Yelp Business Recommendation Engine

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Intro

Our project is a Yelp business recommendation engine. While Yelp’s recommendations are useful, it can take a long time to sort through relevant, high-quality, and nearby businesses. Our engine aimed to provide efficient and enhanced recommendations based on the user’s inputted business, helping users to find well-rated businesses similar to ones they already know.

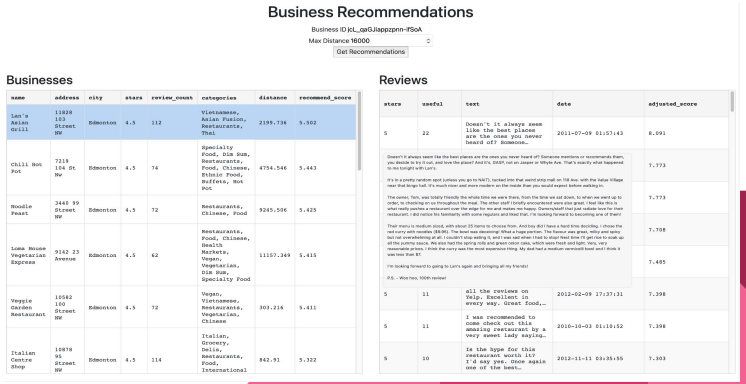
Analysis/Conclusion

Overall, our engine is useful for providing accurate recommendations based on similar business types. While effective, some limitations include that the engine currently requires inputting a business ID rather than a name. Furthermore, the engine has issues with chain restaurants and the limited data variety. Future improvements include allowing input of a business name or address, and recommending businesses from other genres beyond similar categories.

Methods

Using Yelp's review dataset, we first used PyMongo via Python import to preprocess and clean the data. We then calculated both an “adjusted usefulness score”, and a “credibility score” and adding both scores to each review entry for a final recommendation score. Furthermore, we aggregated the longitude and latitude fields into a coordinate field for geospatial analysis. Finally, we indexed the reviews collection by recommendation score, and did secondary indexing by location.

UI Visual



name	address	city	stars	review_count	categories	distance	recommend_score
Len’a Asian Grill	11929 103 Street NW	Edmonton	4.5	112	Vietnamese, Asian Fusion, Restaurants, Thai	2199.736	5.502
Chili Hot Pot	7219 104 St NW	Edmonton	4.5	74	Specialty Food, Dim Sum, Restaurants, Food, Chinese, Ethnic Food, Buffets, Hot Pot	4754.546	5.443
Noodle Feast	3448 99 Street NW	Edmonton	4.5	72	Restaurants, Chinese, Food	9245.506	5.425
Loma Noone Vegetarian Express	9142 23 Avenue	Edmonton	4.5	62	Restaurants, Food, Chinese, Health Markets, Vegan, Vegetarian, Dim Sum, Specialty Food	11157.349	5.415
Veggie Garden Restaurant	10582 100 Street NW	Edmonton	4.5	72	Vegan, Vietnamese, Restaurants, Vegetarian, Chinese	303.216	5.411
Italian Centre Shop	10878 96 Street NW	Edmonton	4.5	114	Italian, Grocery, Deli, Restaurants, Food, International	842.91	5.322

stars	useful	text	date	adjusted_score
5	22	Doesn’t it always seem like the best places are the ones you never heard of? Someone mentions or recommends them, you go, you eat, and love the place! And it’s, DAMN, not on Jasper or Whyte Ave. That’s exactly what happened to me tonight with Len’a. It’s in a pretty random spot (unless you go to NAIT), tucked into that weird strip mall on 118 Ave. with the Value Village near that bingo hall. It’s much nicer and more modern on the inside than you would expect before walking in. The owner, Len, was totally friendly the whole time we were there, from the time we sat down, to when we went up to the counter to order, to when we left. He’s the kind of guy that makes you feel welcome and at home. I think this is what really pushes a restaurant over the edge for me and makes me happy. Dumplings!!! Had just walked here for their restaurant. I did notice his familiarity with some regulars and liked that. I’m looking forward to becoming one of them! Their menu is medium sized, with about 25 items to choose from. And boy did I have a hard time deciding. I chose the Hainan chicken rice bowl, $8.95. It was a big bowl, and delicious. Tender chicken, rice with a tasty sauce, and a pretty bad ass cucumber salad. I couldn’t stop eating it, and I was sad when I had to stop! Next time I’ll get rice to soak up all the yummy sauce. We also had the spring rolls and green onion cake, which were fresh and light. Yes, very reasonable prices. I think the curry was the most expensive thing. My dad had a medium vermicelli bowl and I think it was less than $! I’m looking forward to going to Len’s again and bringing all my friends! P.S. - Wow Yelp, YOOH review!	2011-07-09 01:57:43	8.091
				7.773
				7.773
				7.708
				7.485
5	11	all the reviews on Yelp. Excellent in every way. Great food,…	2012-02-09 17:27:31	7.398
5	11	I was recommended to come check out this restaurant recently by a very sweet lady saying…	2010-10-03 01:10:52	7.398
5	10	Is the hype for this restaurant worth it? I’d say yes. Once again one of the best…	2012-11-11 03:35:55	7.303