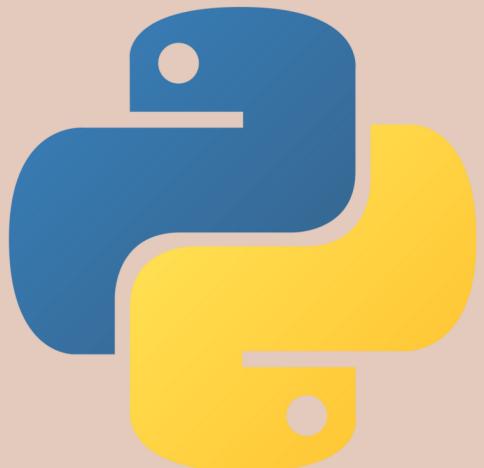


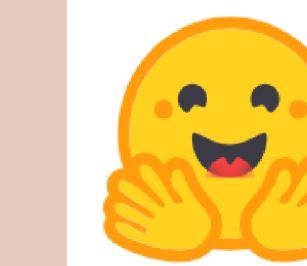
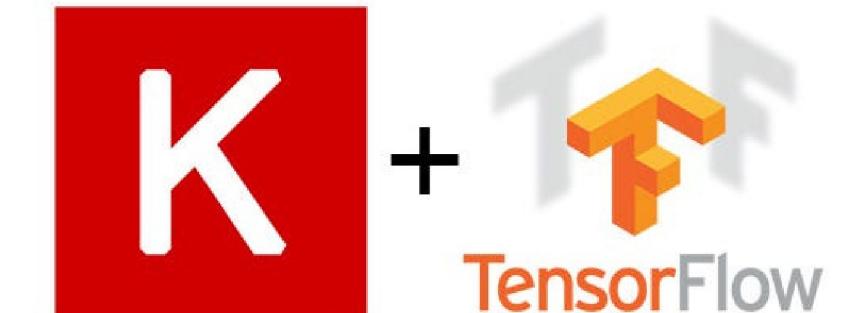
RECIPE CLASSIFIER

Andrew Yew, 2023 APR

Swiss-knife

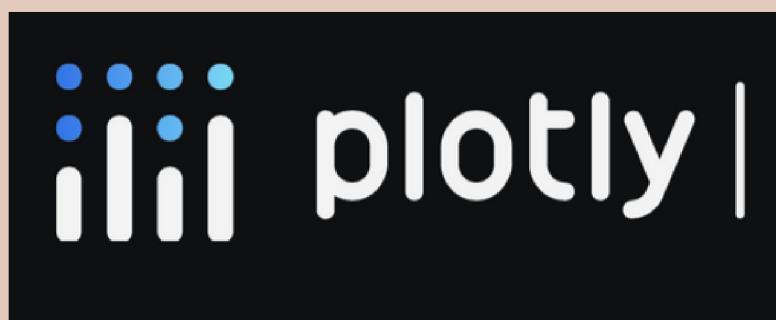


Modeling

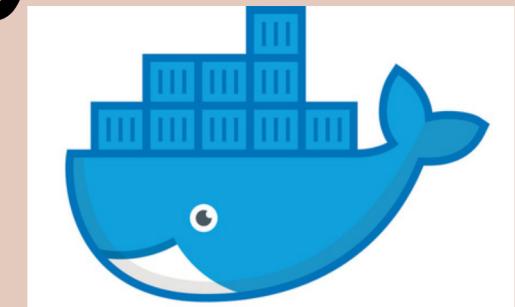


Hugging Face

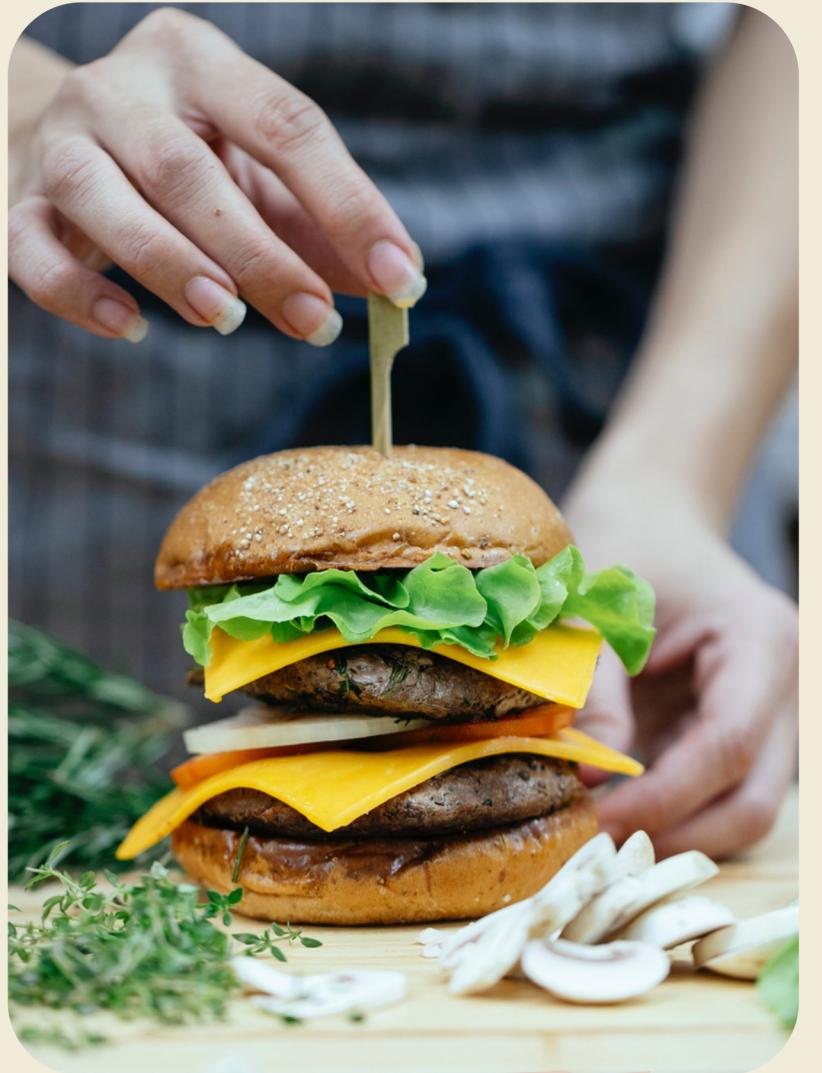
Visualization



Big Data / Deployment



RECIPE CLASSIFIER



Home
cooking
healthier*



Food costs
rose by 11%*



Precious time
after work



Identify if a
recipe online is
worth your time
and effort

Authentic Louisiana Red Beans and Rice

★★★☆☆ 4.5 (1,374) | 1,001 REVIEWS | 118 PHOTOS

Authentic Cajun flavor! I grew up in Louisiana and love red beans and rice; these are just like I remember. Serve with hot sauce for a little kick. My family loved to splash a little cider vinegar in each bowl.

Recipe by **MIAMI BEACH** | Updated on March 6, 2023

Save

Rate

Print

Share

How to Make Authentic Louisiana Red Beans and Rice

Louisiana red beans and rice brings authentic Cajun flavor to the table. Ser...



00:10 / 05:47

Add Photo

118

Target Feature:
Average Rating

Cook Times

Total Time: 11 hrs 30 mins Servings: 8

Additional Time: 8 hrs

Nutrition

630	24g	79g	24g
Calories	Fat	Carbs	Protein

Show Full Nutrition Label

Directions

Step 1

Gather all ingredients.



Reviews



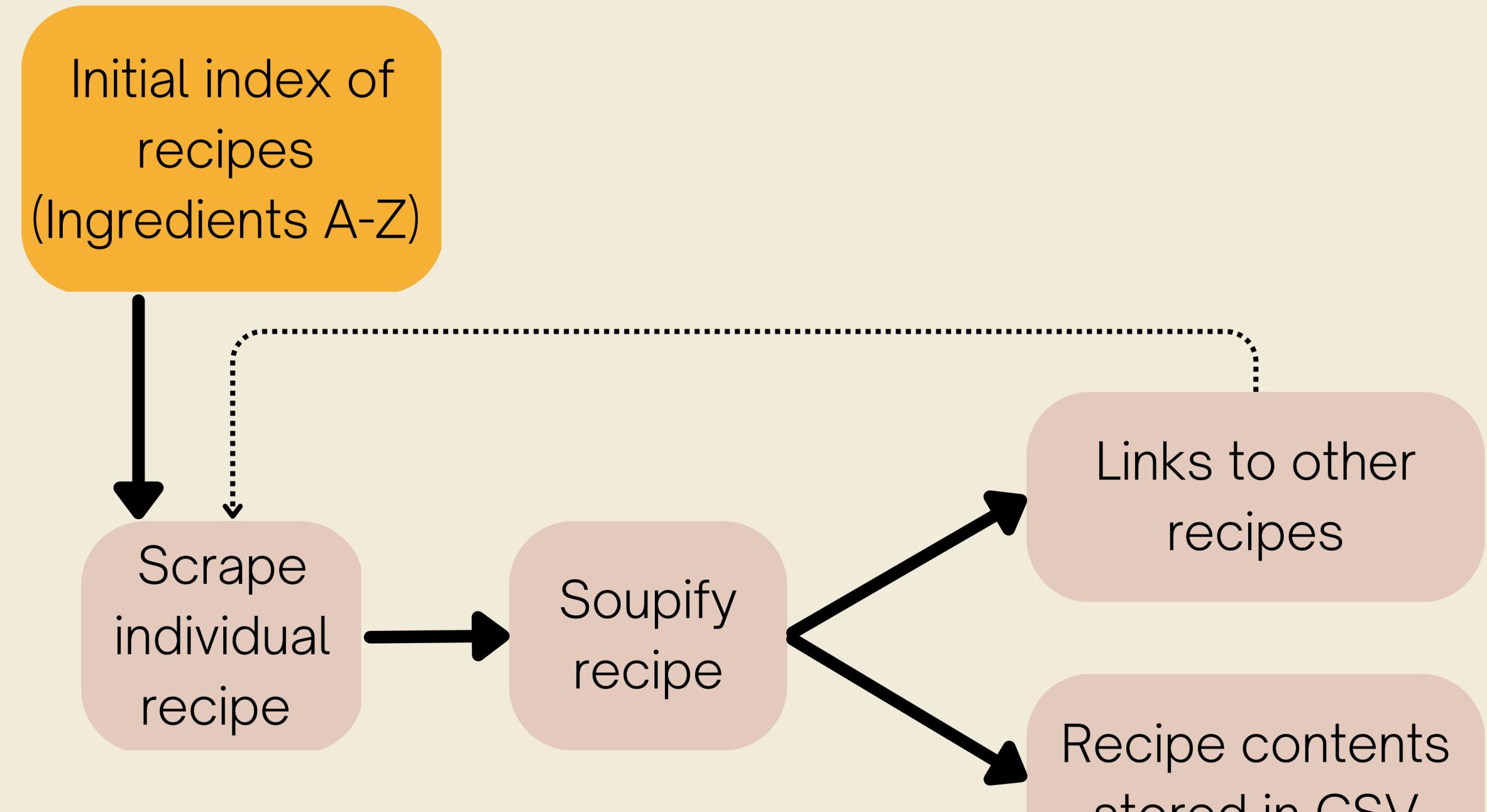
Just needs salt! Been making this for years, but I used to always use 4 cans of (pre salted) red beans instead of doing the dried beans, so I never noticed that there's no salt in the recipe! When I made it recently I ended up adding two teaspoons of salt and did everything else the same. I'm guessing it was an omission? Anyway, [Read More](#)

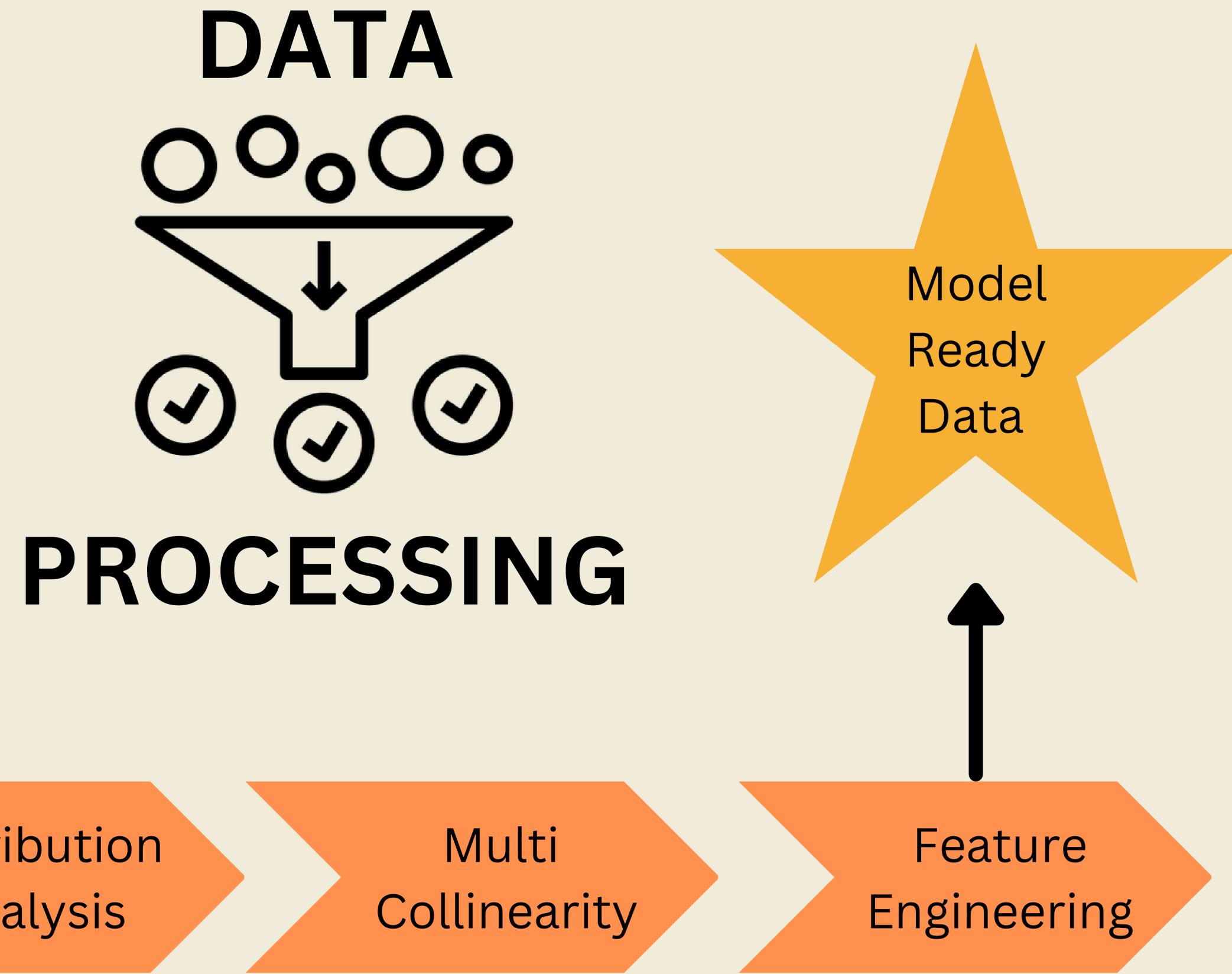
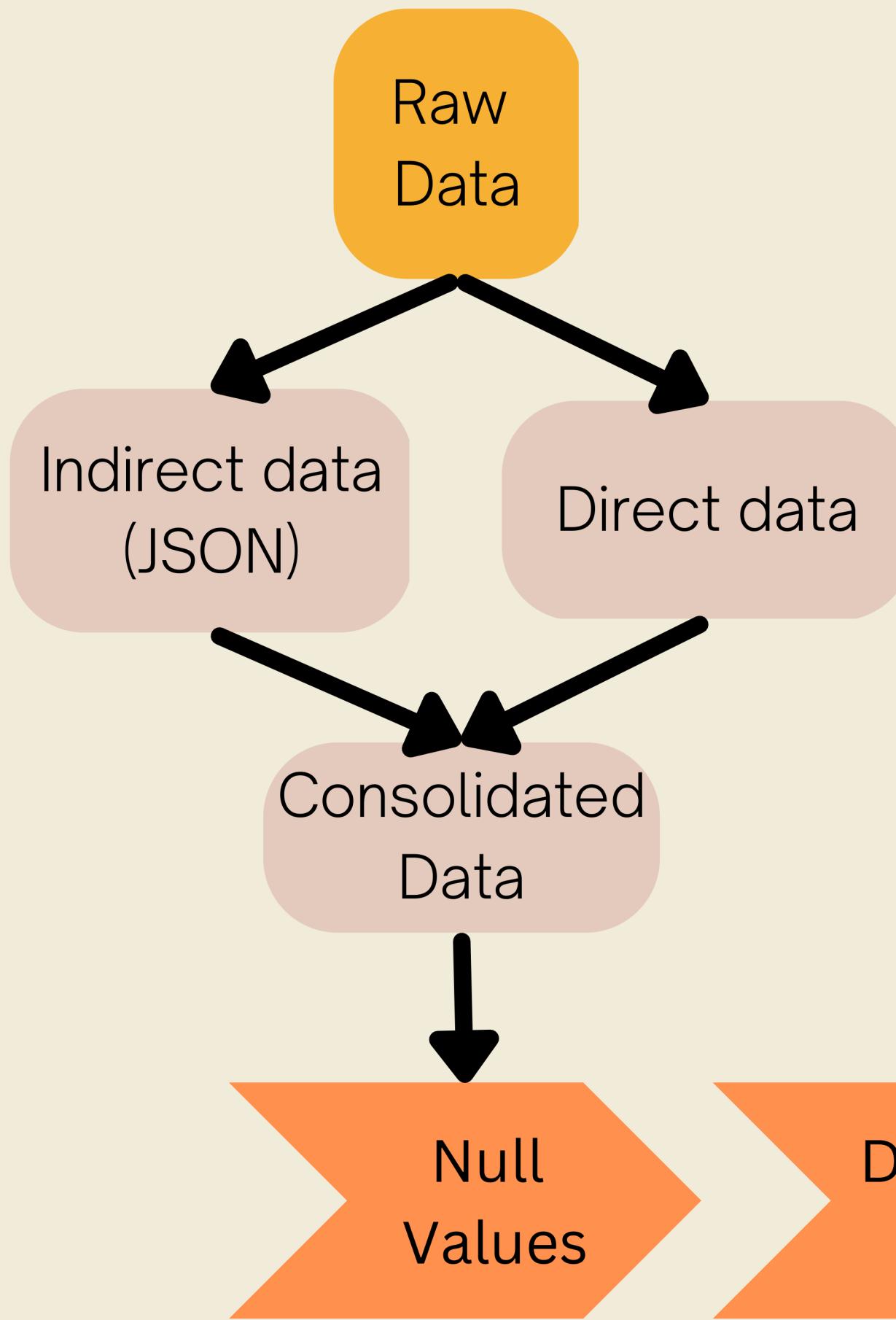
Helpful (0)

WEB SCRAPING



Beautiful Soup





KNN Imputer

One Hot Encoder

TF-IDF Vectorizer

LOG

Standard Scaler

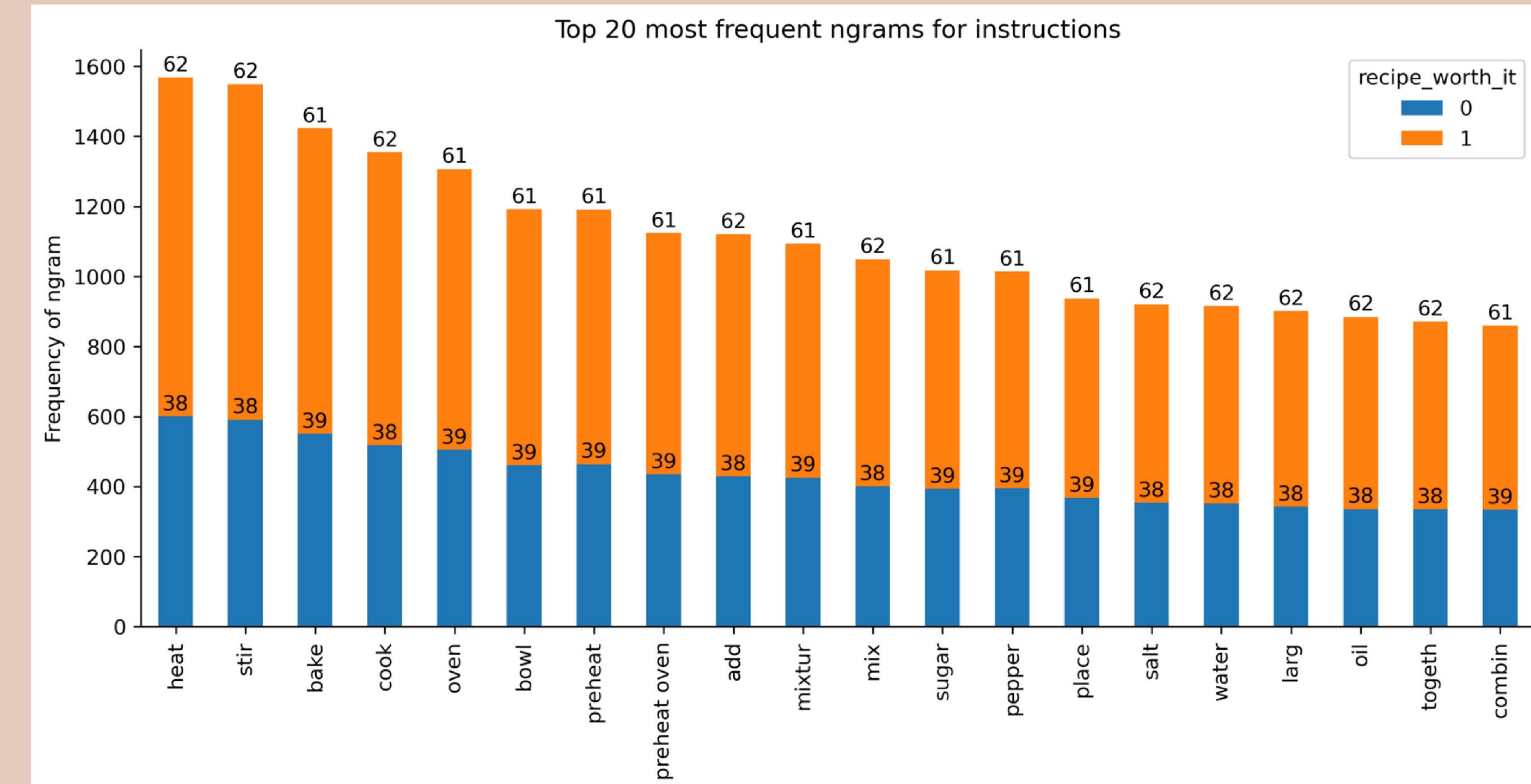
Directions

Step 1

Make the sauce: Cook and stir ground beef over medium heat until browned and crumbly. Add salt, black pepper, Italian seasoning, and garlic powder. Cook until mushrooms are tender. Turn heat to medium-high and cook until mushrooms are browned. Remove from heat. Let cool. Place the meat mixture in a large bowl.

Step 2

Pour marinara sauce into meat mixture. Mix well. Place the meat mixture in a large bowl. Add water if sauce becomes too thick. Skim off any fat or oil. Add salt and pepper. Turn off the heat.

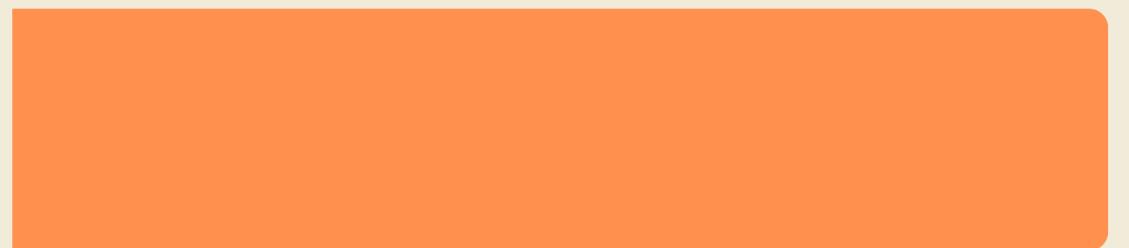


Deciding Final Model

Optimized Models	Validation Accuracy	False Positive (Precision)	False Negative (Recall)
Baseline	58%	-	-
XGBoost	77%	78%	85%
Logistic Regression	76% 	78%	83%

Top 5 XGBoost SHAP Values

Review_delicious



Review_taste



Review_made



Review_perfect



Review_excel



Top 5 Logistic Regression Coefficients

Review_delicious



Tags_drink



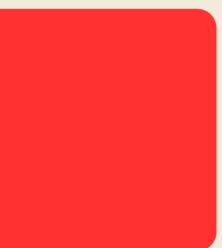
Review_perfect



Review_love



Ingredients_whole



Building on the current project:

- 1) Content based recommender system for recipes.
- 2) Text generator for generation of recipes, meal plans, and grocery lists.

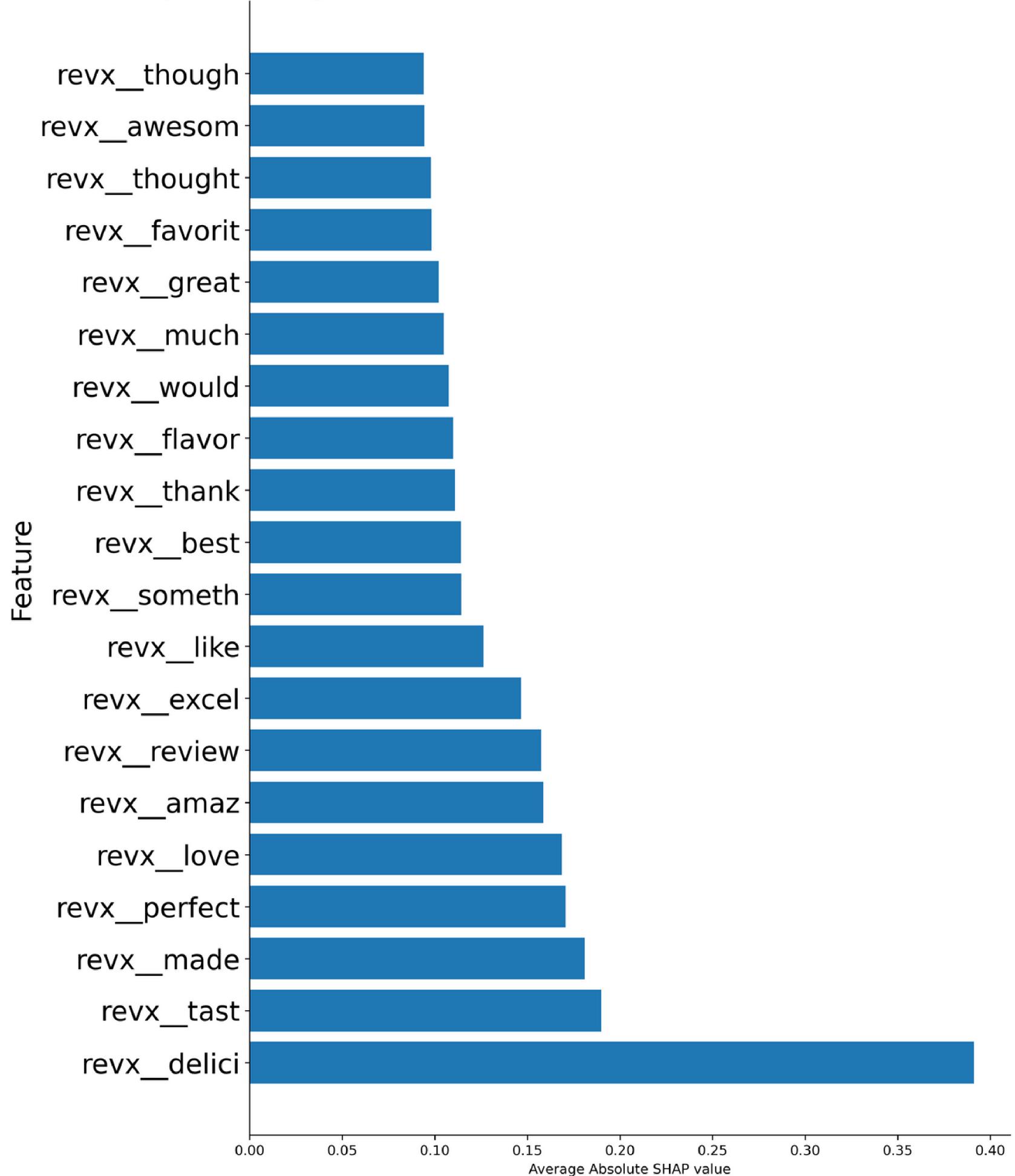


Thank
you!

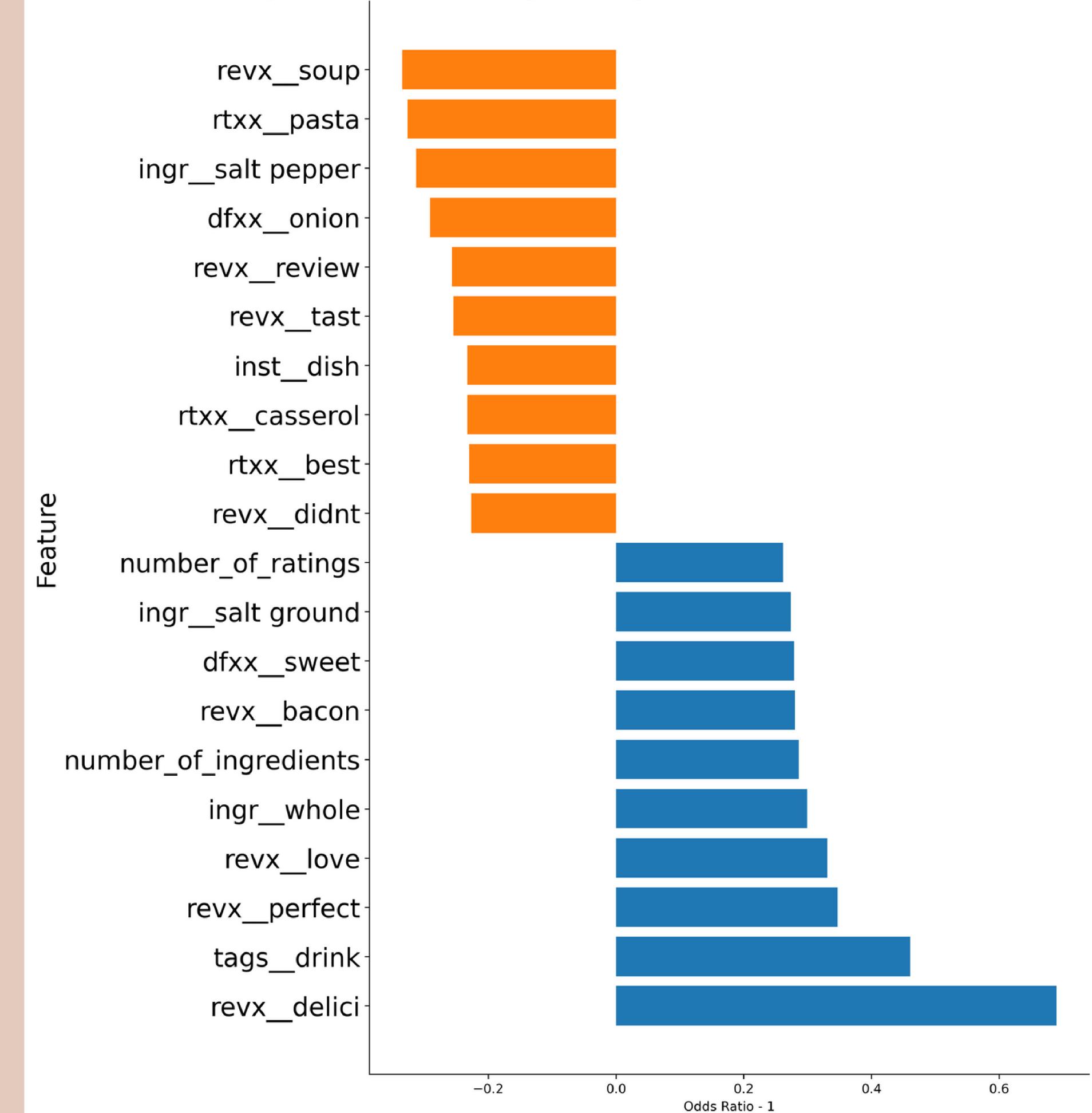
Deciding Final Model

Optimized Models	Validation Accuracy	False Positive (Precision)	False Negative (Recall)
Baseline	58%	2,238 (58%)	0 (100%)
XGBoost	77% 	740 (78%) 	485 (85%) 
Logistic Regression	76%	745 (78%)	521 (83%)

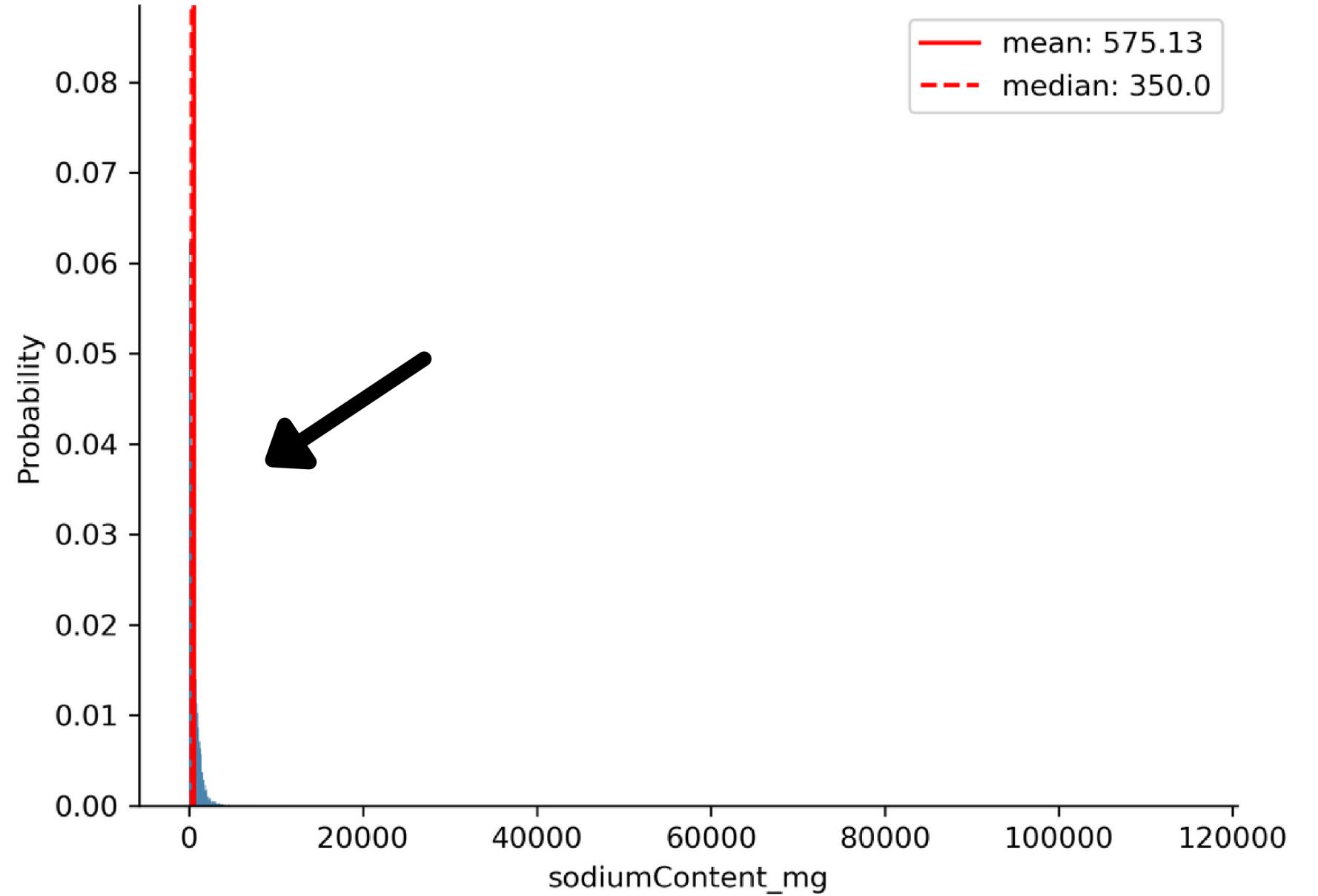
Top 20 Average Absolute SHAP Values for XGBoost



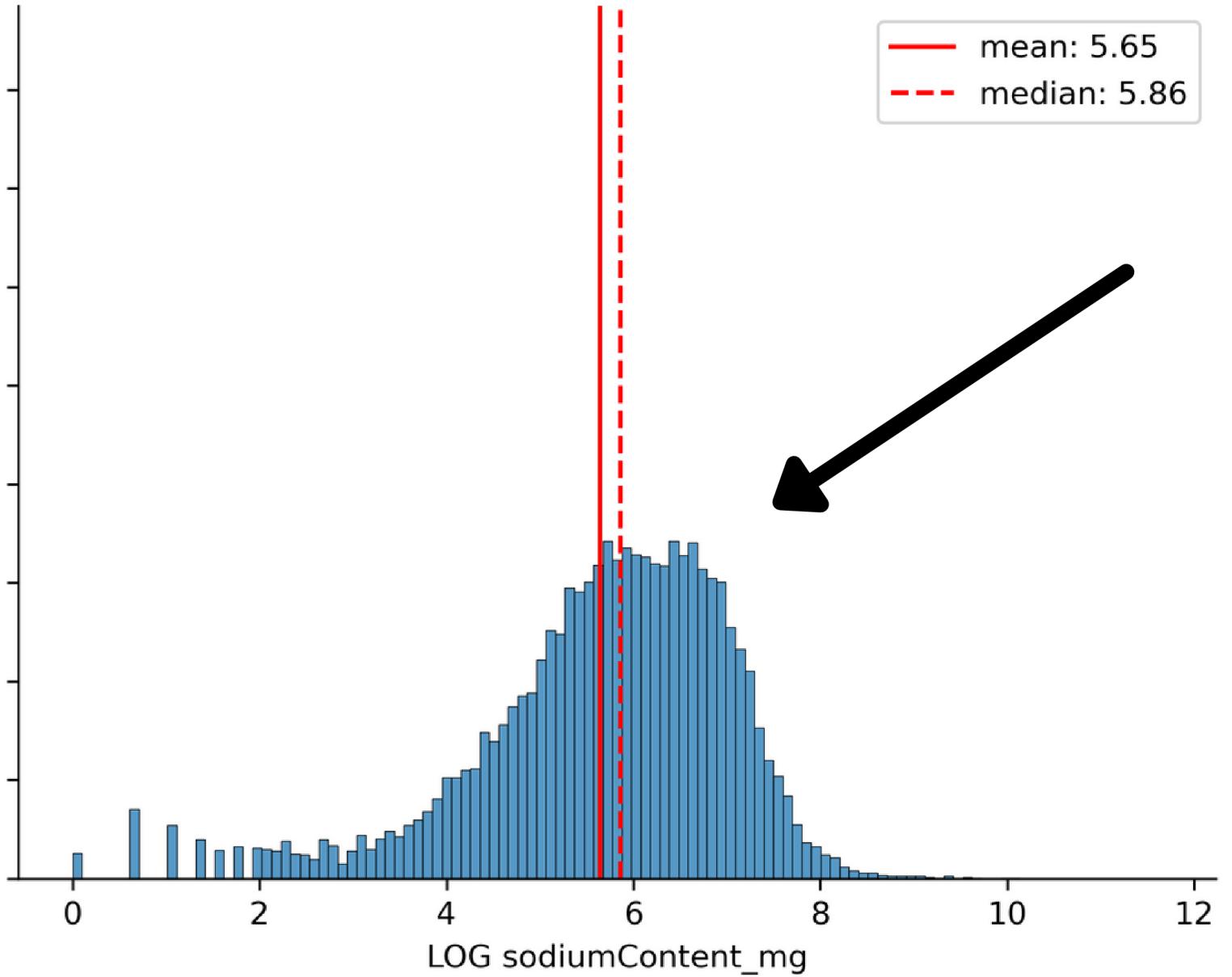
Top and Bottom 10 Logistic Regression Odds Ratio - 1



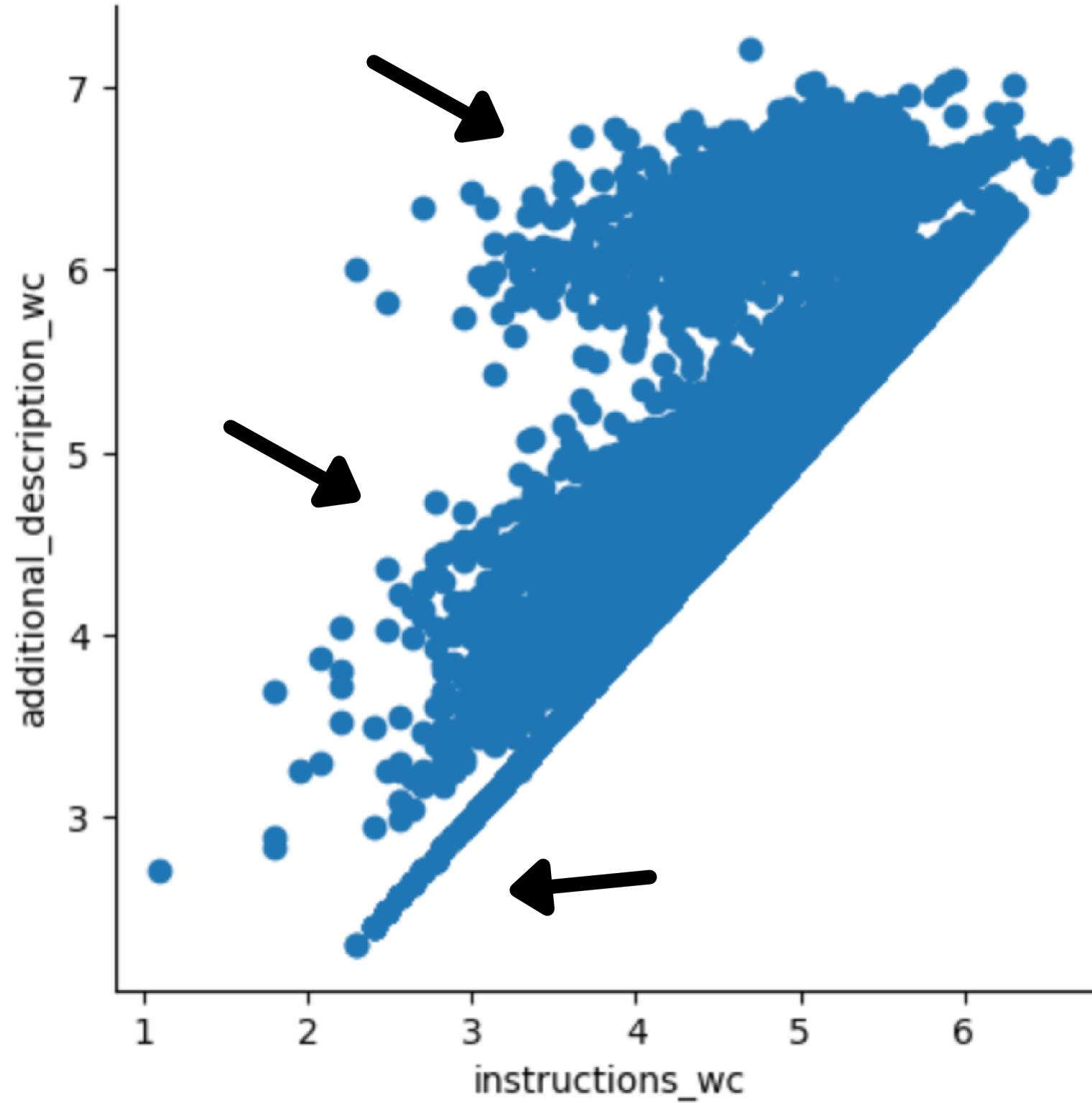
Distribution for sodiumContent_mg



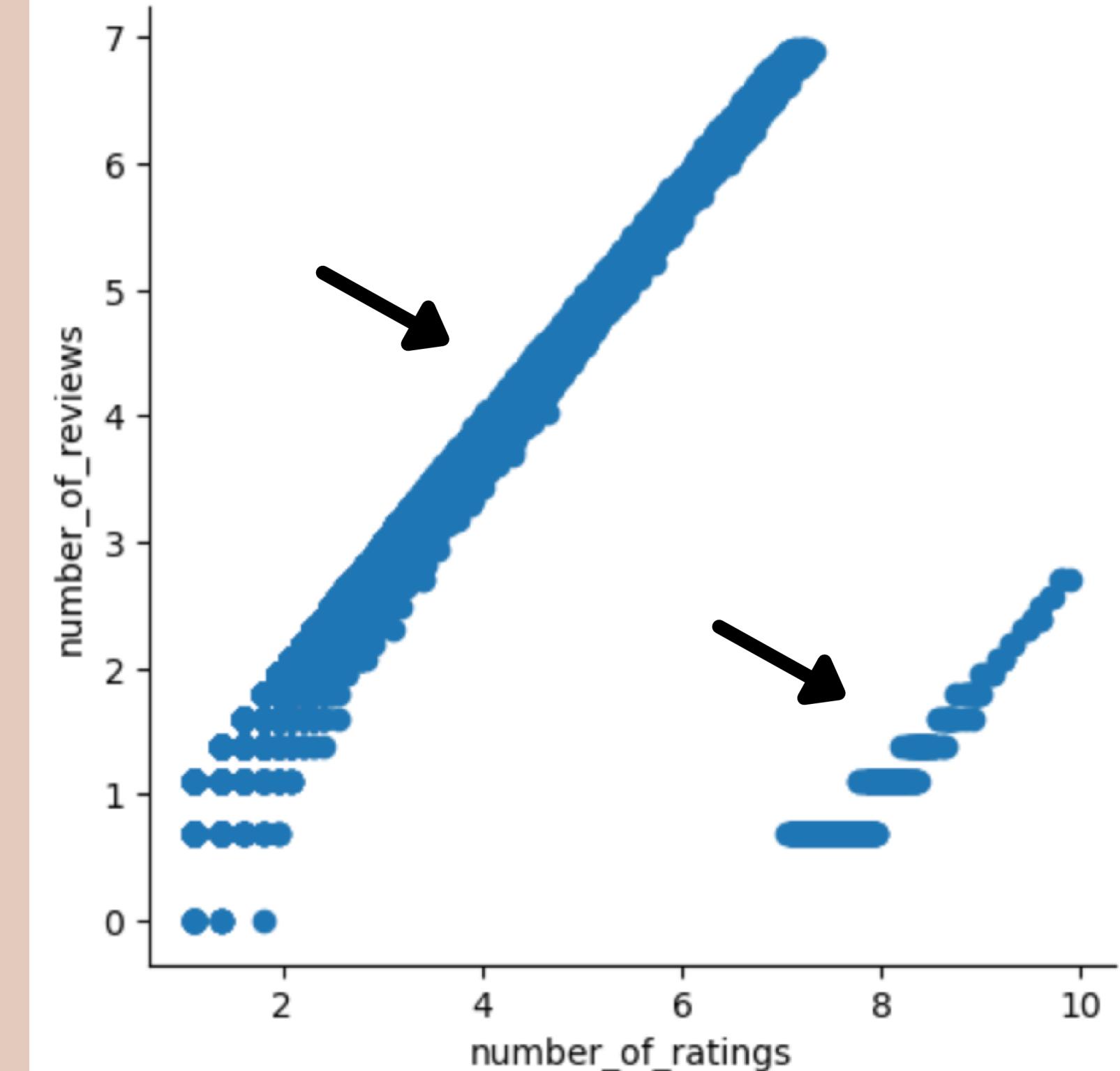
LOG Distribution for sodiumContent_mg



Scatterplot of instructions_wc vs additional_description_wc
Correlation: 0.88 p-value: 0.0

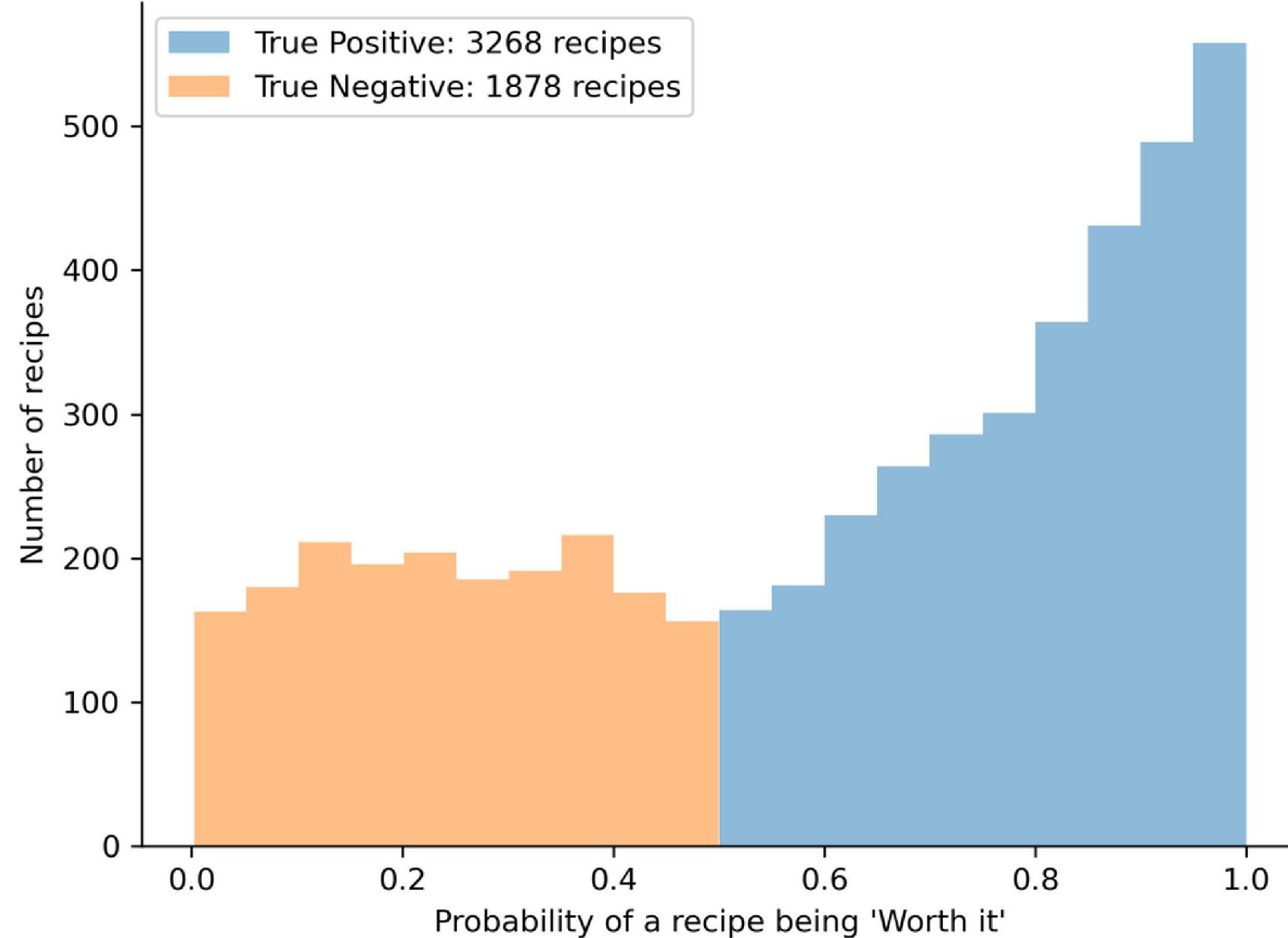


Scatterplot of number_of_ratings vs number_of_reviews
Correlation: 0.83 p-value: 0.0

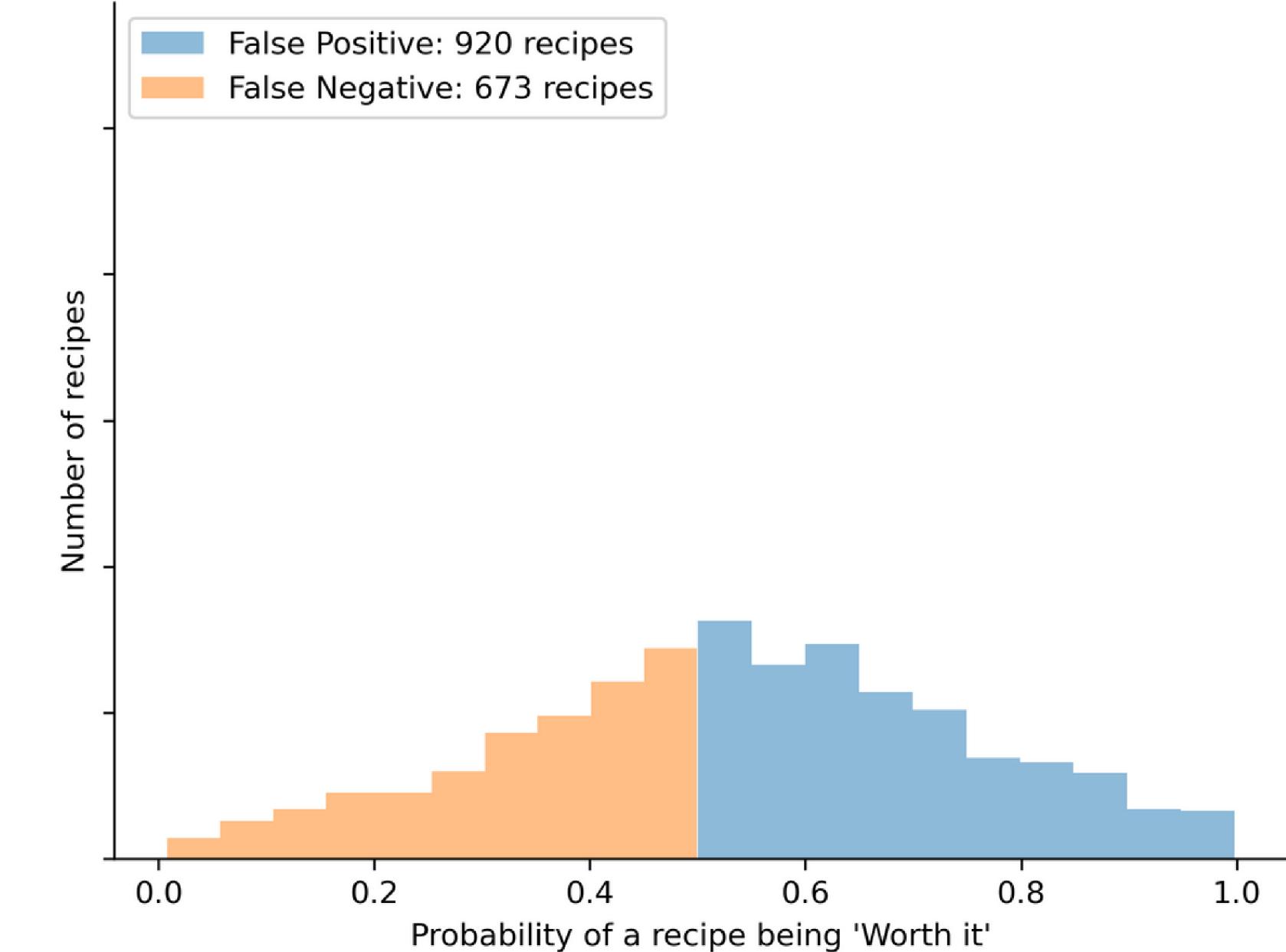


Distribution of Predicted Probabilities for the Final Model

True Positives and Negatives, total of 5146 recipes



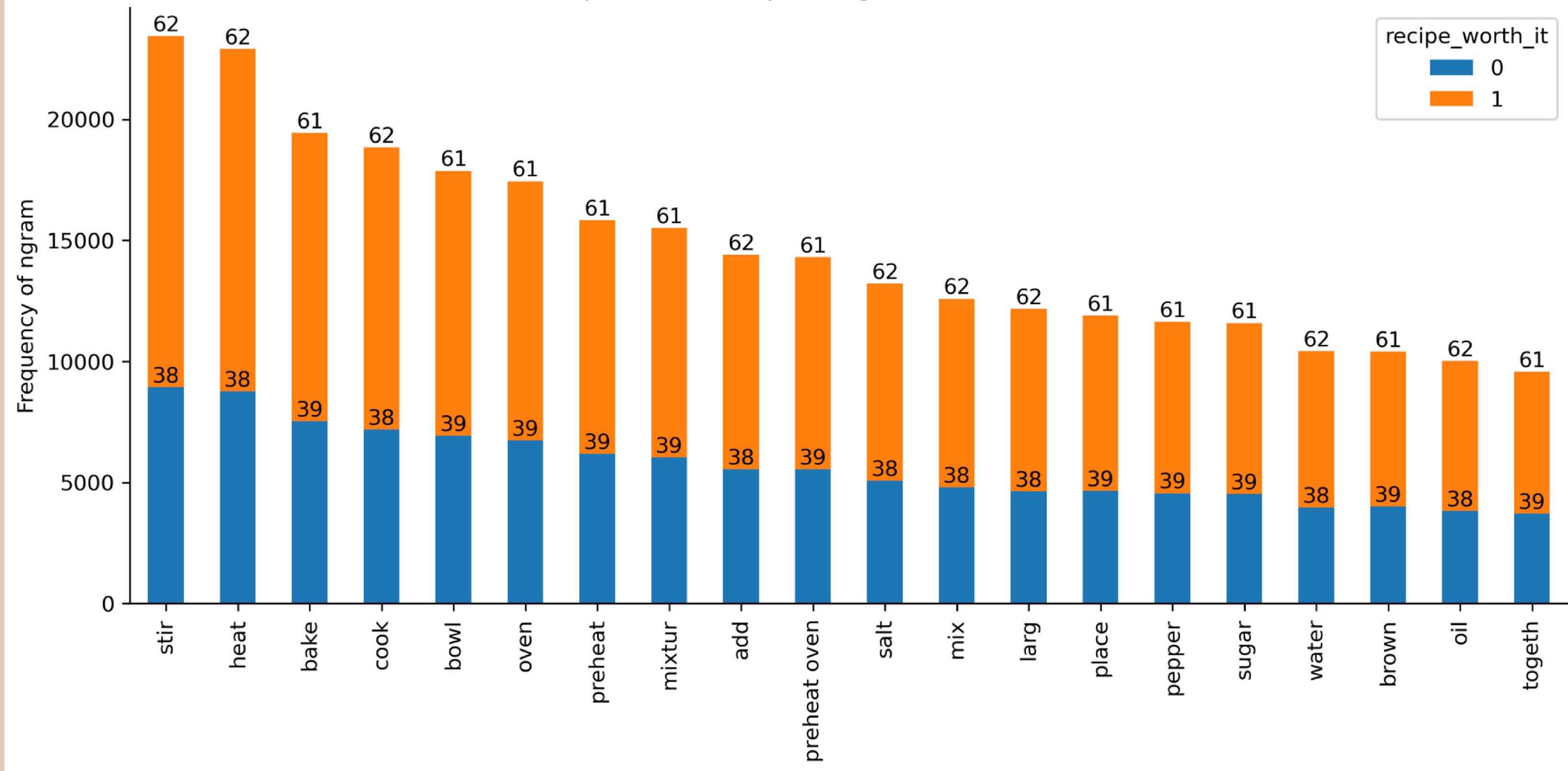
False Positives and Negatives, total of 1593 recipes



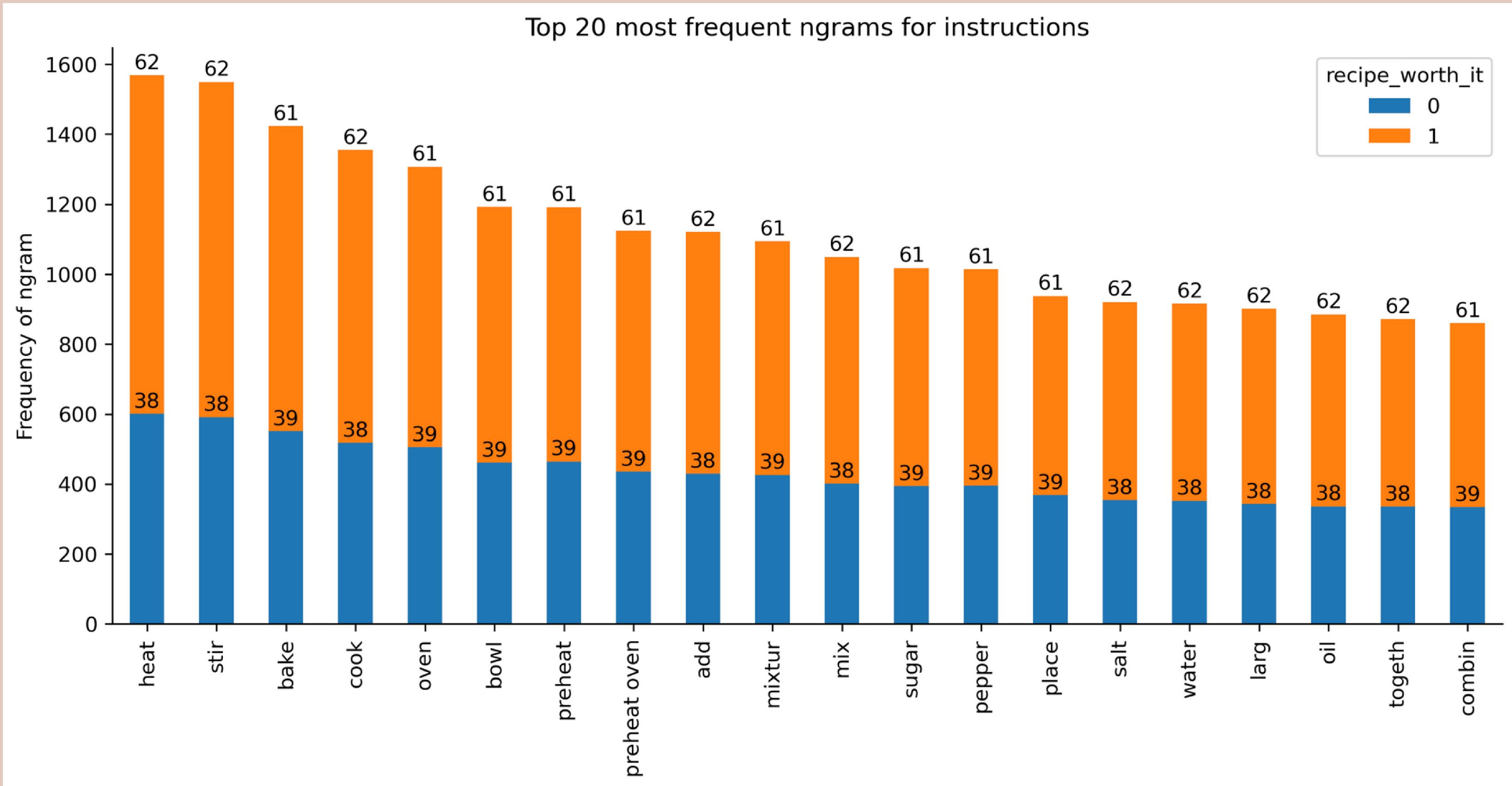
Better

Better

Top 20 most frequent ngrams for instructions



Top 20 most frequent ngrams for instructions



References

1. <https://www150.statcan.gc.ca/n1/pub/62f0014m/62f0014m2022014-eng.htm>
2. <https://food-guide.canada.ca/en/healthy-eating-recommendations/cook-more-often/>