



Recipe Analysis and Recommendation

Group 14

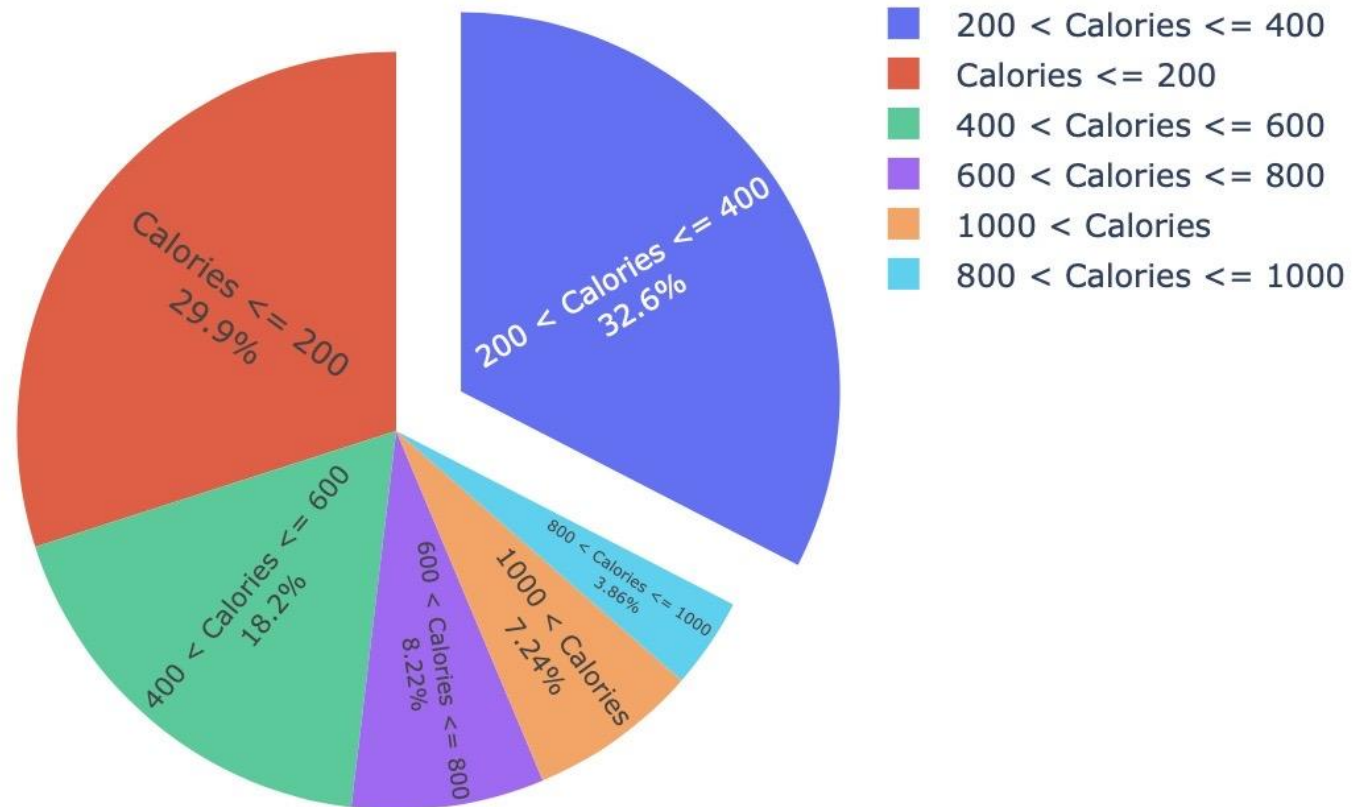
Michael Baluja Arash Behravesht

Hongbo Qian Ziqi Zhou Ziyuan Zhu

View of Dataset

- 180k + recipes
 - Tags
 - Ingredients
 - Cook Time
 - Nutrition
 - Date

Calories for Database



View of Dataset

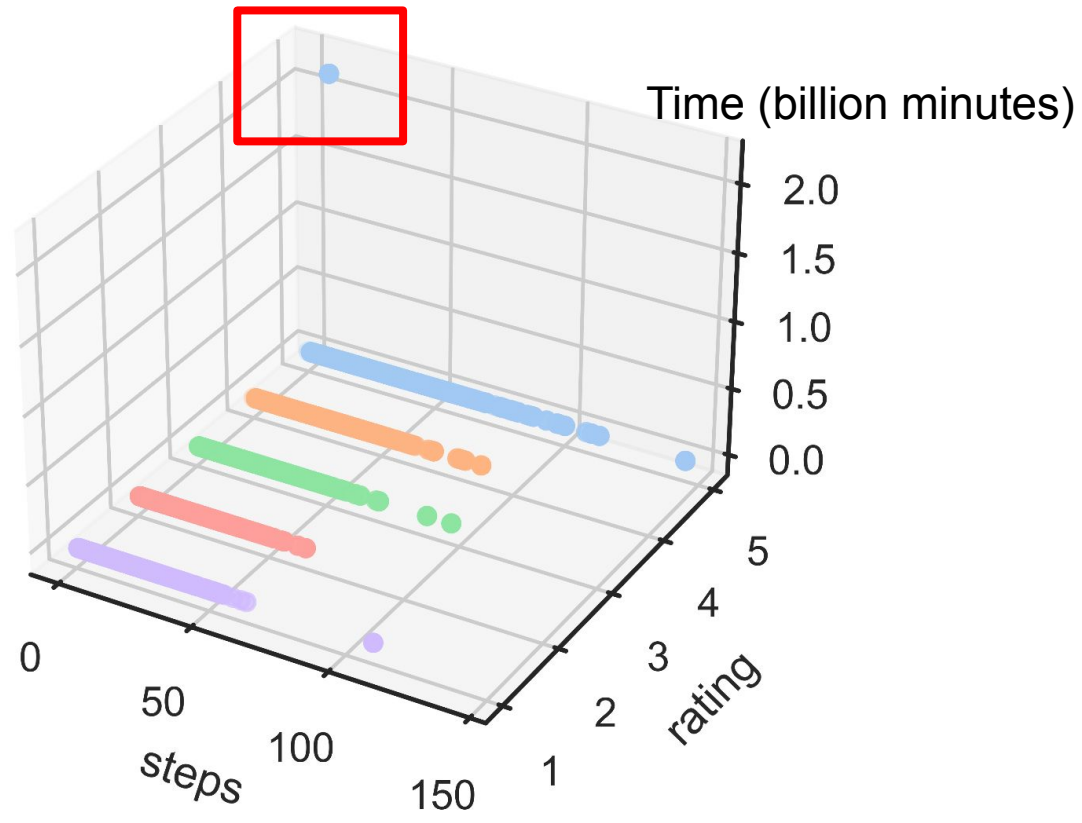
- 700k+ reviews
 - Comment
 - Rating

Word cloud of Rating 5

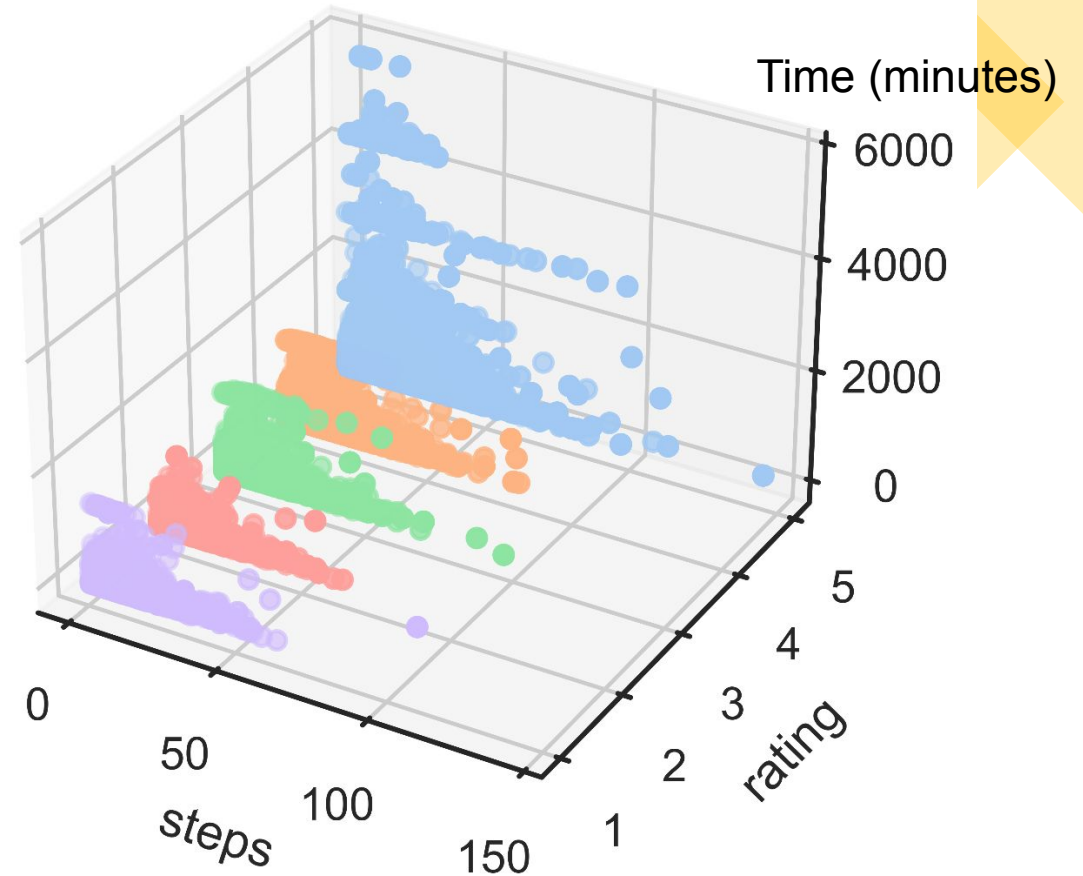


Data Cleaning

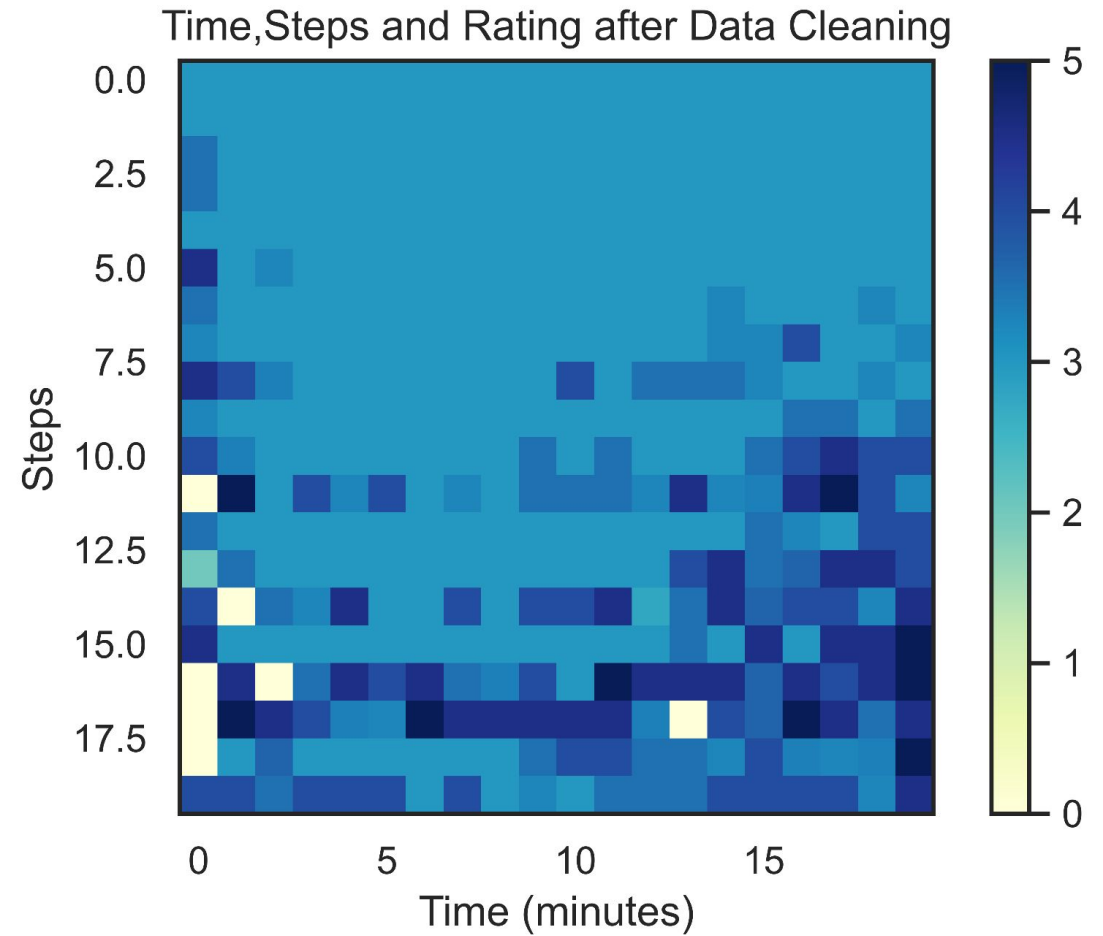
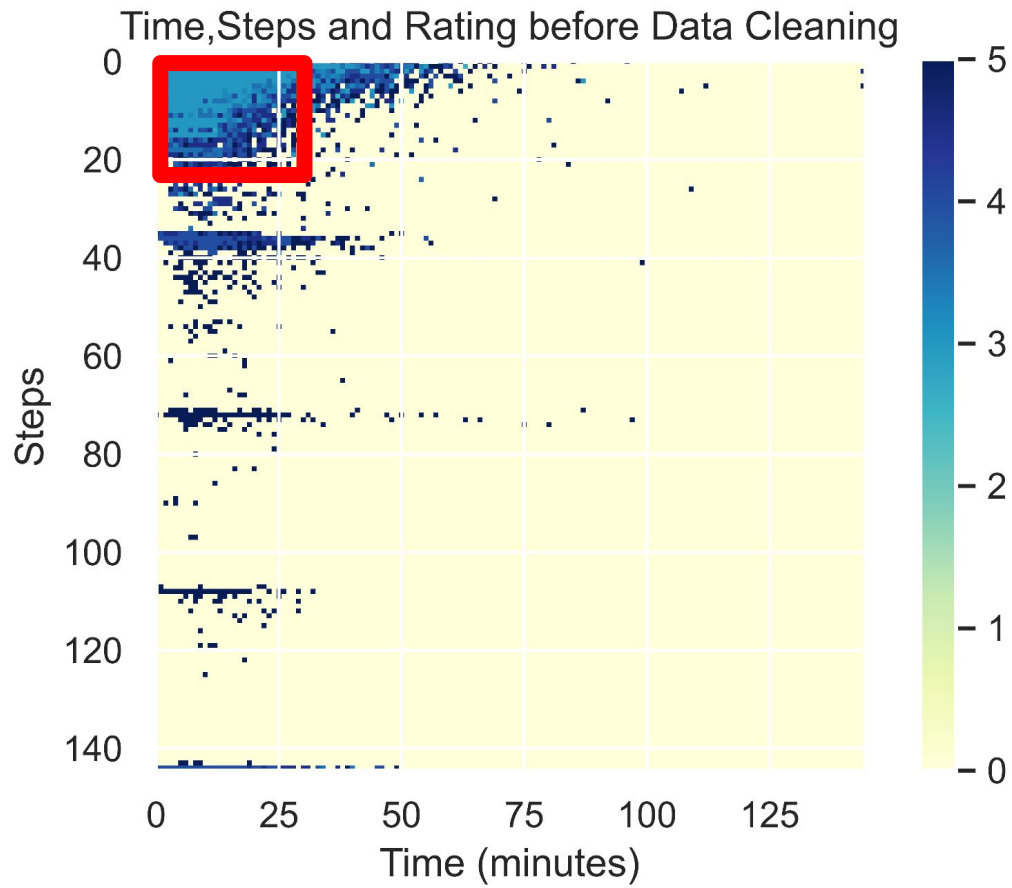
Steps, Time and Rating before Data Cleaning



Steps, Time and Rating after Data Cleaning



Data Cleaning



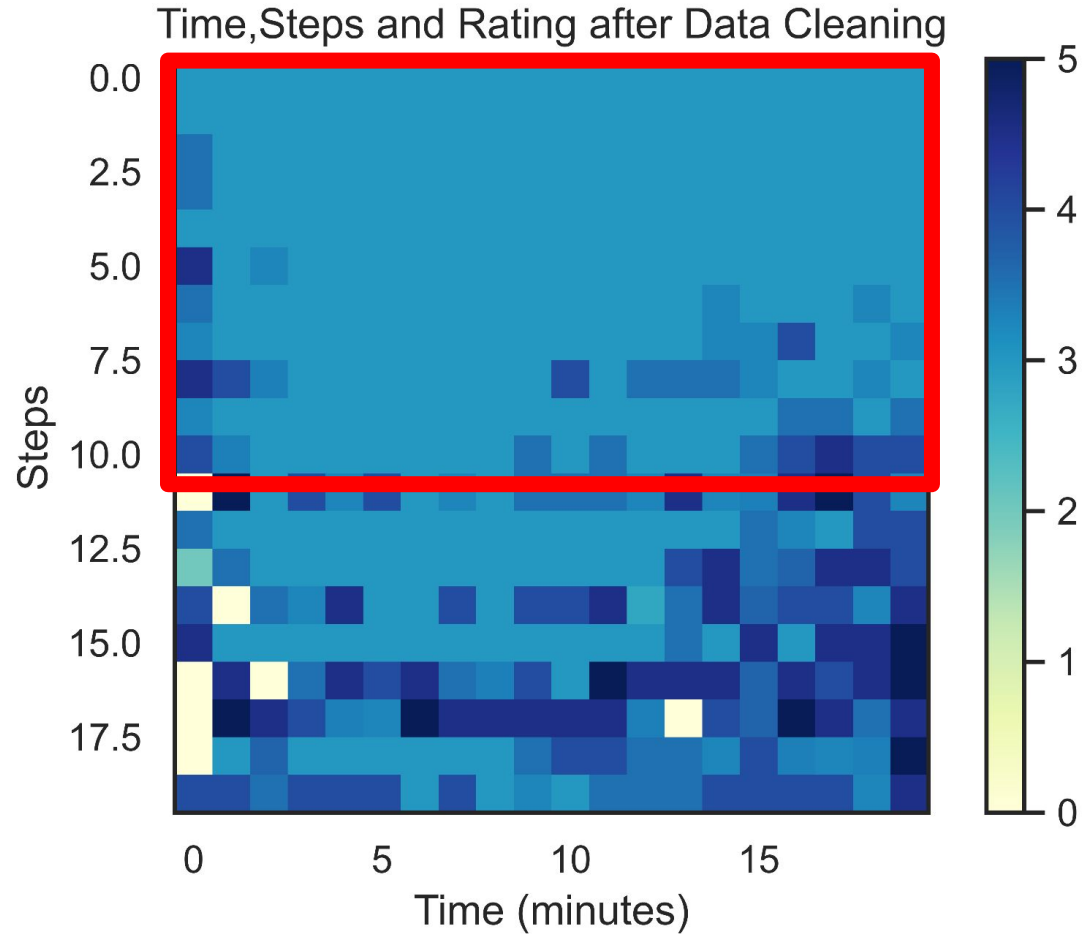
Desired Insights

- Why do some recipes get a high rating?
 - How do the **nutrition values** influence **rating**?
 - How do **cook time** and **ingredients** influence **rating**?
- What is changing over years?
 - How does **nutrition** change over submission **year**?
- Above analysis used for recommending highly rated recipes.

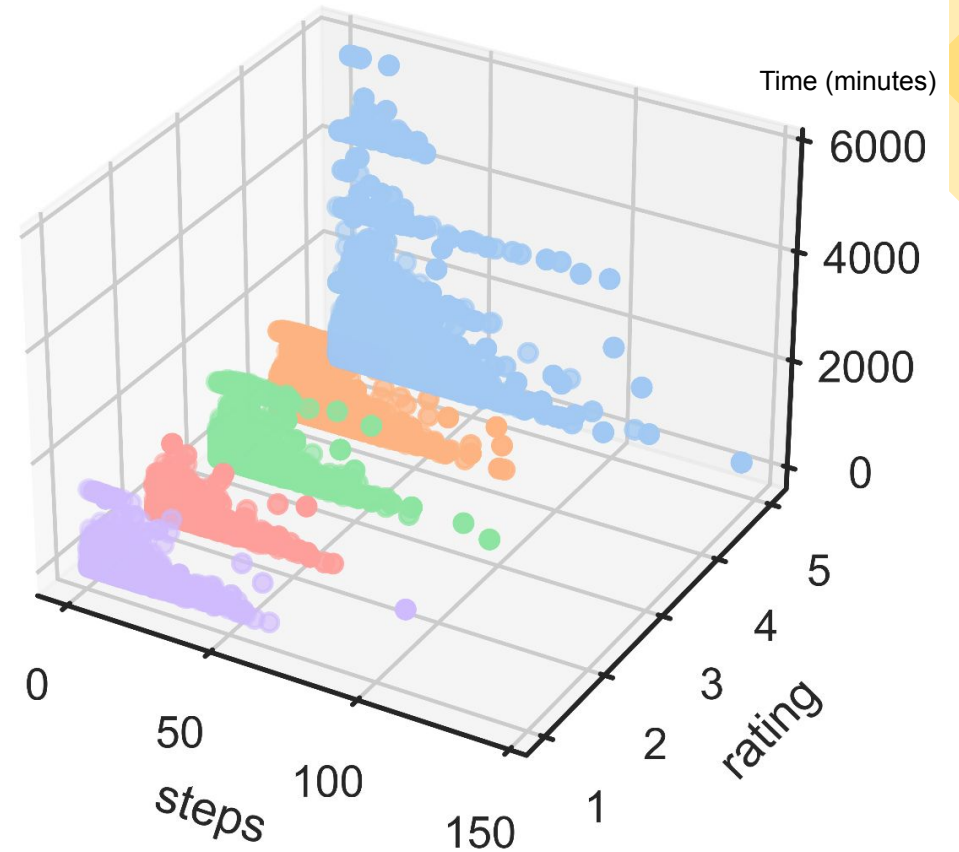


Why recipes get
a high rating?

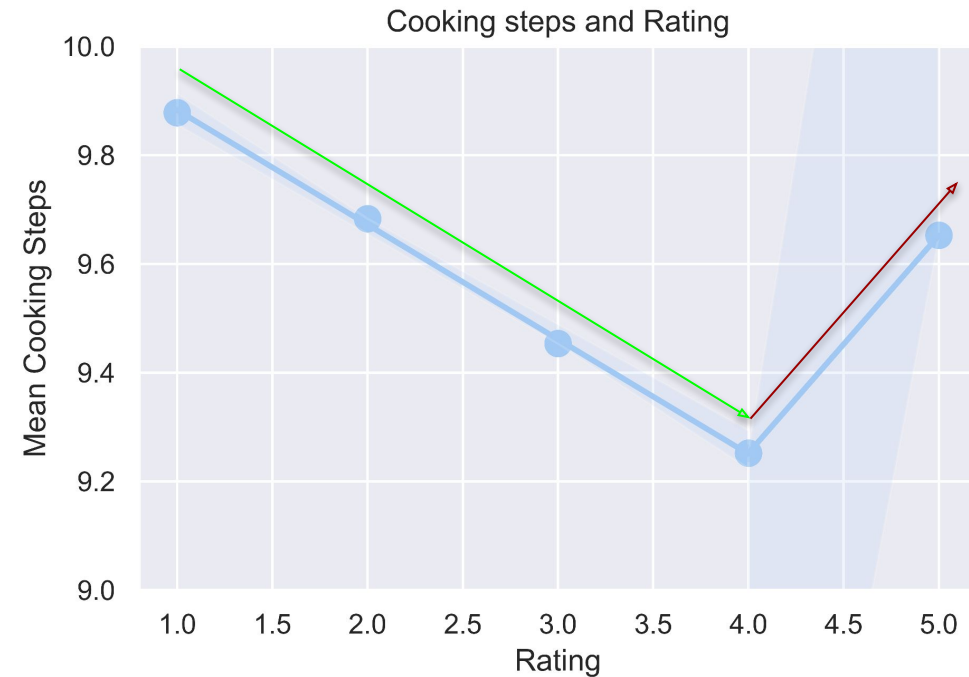
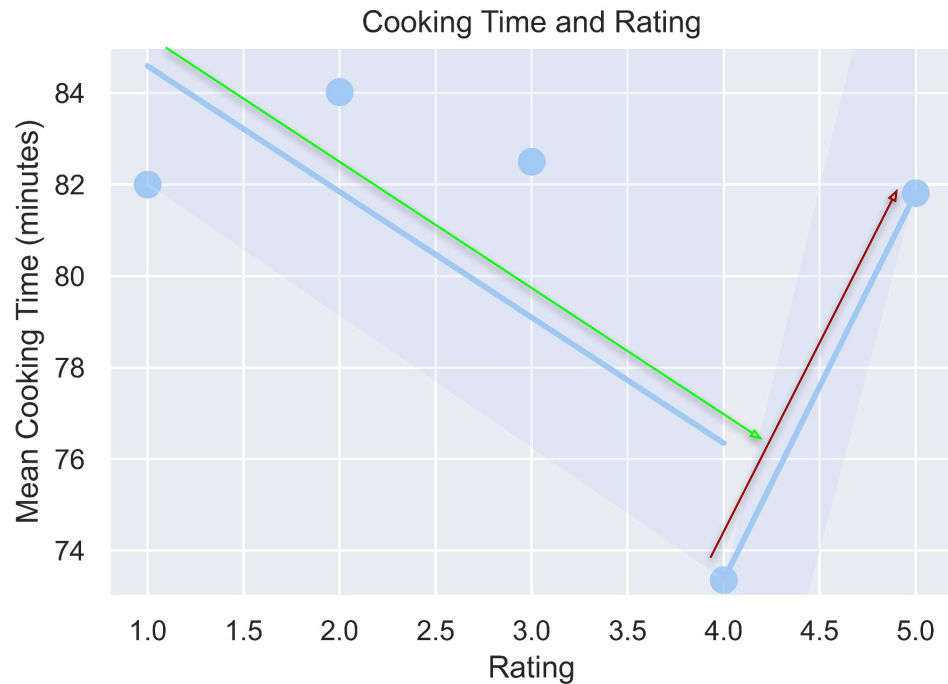
Complexity and Rating



Steps, Time and Rating after Data Cleaning



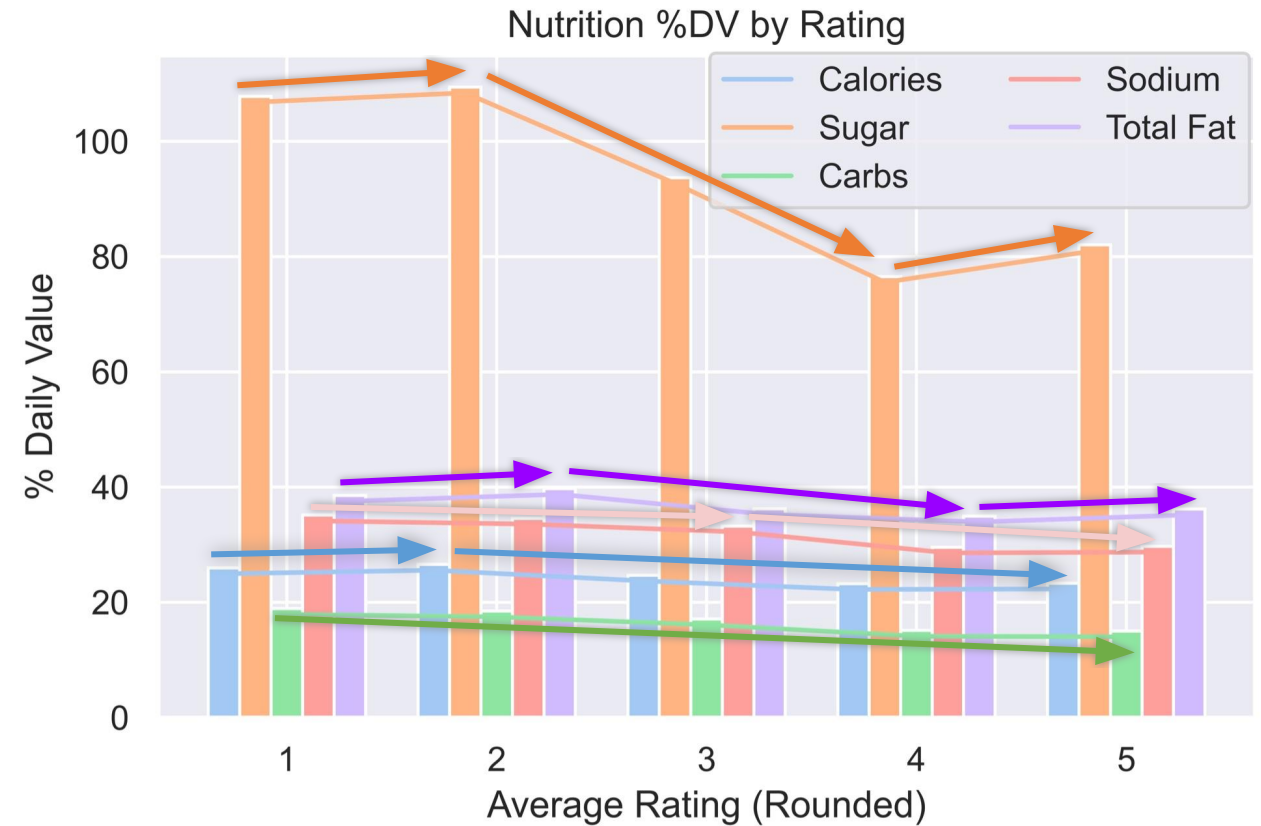
Complexity and Rating




- Fewer steps and faster recipes lead to higher ratings.
- In order to get the full 5 stars, recipes are often more involving.

Nutrition and Rating

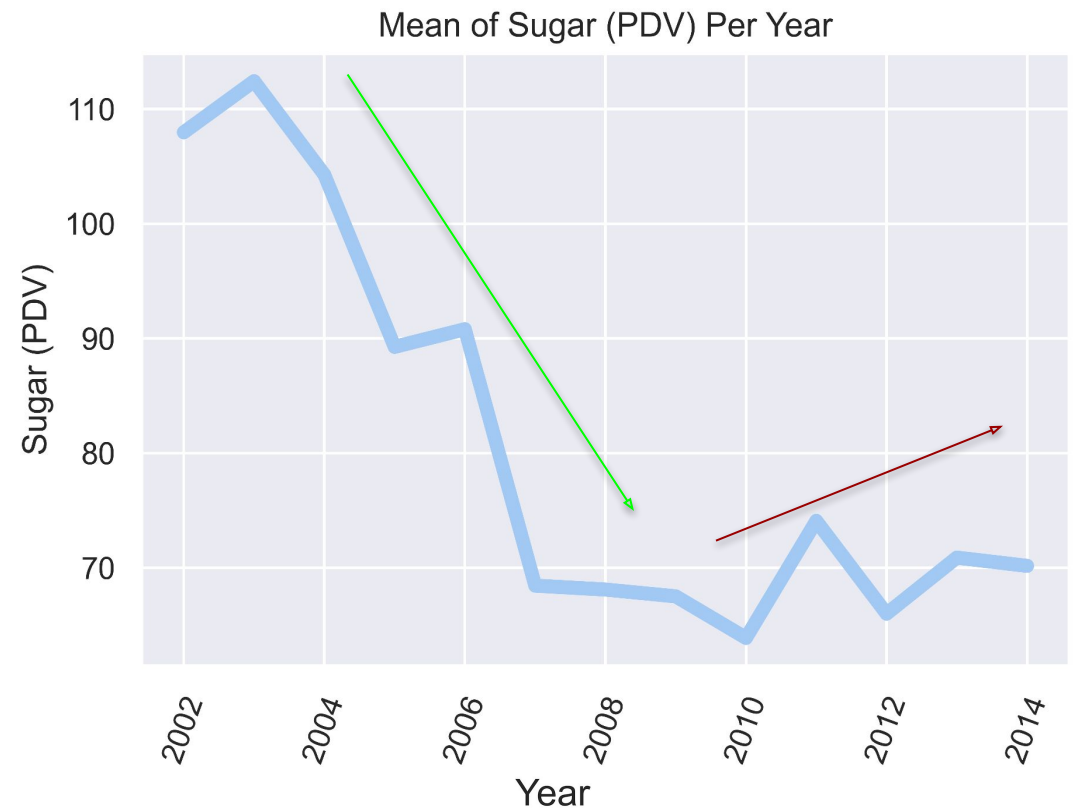
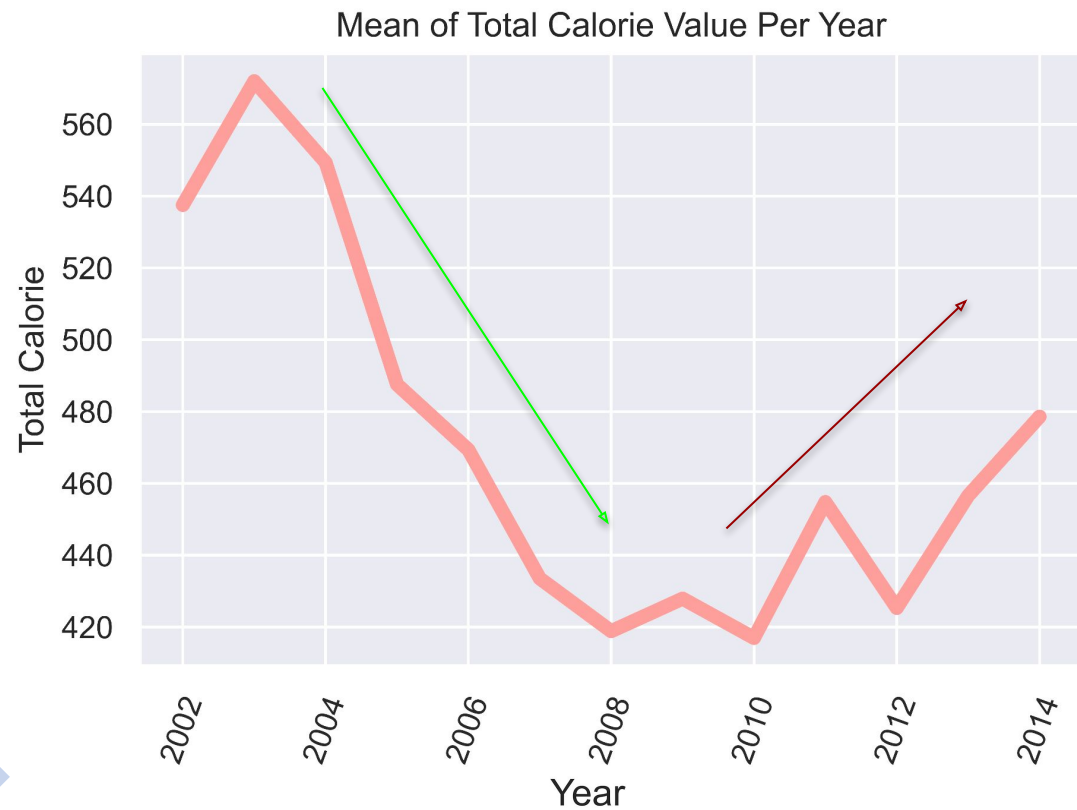
- In general, healthier recipes are higher rated.
- Carbs and Calories decrease the most for higher ratings.



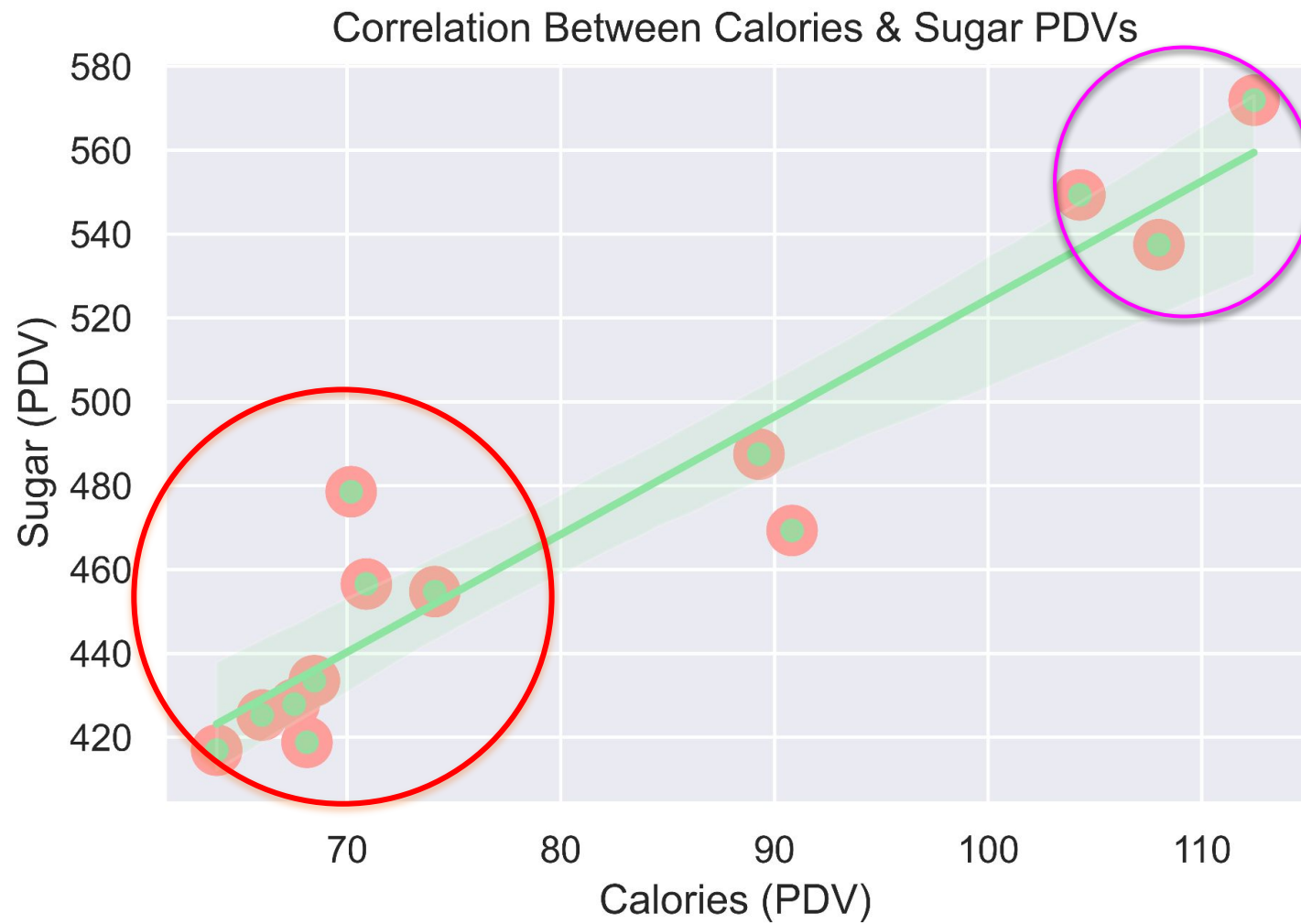


What is changing
over the years?

Change in Nutrition



Change in Nutrition

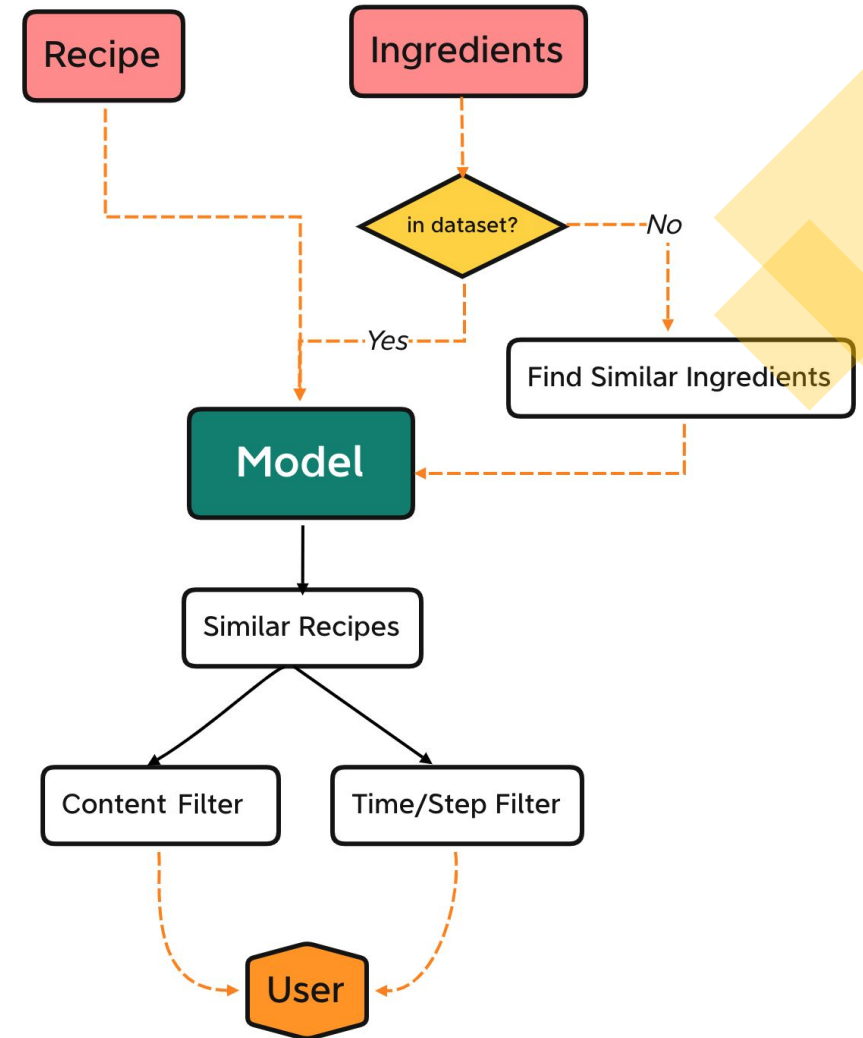


The background features a complex geometric pattern of overlapping triangles and polygons in shades of blue, yellow, and grey. A large white diamond shape is positioned on the left side, serving as a backdrop for the text.

Recommendation system

Recommendation

- Users can choose to recommend based on **ingredients**, **cook time**, or **nutritional value**.
- Ingredients can be substituted in case a desired ingredients has not been seen in a previous recipe.
 - Replaces **lettuce heart** with **lettuce** etc.



Recommendation Example

- For the **PERFECT CHOCOLATE CAKE** recipe, Food.com recommends very unsimilar recipes.
- Our recommender system get more reasonable results.

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How to Make Tamales

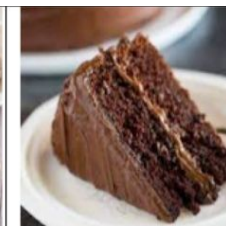
Food.com



tex mex chocolate sheet cake the best



wanda s cutout cream cookies



hershey's chocolate chocolate cake



rich chocolate cake



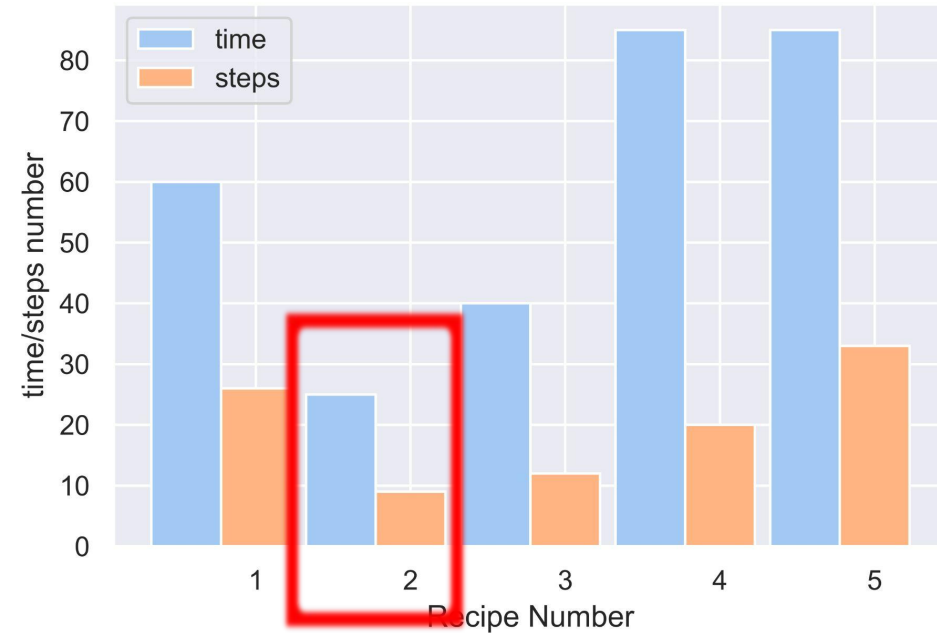
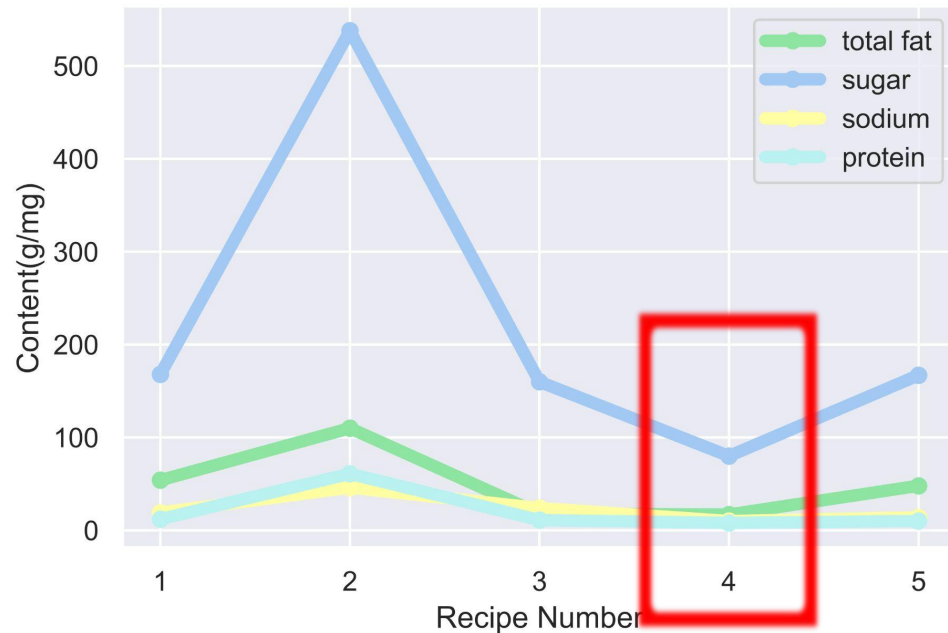
best chocolate cake with creamy chocolate frosting

Our model

First Recommend Comparison

"PERFECT CHOCOLATE CAKE" MCCALL'S COOKING SCHOOL	tex mex chocolate sheet cake the best
'all-purpose flour',	'all-purpose flour'
'baking powder',	'baking powder'
'baking soda',	'baking soda'
'boiling water',	'boiling water'
'butter',	'butter'
"confectioners' sugar",	'buttermilk'
'eggs',	'eggs'
'heavy cream',	'heavy cream'
'light cream',	'mexican chocolate'
'salt',	'salt'
'semisweet chocolate pieces',	'pecans',
'sugar',	'sugar',
'unsweetened cocoa',	'unsweetened cocoa',
'vanilla',	
'vanilla extract'	'vanilla extract'

Recommendations comparison



- Users can choose from five recommended recipes based on the content and the time/steps.



THANK YOU!