Capstone

A Beer Recommender System

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What is the goal of our beer recommender?

User consumes beer, user likes beer, user rates beer. Based on how the beer is rated following the criteria below (between 1 - 5):

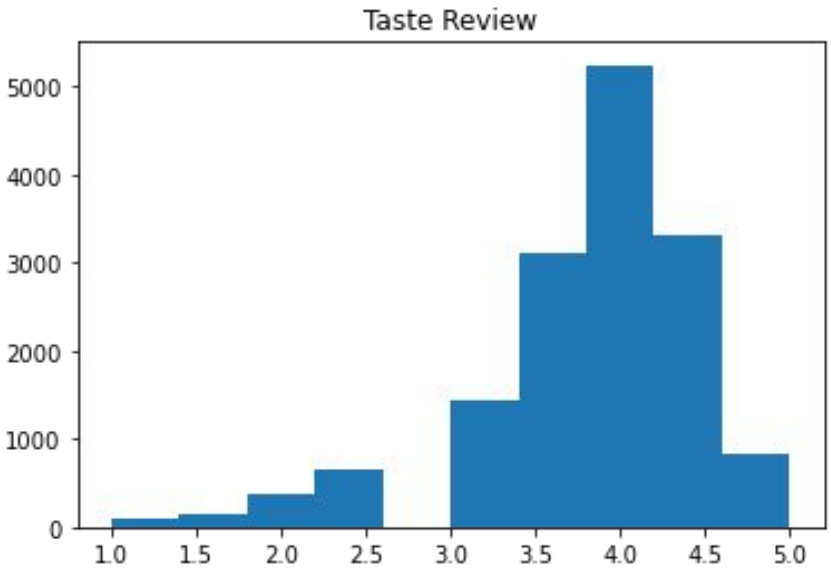
- Overall Rating
- Aroma
- Appearance
- Palate
- Taste

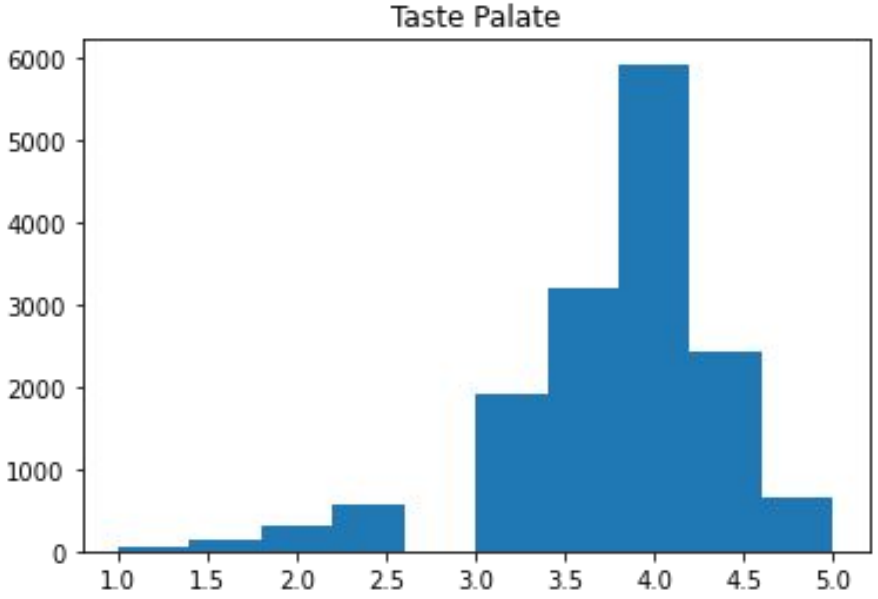
Can we recommend the top 5 similar beers based on the user's ratings?

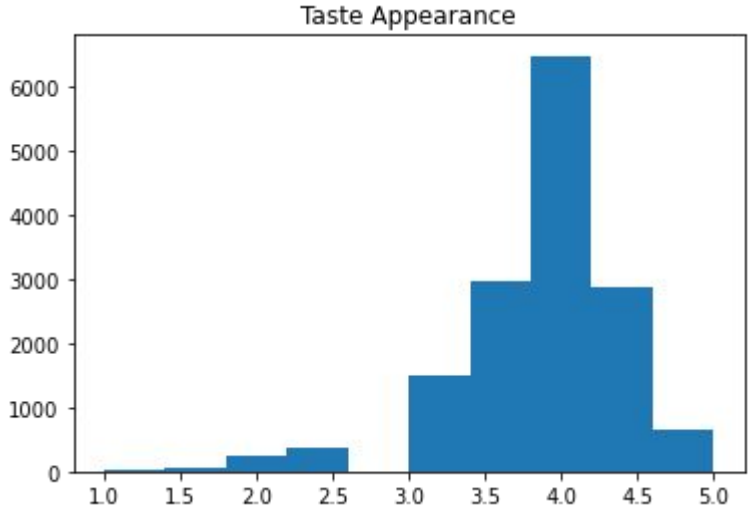
The initial process

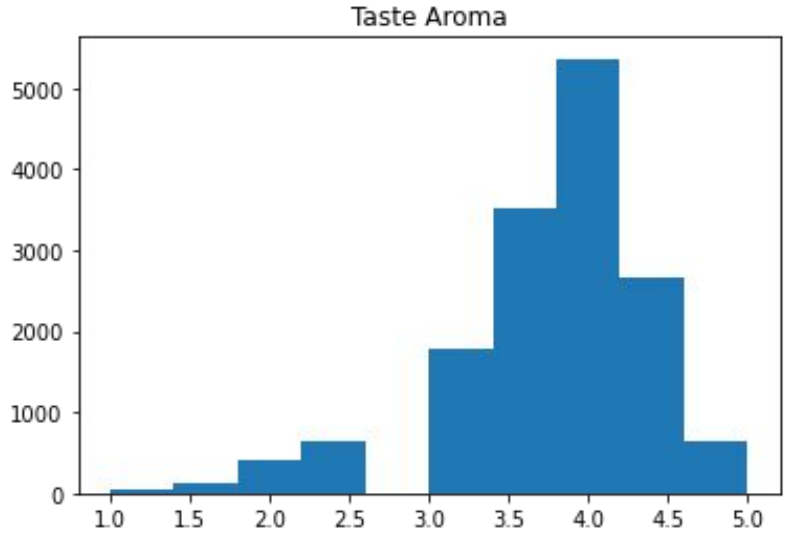
- Dataset is comprised of 1.5 million user ratings (171 MB)
  - Data is from Kaggle.com
- Dataset was too large for my personal computer & GitHub
  - Took a 1% random sample
- Cleaned dataset & completed EDA
- User ratings were between 1 - 5
  - 1 being “bad” (“I did not like”)
  - 3 being neutral
  - 5 being “good” (“I like this”)

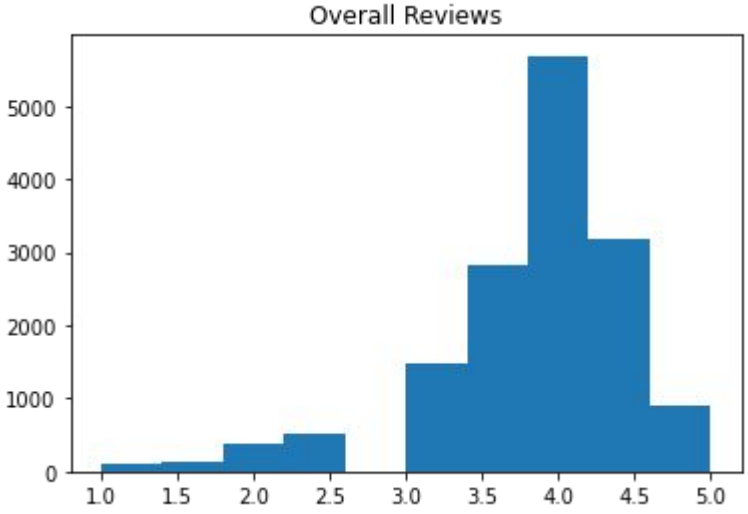
What the difference between Taste & Palate?



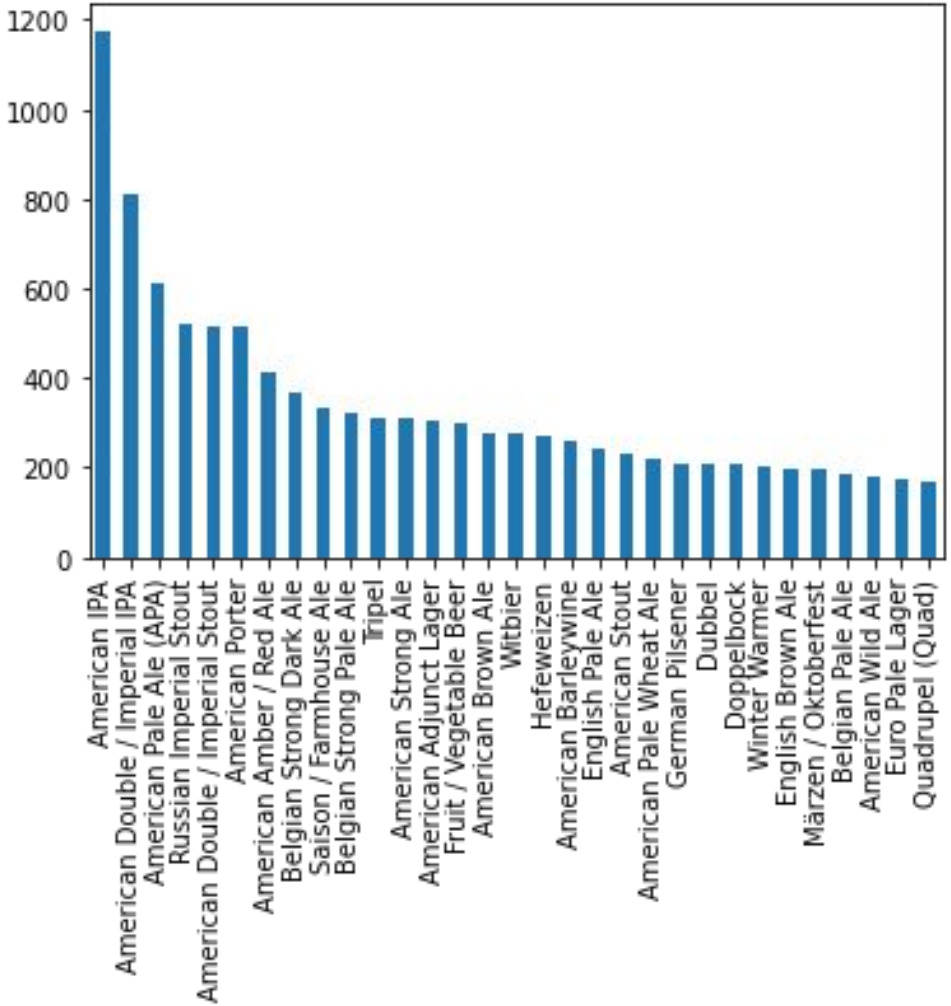



Taste Appearance
6000
5000
4000
3000
2000
1000
0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0


Taste Aroma
5000
4000
3000
2000
1000
0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0


Overall Reviews
5000
4000
3000
2000
1000
0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0

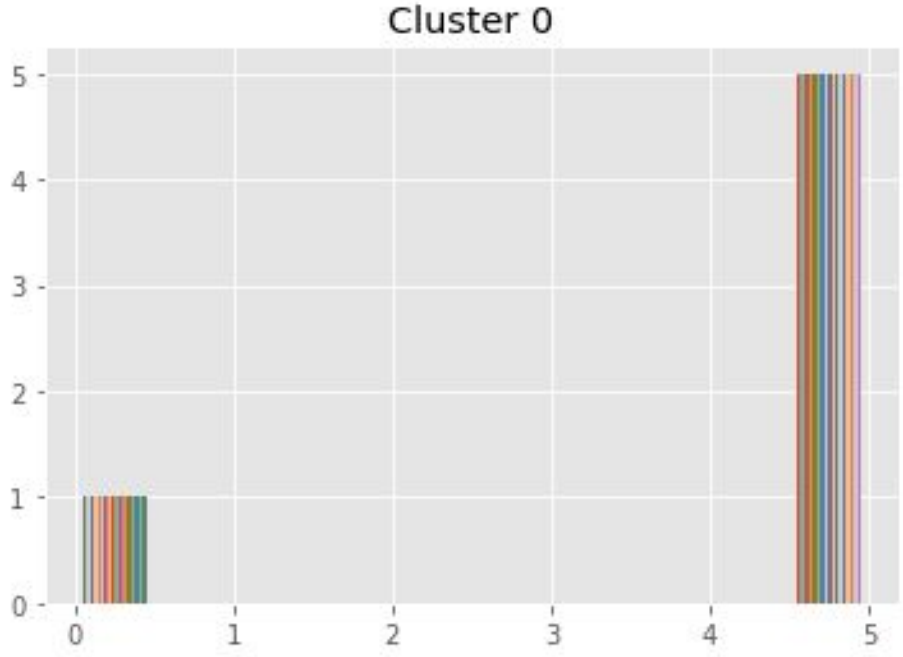
Top 30 Beers in the Dataset

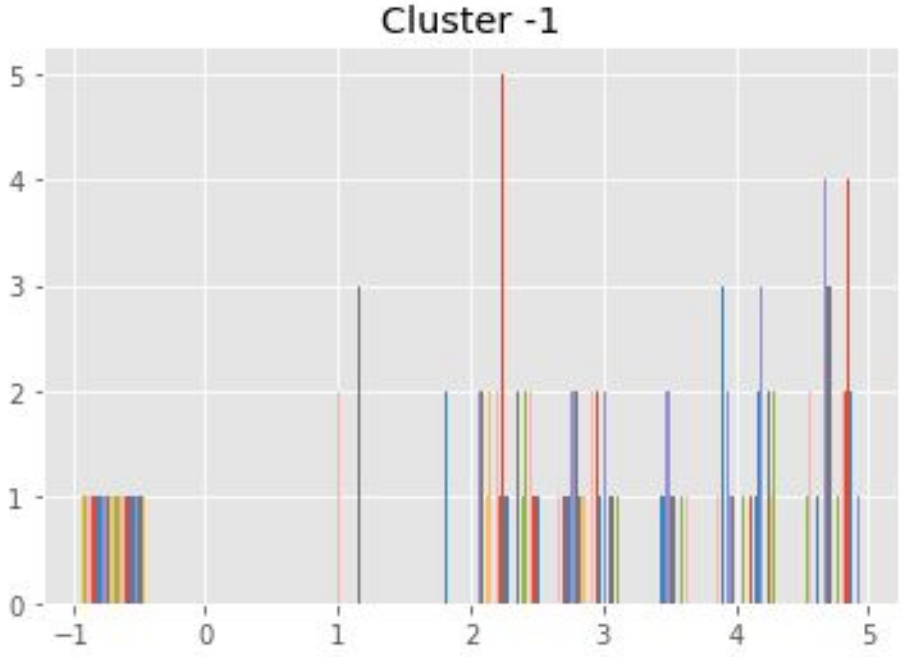


Clustering data

- KMeans
  - GridSearched
  - Silhouette score: 0.162 (bad)
- DBSCAN
  - Silhouette score: 0.834 (eps = .09, min_samples = 2)
    - Good!
    - BUT way too many clusters!
  - A lot of noise (-1)
- Tried KNN model

DBSCAN Clusters: 0 (“meh”) & -1 (Noise)





Recommender System

- Used Sci-kit Learn’s Pairwise_distances & Cosine Similarity
- Used KMeans clustered data
- Recommends top 5 closest beers based on other user ratings

Let’s try it out!

Continuing Steps

- Completion of the Flask Application for full functionality
- Scrape my own data for more current data
- Try to use the Surprise Library as the alternative for Pairwise distribution & Cosine Similarity, for the recommender
    - Read good things, so far!
- Try a few other models for better results

Pet Project: If time permits

- Create and use own dataset
  - Create my own survey
- Implement a music genre recommender to the beer recommender
  - Input: preferred music genre (“I am currently listening to jazz”)
  - Output: recommended beer style (i.e. Pale Ale, IPA, etc.)

Questions?