



Yelp Restaurant Reviews

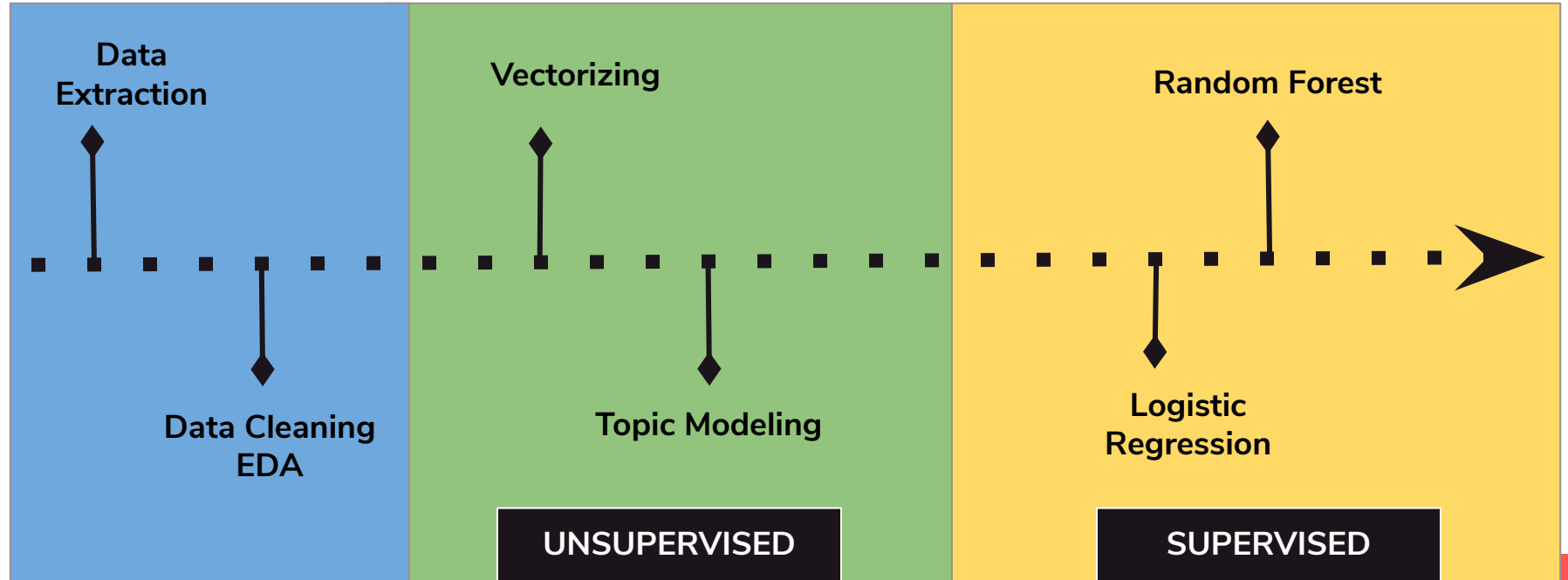
Connie Xiao

Introduction

- Yelp Reviews
 - Focus scope on restaurants in Boston
- Objective:
 - To provide restaurant businesses insights in their areas of strength and areas of weakness through the analysis of user reviews



Methodology



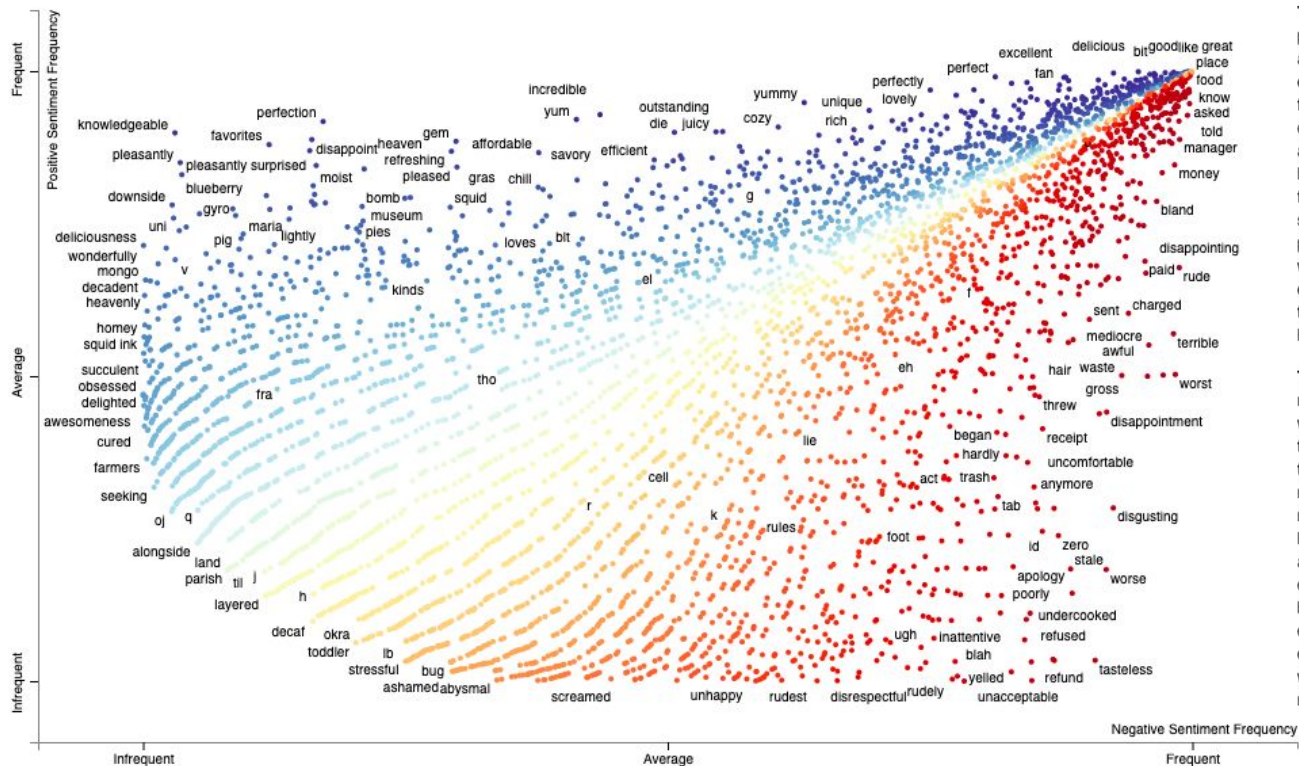
Unsupervised Learning



[illegible]

Long wait time

Scatter Text



Top Positive Sentiment Characteristic

perfect	waitress
amazing	waiter
excellent	tasted
favorite	chowder
delicious	yelp
awesome	lobster
loved	calamari
fantastic	cannoli
spot	flavorful
perfectly	fries
wonderful	bartender
enjoyed	oysters
tasty	overpriced
highly	appetizer

Top Negative Sentiment

rude	hostess
worst	tacos
terrible	gnocchi
told	overcooked
manager	entree
money	attentive
horrible	bartenders
asked	delicious
ok	crispy
bill	waitstaff
customer	burger
customers	dumplings
waited	ravioli
mediocre	soggy
	ramen

Topic Modeling

Vectorizer

TF-IDF










Topic Modeler

NMF

Number of Topics

9

Topics

-  Italian Cuisine
-  Asian Cuisine
-  Pizza
-  Experience
-  Seafood
-  Bars
-  Service
-  Sandwich/Breakfast
-  Burgers

Supervised Learning

Features

9 Topics

Target

Sentiment Value

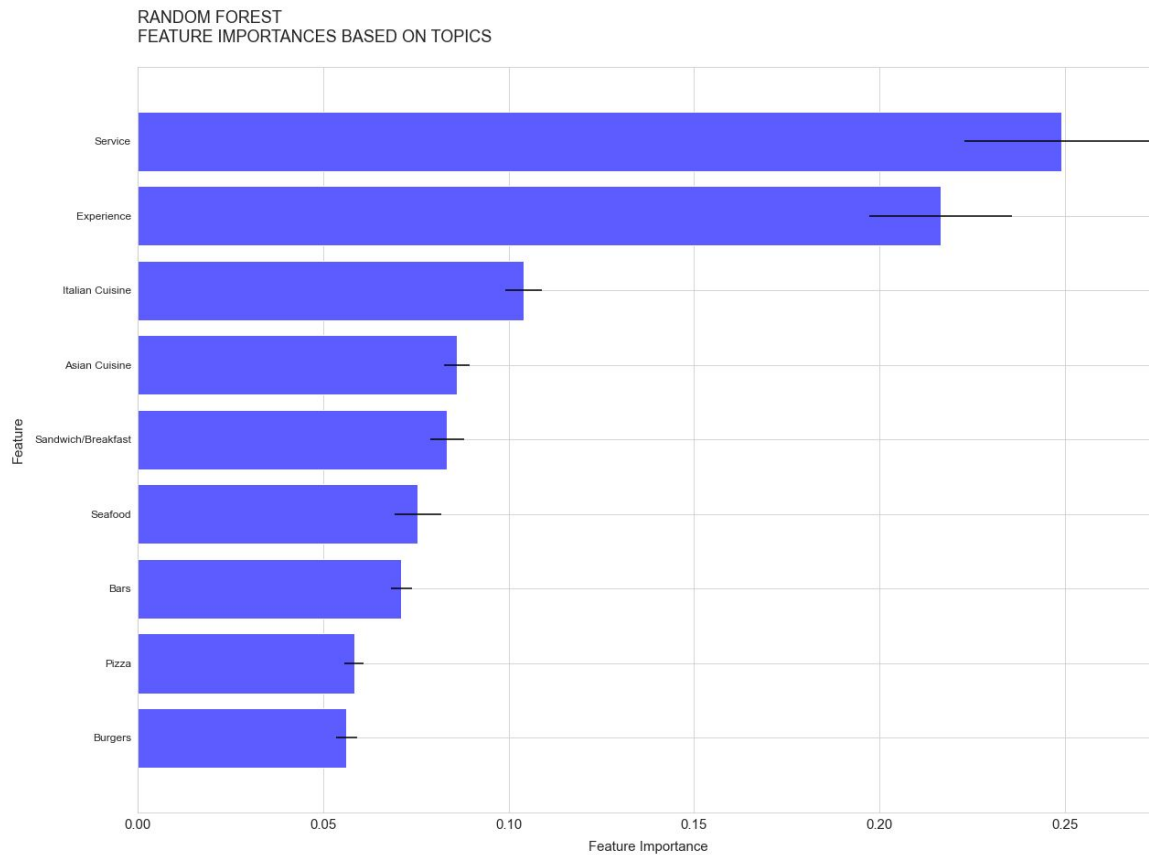
-Positive: 1

-Negative: 0

RANDOM FOREST
CONFUSION MATRIX



Feature Importance



Metrics

F1 score

0.77119

Precision

0.77138

Recall

0.771

Conclusion

Recommendations to Restaurant Owners

1. Service: improving service for better customer satisfaction
2. Experience: providing a unique dining experience
3. Food: yielding quality and consistent dishes for customers

