Using Topic Modeling To Enhance Recommender Systems

Introduction

- Recommender systems use ratings to make predictions which are very generalized.
- Using Topic Modeling on reviews create user profiles (topic a user prefers).

Data Filtering and Text Cleaning Process

- Dataset: Amazon ‘Home & Kitchen’
- Stop word, punctuation removal and word lemmatization
- Top 2000 most frequently used words, to create a list of redundant words by eliminating helpful words.

Basic Recommender Models

- Collaborative Filtering
- Matrix Factorization

Exploratory Analysis

- Results vague
- Distinct Results

Topic Modeling

- Latent Semantic Indexing (LSI)
  - Summary Text
  - Results vague
- Latent Dirichlet Allocation (LDA)
  - Review & Summary
  - Refined topics
- Product wise topic modeling
- Associated product topics to overall topics based on high probability word frequency

Results and Conclusion

- Using topic modeling with the models, the models have improved by 5%, which is reasonable given the sparsity of the dataset.

Reference: Pixabay.com