

# Improving Restaurant Ratings and Recommendations

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An approach to better interpret restaurant ratings on YELP  
Sanket Shinde

# Motivation

YELP ratings have a profound effect on success of a business

An extra half star raises the exposure a business gets by 19%

Average star rating do not convey areas where a business may improve

Identifying key areas that users care about and acting on them may bring more value out of the business

Hence gaining more stars per star!

# Challenges

User reviews are in abundance but are not explicit in majority of times

Extraction of sensible latent sub topics from reviews to make more sense of the posted review

# Solution methodology

Unsupervised approach to machine learning

Use of Latent Dirichlet Allocation to train on a corpus of preprocessed review texts

Extraction of sub topics and respective ratings

These sub topic ratings bring focus to areas where businesses can act upon to raise the business value

# Dataset - YELP academic dataset

The following data structures have been used for the insights presented

- Business
- Review
- User

Use corpus of review texts to perform unsupervised learning of latent sub topics

Predict ratings for these subtopics

# Extracted latent subtopics

Businesses chosen for the analysis belong to a subclass Restaurant

9 learnt subtopics

Mexican	Breakfast	Decor
American	Bar	Value
Service	Lunch	Asian

Subtopic ratings for restaurants are deciphered by training a LDA model on the review corpus

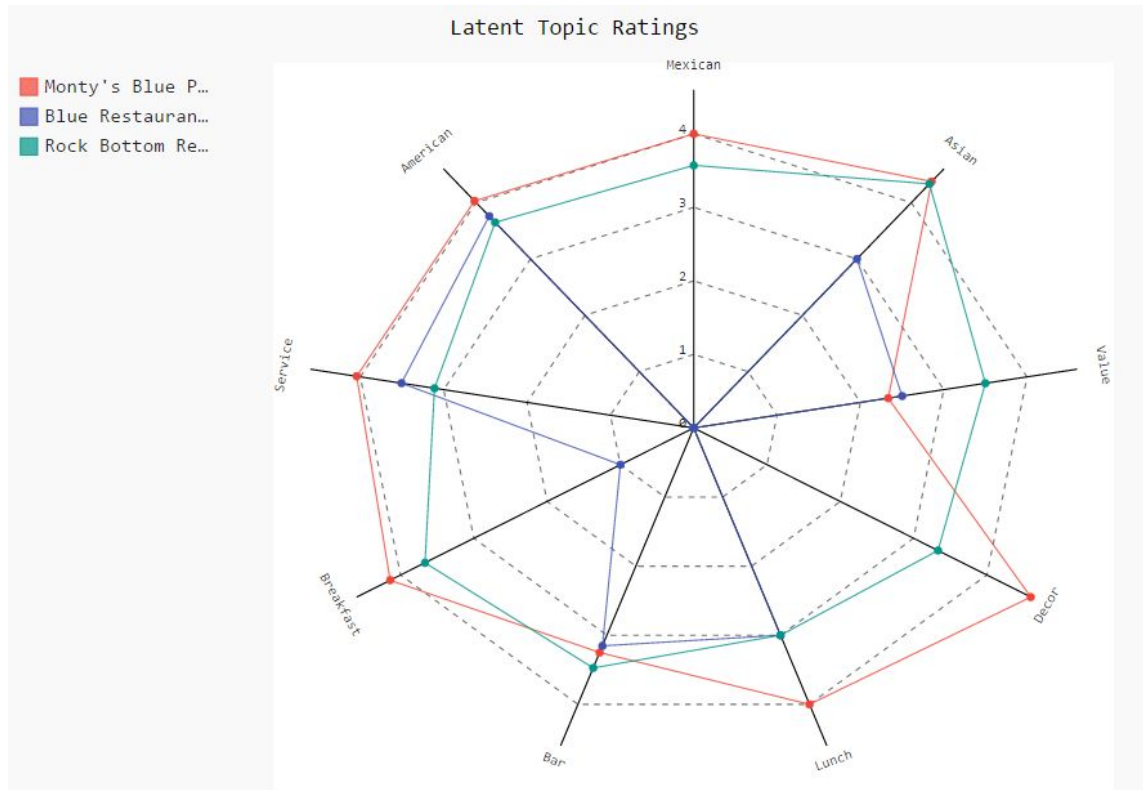
# Insights

Following insights can be drawn from the figure

Monty' Blue Plate Diner has a good overall rating of 4, however it can be seen that the reviews for this business indicate a bad value for money rating.

The manager of the diner can take this into consideration and provide more offers that satisfy customers in this particular focus area and improve an overall rating.

Similar findings can be made about the other mentioned businesses

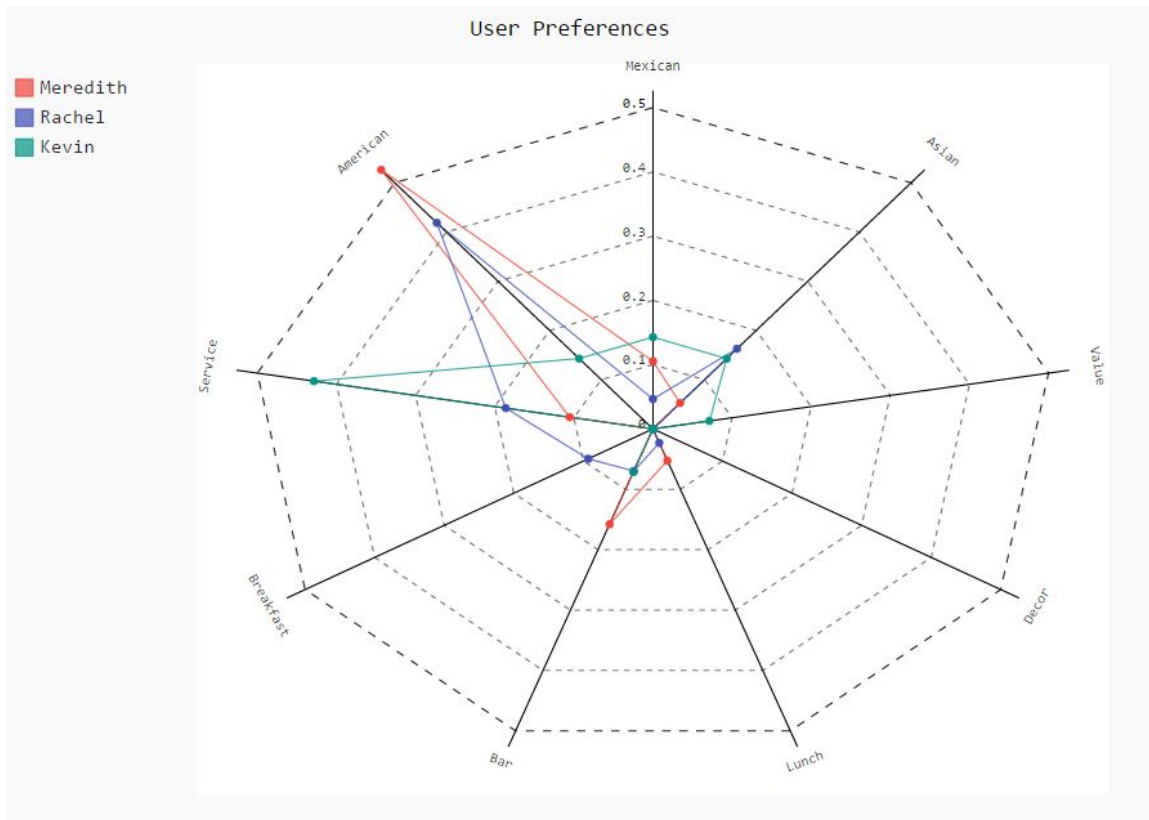


# Improving recommendations

Similar to the insights drawn from the subtopic ratings for restaurants, the percentage distribution of reviews over the learned latent subtopics, related to a particular user is shown here.

Kevin seems to write a lot about service aspect of the restaurants he visits. Therefore from the restaurants we analysed on previous slides, Monty's Diner has a good service rating. Therefore this place can be recommended to the user.

This brings more value to business and gives a better experience to users.





# Conclusion

Using the unsupervised learning approach, more insights were drawn beyond the overall business rating

This guides business to make better strategic choices to the exposed weakness that hamper their existing rating and improve upon them to bring more business value

Smart Recommendations, that give users what they look for, is a beneficial affair for both customers and business

Thank you!

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# References

Huang, J., S. Rogers, and E. Joo. "Improving restaurants by extracting subtopics from yelp reviews. iConference 2014 (Social Media Expo)." (2014).