Data Incubator Finalist Presentation

Yue JIN

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About Me

Yue JIN

ISTJ Personality
Introverted | **O**bservant | **T**hinking | **J**udging

2013-2016
- Worked as Business Analyst / Management Consultant, mostly serving clients from healthcare industry
- Gradually fell in love with Data

2013
Bachelor of Clinical Medicine
SJTU, China

2016
- Started to learn programming for data visualization and machine learning
- Obtained Stanford Machine Learning Online Certificate

2017
Completed Udacity Data Analyst NanoDegree

Present
Master Student in Biostatistics
University of Michigan

Project Introduction

BeerRadar

A Beer Recommendation APP for Craft Beer Lovers

User Side

1. - Rate beers you have tried before
   - Set additional preference (manufacturer region, beer style, bitterness, alcohol content and etc.)

3. Provide feedback on recommended beers after you try them

App Side

2. Recommend new beers you may like

4. Improve future recommendations according to user's feedback

Project Motivation

A Hobby for Me:

- I love craft beer
- From 2016 to present, I tasted **152** different beers

Great Market Potential:

- **Huge user base: 4.71M** monthly users of *BeerAdvocate.com*, **2.99M** monthly users of *Ratebeer.com*, **3.07M** monthly users of *Untappd.com**
- **Business model succeeded in a similar field:** Recommendation algorithm + Product merchandise for wine - BrightCellar

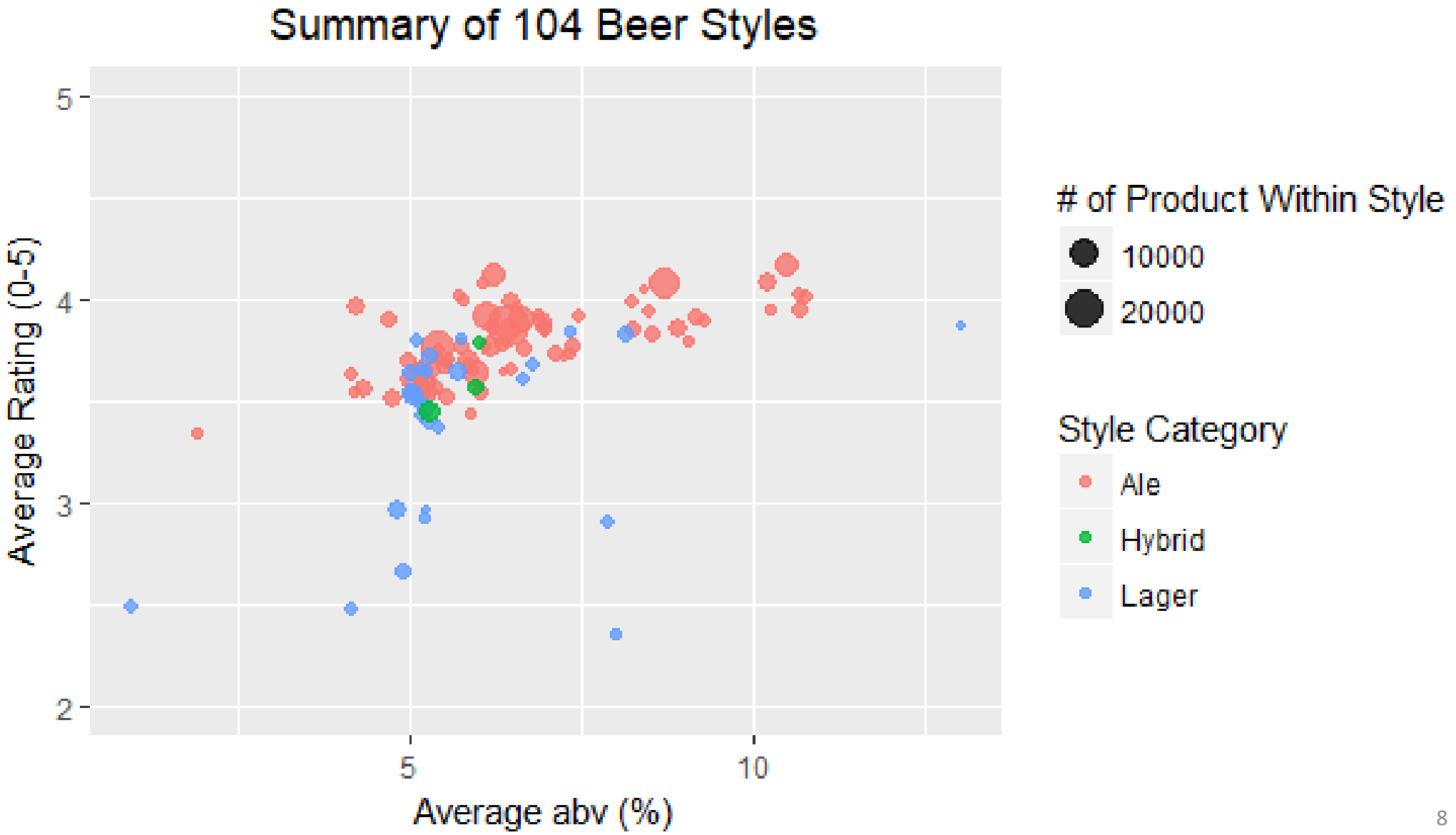
*Source: https://craftbeerinsandiego.com/blog/ratebeerisdeadlongliveuntappd

Data Source

Data was scraped from BeerAdvocate.com:

- **104** Beer Styles
- **13K** Breweries from Around the World
- **200K** Beer Items
- **7 M+** Ratings from **300K+** Users
- **3 GB** Total Data Size

For Beer Styles… Stronger Ale is always better!



Algorithm Test Run: Mean error of 0.3/5.0

- **SVD matrix factorization** implemented on **2.2 Million** ratings from **9000 Users** on **1300 Beers***
- **Cross validation result:**
  - RMSE (Root Mean Square Error): **0.37/5.00**
  - MAE (Mean Absolute Error): **0.27/5.00**

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Evaluating RMSE, MAE of algorithm SVD on 5 split(s).

                  Fold 1  Fold 2  Fold 3  Fold 4  Fold 5  Mean    Std
RMSE (testset)    0.3713  0.3713  0.3715  0.3713  0.3710  0.3713  0.0001
MAE (testset)     0.2658  0.2664  0.2668  0.2665  0.2665  0.2664  0.0003
```

Performance can be further improved by:

- Algorithm parameter tuning
- Leveraging text features extracted from textual comments
- Incorporating popularity based/content based algorithms

* Subset of the full dataset, which includes ratings from users who submitted >100 ratings on beers with >1000 ratings

Project Timeline

Phase One: 19th April ~ 31st May

Phase Two: 1st June ~ 10th August

Data Scraping → Data Cleaning → Exploratory Data Analysis → Model Selection & Training ⇄ Function Testing

Exploratory Data Analysis → Interface Design

…And Cheers!