Restaurant Feature Recommendations using Random Walk Based Opinion Mining

Ekta Rita, Srisha Raviillu, Shreya Venkatesh

Some Restaurants perform better than others, in spite of having very similar geographical characteristics and features(Wifi, Pet-Friendly, etc). In this project, we aim to single out the probable causes that makes one restaurant perform better than the other and in turn recommend feature additions or feature improvements to the poorly performing restaurant for better market performance.

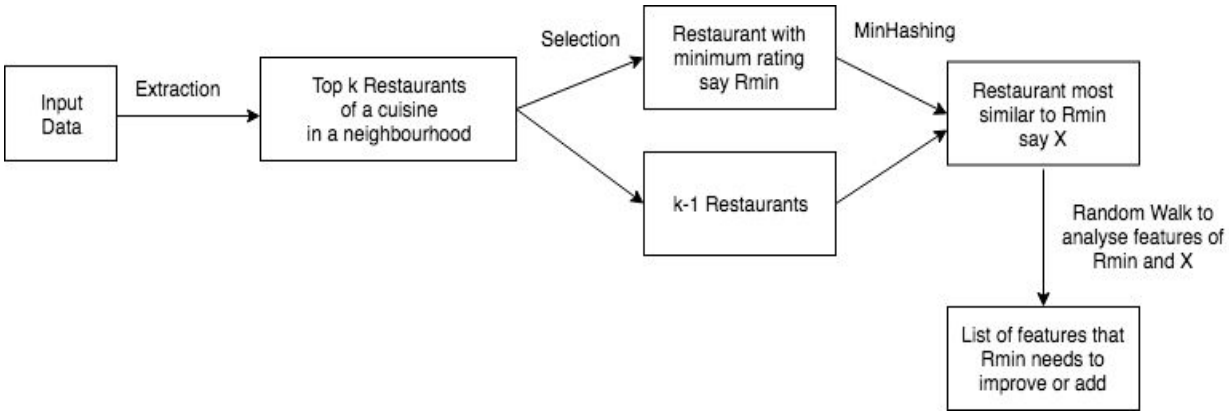

Fig 1.1 Workflow

To achieve this we aim to cluster restaurants based on cuisine similarity in a neighbourhood and analyse whether the user response to certain features contribute to their rating. A poorly performing restaurant will be singled out and min hashed with the other restaurants in the cluster to find the most similar better performing restaurant. Deeper analysis of the features of these two restaurants would illustrate the possible missing features in the poorly performing restaurant.

For analysis of the features we would be using a random walk model to assign polarity to reviews to get a better understanding of user response to certain features. The random walk model would be able to assign polarity and magnitude to words efficiently and quickly and is exactly what is required in-order to distinguish bad responses of features from the good ones.

The proposed model would have recommended the right feature if either of the following cases match :

- The recommended feature/features is/are already present but has negative reviews
- The recommended feature/features is /are missing from the poorly performing restaurant and is found in the restaurant most similar to the former restaurant.

We would evaluate the correctness of our model by using a gold labeled data using precision recall and F1 measure.