A Recipe Recommendation System

by Mike Flanagan

Sate

the recipe book with your taste in mind

About the Dataset

- **Sourced from Kaggle:**
  Shuyang Li, *Food.com Recipes and Interactions* (2019)

- **Generating Personalized Recipes from Historical User Preferences**
  Bodhisattwa Prasad Majumder, Shuyang Li, Jianmo Ni, Julian McAuley
  EMNLP, 2019
  https://www.aclweb.org/anthology/D19-1613/

About the Dataset

Recipes Data:

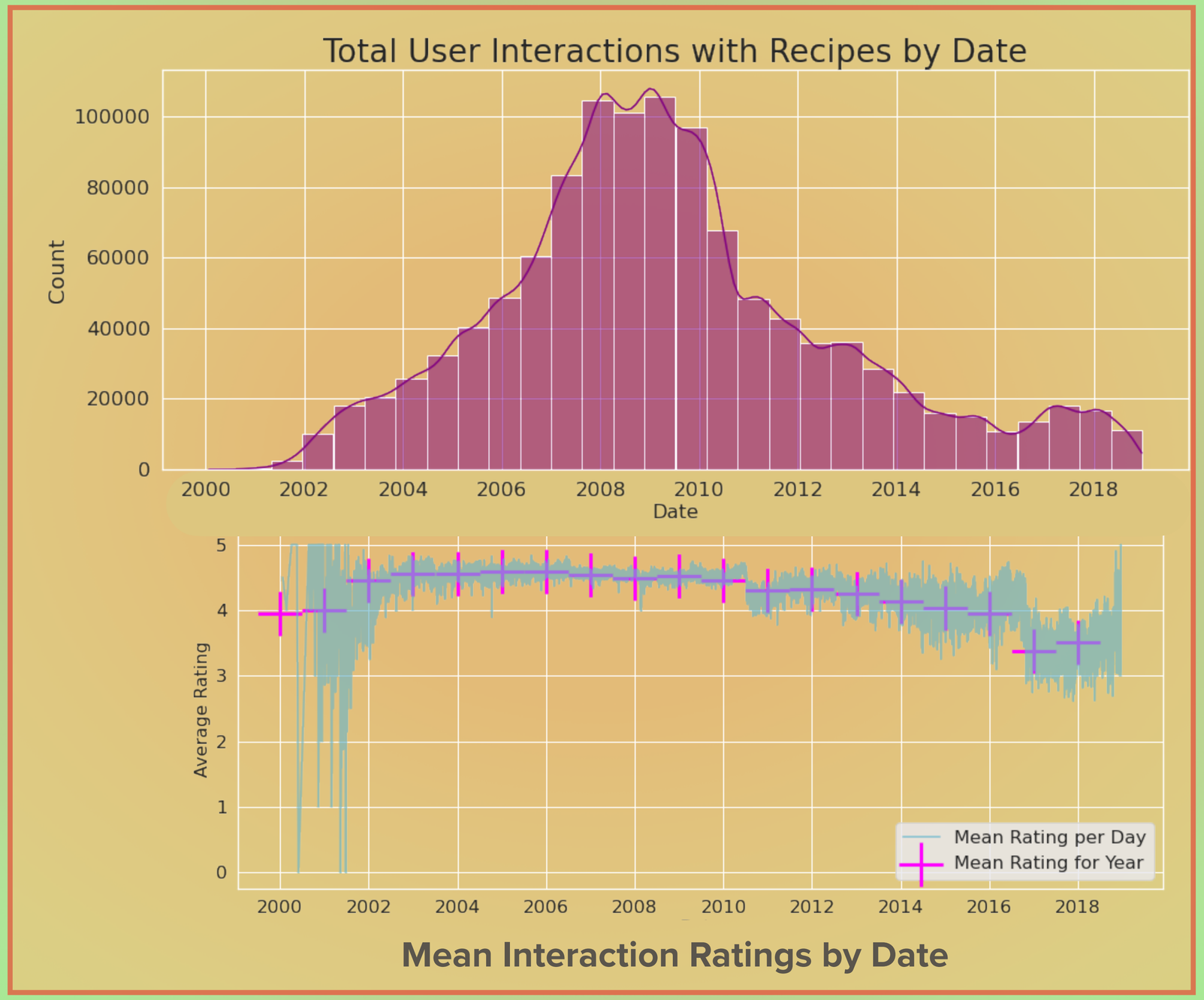
- **231,636 rows** of recipes
- **Features include:**
  ingredients, time to prepare, steps, nutrition, 3 user reviews, mean rating, many more.

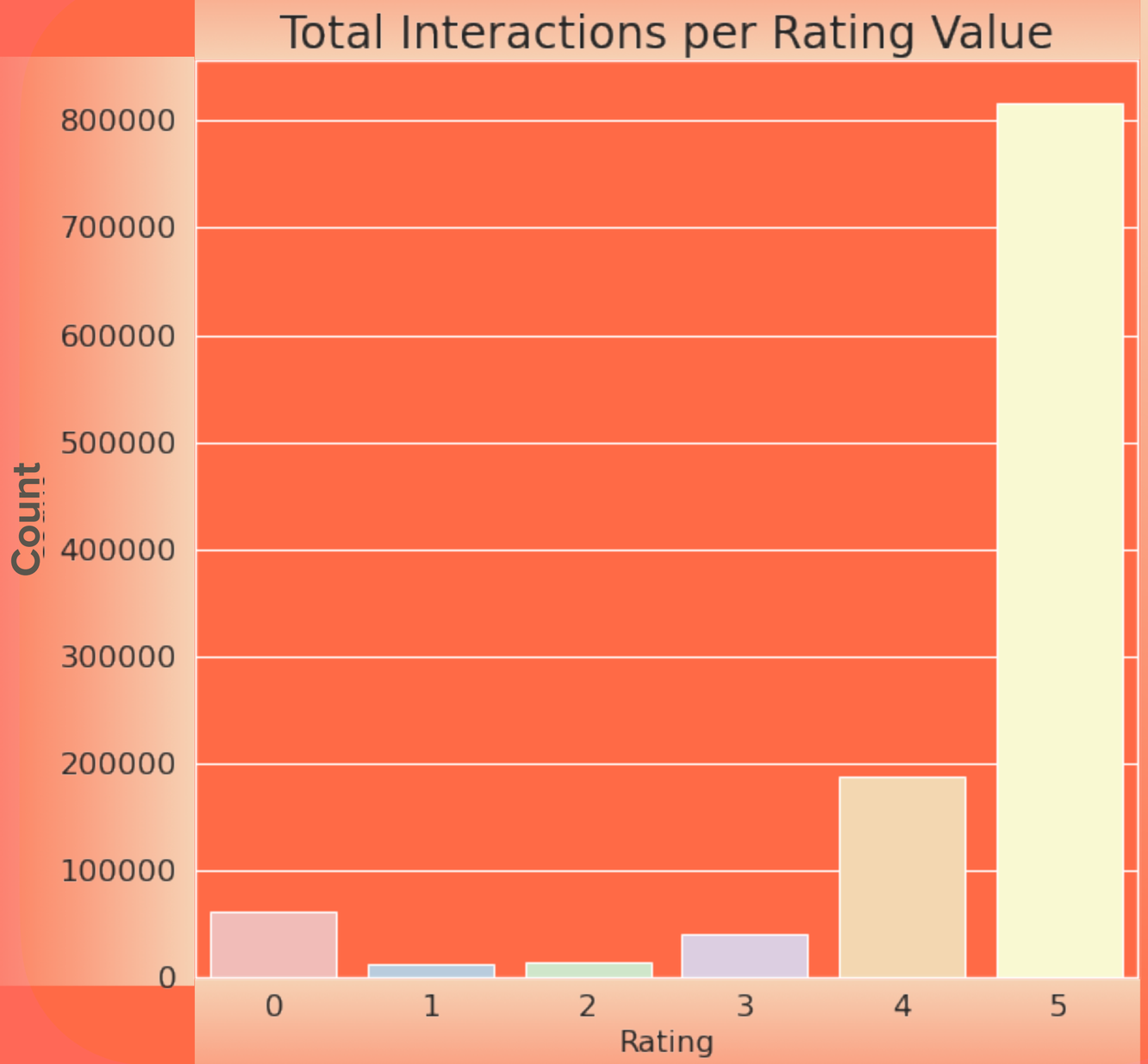
Interactions Data:

- **1,132,367 rows** of user interactions with recipes
- **Features include:**
  user ID, recipe ID, date of interaction, rating, & review.

Date

- **High Variance** in **Rating Mean by Date in early years**
- **Only 3,012 interactions** first two years
- Year with most Interactions is **2008**





Ratings

* **816,229 Five-star Ratings**
* **60,847 Ratings of 0**
* **No Null Values**
* 0 ratings managed by using *Pearson's correlation coefficient* as hyperparameter for model similarity metric.

Reviews

- 169 Null Values
- All user interactions with null review have non-null and non-zero rating

Ratings of 1 & 2

All Reviews

Ratings of 5

Modeling

Evaluating on RMSE with Pearson Correlation used for Similarity Metric

Baseline ALS:

1.2099 RMSE

+Best Train Time

Baseline SGD:

1.2127 RMSE

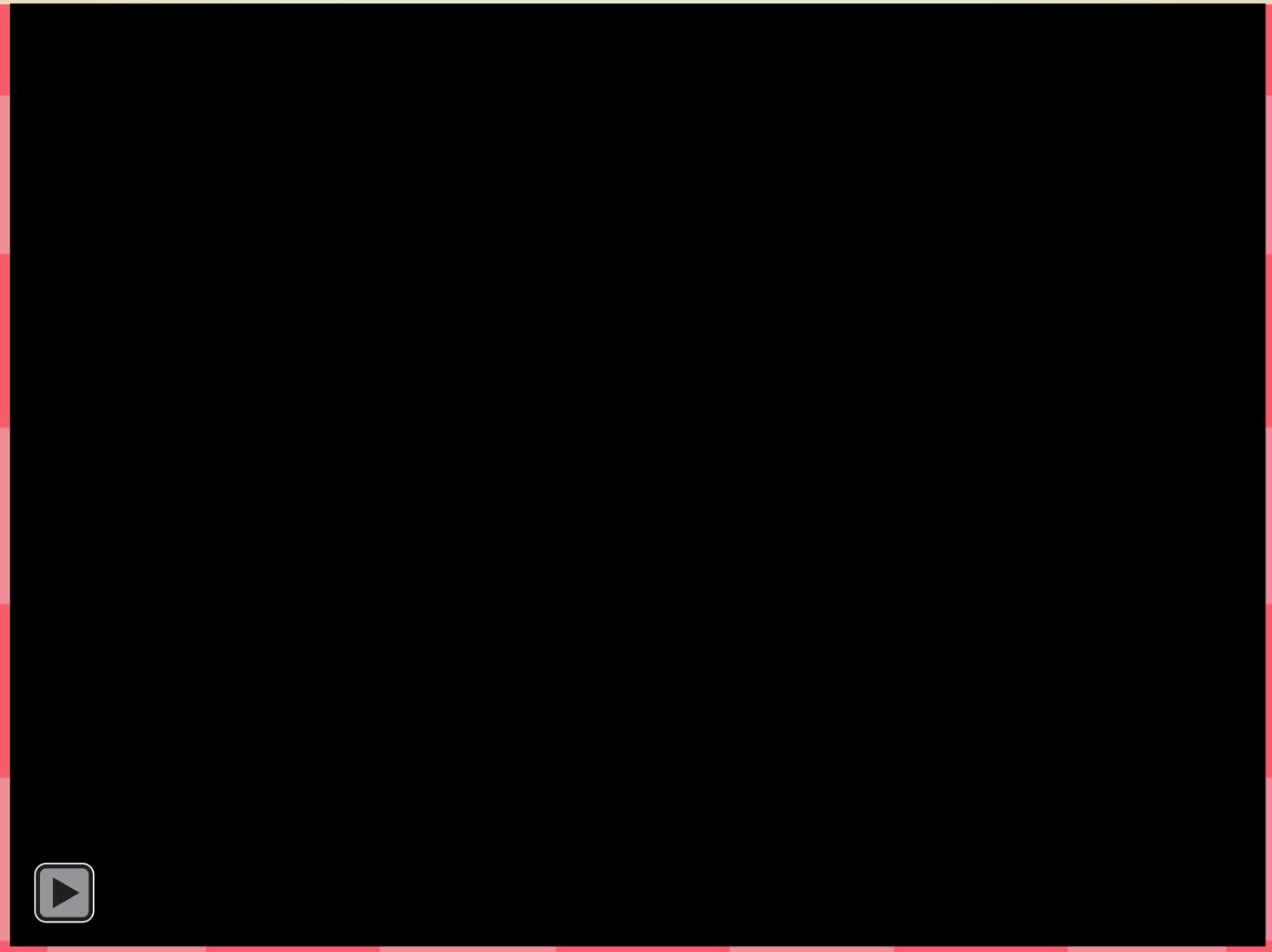
Tuned Funk's SVD:

1.2142

Co-clustering:

(it was worse)

Demo Preview



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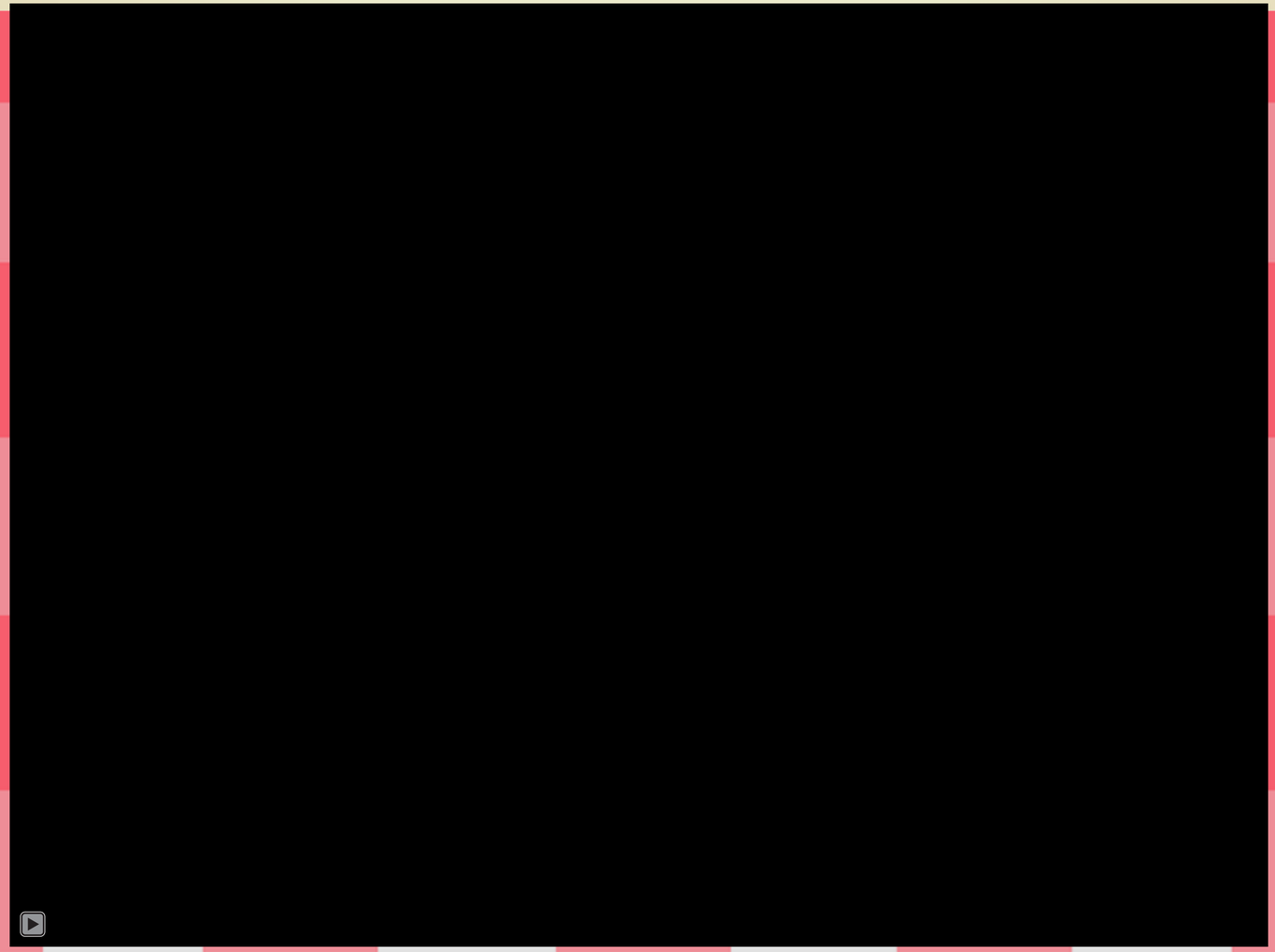

Further Actions

- Finalize web app to be operational, polished & accessible.
- AB Testing
- Return to modeling

Thank you

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