "good"	Financial District
Papa John's Pizza	0.475	3.0	"pizza" "johns" "like" "papa" "5"	Financial District
Liberatos Pizza	0.4	3.5	"pizza" "good" "liberatos" "love" "great"	Financial District
Neapolitan Express	0.357142857143	4.0	"pizza" "pizzas" "like" "good" "ingredients"	Financial District
Tre Sorelle	0.35	3.5	"pizza" "good" "oven" "wood" "pizzas"	TriBeCa Civic Center
Majestic Pizza	0.331428571429	3.5	"pizza" "slice" "place" " " "good"	Financial District

Takeaways and Next Steps

- Extend the radius to be greater than 1000
- Improve the model
- Incorporate additional data!
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Thanks!

Any questions?