

Restaurant Reviews Analysis

from  and 

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Projet 4 - Community Learning

Project Description

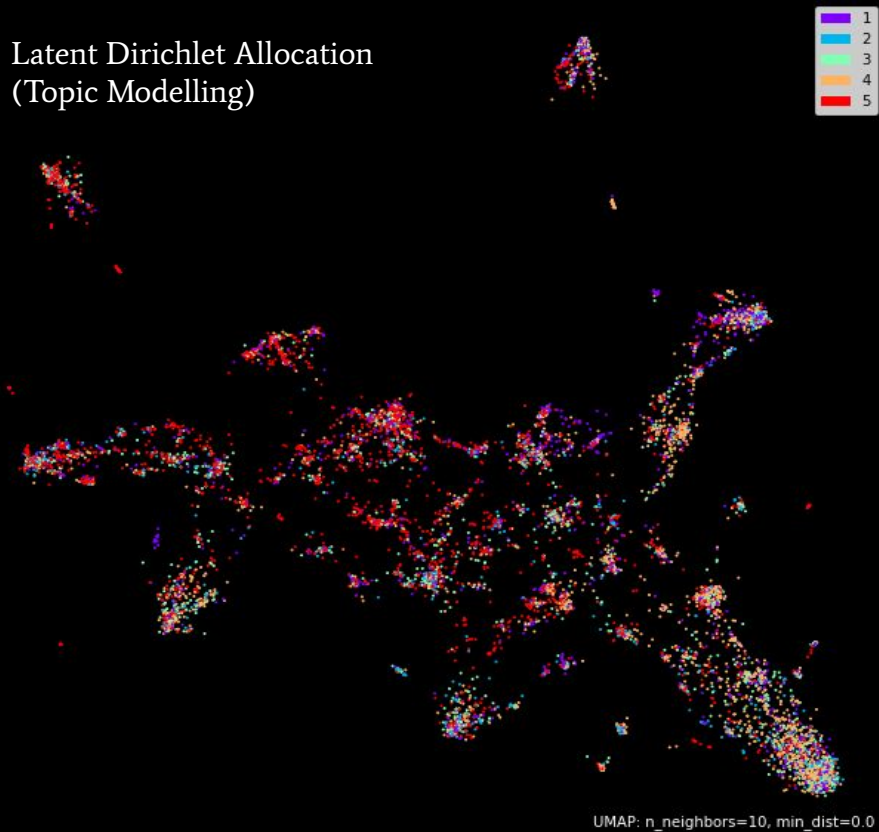
- Discover underlying clusters using unsupervised learning on restaurant reviews in the region of Montreal.
- Create a 2D or 3D visualization of the clusters with the corresponding discovered tags.

Data collection

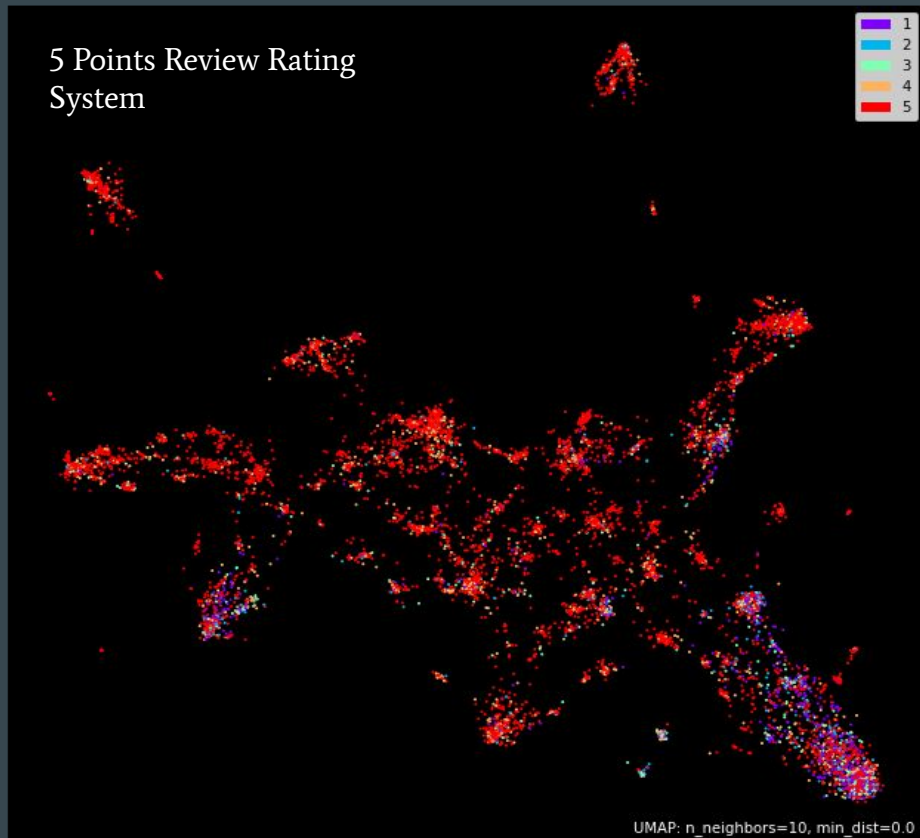
	Google Places	Yelp
Method	API	API, Scraping
Nbr Restaurants	1,914	1,000
Nbr Reviews	9,463	64,867

Unsupervised Learning Plot vs. 5 Points Review Ratings Plot on Google Places Data

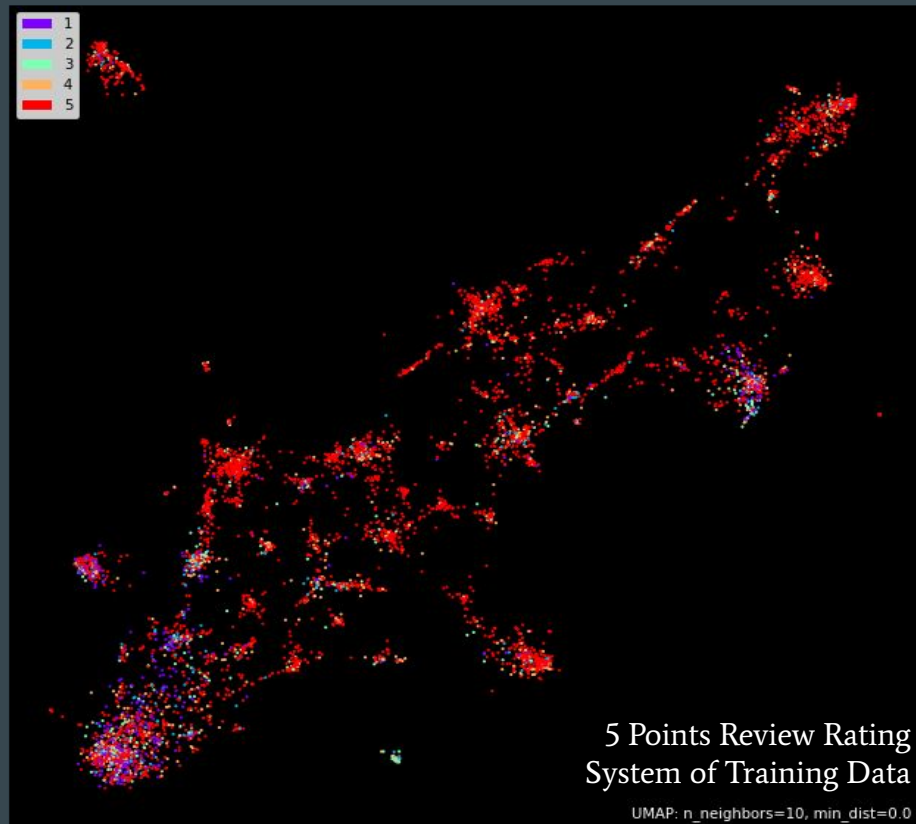
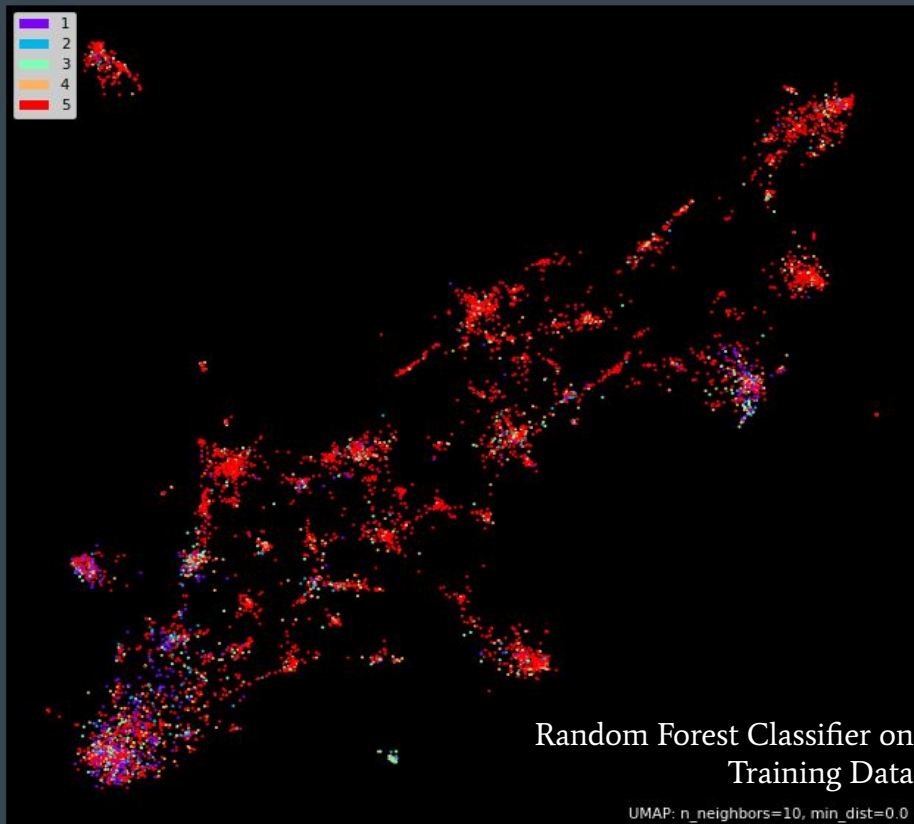
Latent Dirichlet Allocation
(Topic Modelling)



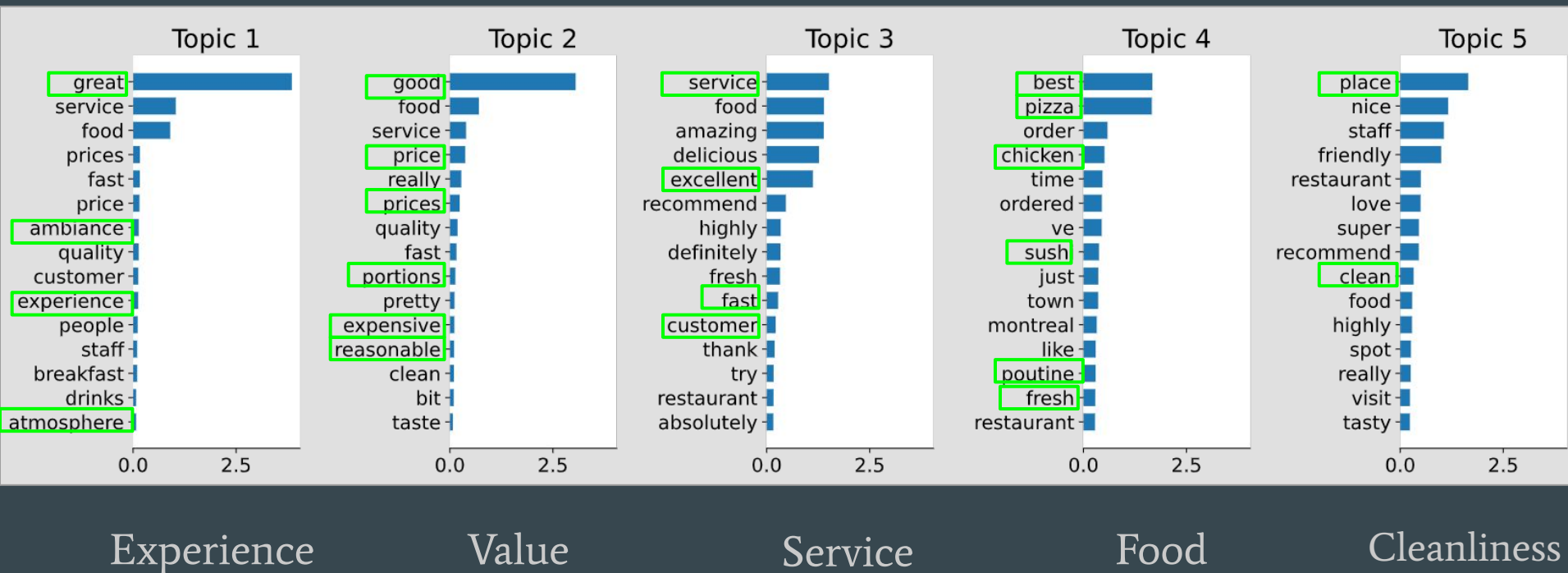
5 Points Review Rating
System



Supervised Learning Plot vs. 5 Points Review Rating Plot on Training Data From Google Places



Topic modeling on balanced reviews



Sentiment analysis vs user ratings

	biz_id	food	sentiment	user_rating
24050	7Ug8zCmY6iDTewxWqeYQ2g	[The food was good and all presented very imp...	0.73460	4
6128	5T6kFKFycym_GkhgOiysIw	[By far the best poutine I've ever had and pro...	0.84790	5
46490	mnn--vaYHtNyBNYFYBFiog	[In fact, for me they transformed the food fr...	0.81455	4
32117	y32M2Hkr7GsUqGG6KwOhZw	[Everything is so damn overpriced and food po...	-0.54100	1
2015	0W41kclzZThpx3V65bVgig	[The food is great but let me assure you that ...	0.68580	4
29747	m0FxJP2atkE8mn-x023fpQ	[The food was simple and disciplined.]	0.00000	4
30714	9KmvrvnyjWTr4sly0Dt770g	[This is a great place to kick back with outdo...	0.92310	5
20498	QeFsIMcIFIJcOrpthYL8jg	[A very nice bistro with good food and attent...	0.76770	4
16941	2gUbgbdJ7IFSbicBX1Schw	[The food is amazing but be sure to order l'il...	0.74680	5
32527	_YzwG_p4MXtZnb3ZEDLmdg	[Small hole in the wall but good service and g...	0.82710	4

Regression results

Topic	R-squared	Coef	p-value
food	0.240	1.710	0.000
cleanliness	0.321	1.524	0.000
experience	0.268	1.354	0.000
service	0.209	1.322	0.000
value	0.138	1.158	0.000

What if we apply the same pipeline for other topics?

	name	review_count	rating	user_rating	sentiment	price	location
0	Nevski	7	4.0	5.0	0.9872	NaN	['1228 Rue Stanley', 'Montreal, QC H3B 2S7', '...
1	Veuve Chalet	11	4.5	5.0	0.9782	NaN	['222 Avenue Laurier O', 'Montreal, QC H2T 2N8...
2	Amir	13	4.5	4.0	0.9730	\$\$	['1337 Avenue du Mont-Royal E', 'Montreal, QC ...
3	L'Inconnu	16	4.0	5.0	0.9606	NaN	['5115 Boulevard Saint-Laurent', 'Montreal, QC...
4	Bowhead Pub	18	4.0	5.0	0.9569	NaN	['3723 Boulevard Saint-Laurent', 'Montreal, QC...
5	Régine Café	277	4.5	4.0	0.9236	\$\$	['1840 Beaubien E', 'Montreal, QC H1G 2L6', 'C...
6	La Capital Tacos	288	4.0	4.5	0.8891	\$\$	['1096 Boulevard Saint-Laurent', 'Montreal, QC...
7	Bulma Bar	13	4.5	5.0	0.8885	NaN	['686 Rue Notre-Dame O', 'Montreal, QC H3C 1J2...
8	Dinette Triple Crown	254	4.5	5.0	0.8881	\$\$	['6704 Rue Clark', 'Montreal, QC H2S 3G2', 'Ca...
9	La Maison du Magret	47	4.5	4.0	0.8221	\$\$\$	['102 Rue Saint-Antoine O', 'Montreal, QC H2Y ...