What makes your recipe successful?

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Motivation

- Millions of people check recipe websites everyday. Either to look-up something delicious they ate or to try a new recipe out. At the end people submit to the website if they were able to reproduce the recipe and how well it tasted.
- Usually when we search for recipes online we search for recipes rated highly by the crowd as it implies that most people enjoyed the meal.
- In this project we aim in helping all chefs in maximizing the number of good reviews for their recipes by exploring all factors that contribute in having a good rating.

Data Collection and Cleaning

- Dataset consits of dump of webiste links having recipes.
- These links can have recipes or search results.
- Built scrapers for top 3 websites as they contain 65 % of the data.

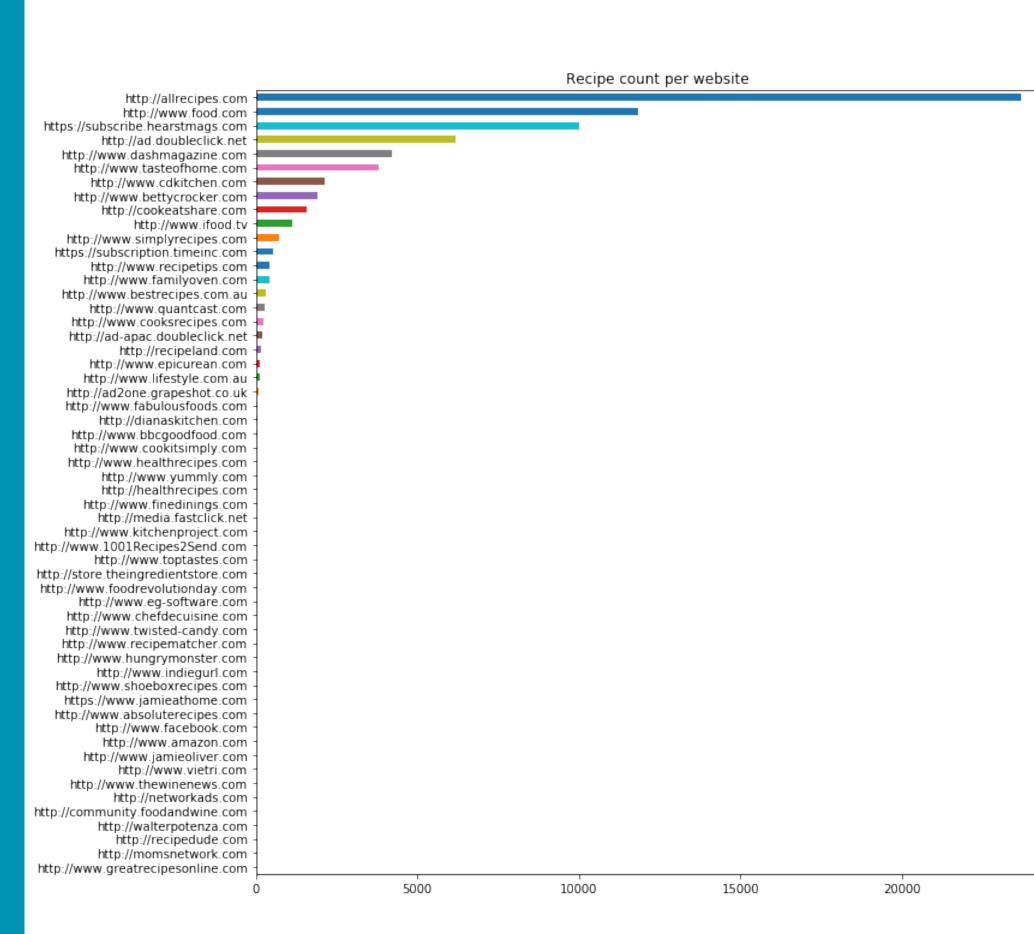


Figure 1:Number of Links per website

Datasets			
Columns	AllRecipe	Food	FoodNet
Name		√	
Ingredients			
Preparation			
Time			√
Cooking			
Time			
Servings			
Nutrition			X
Review			
Rating		×	X

Unsupervised Learning to the Rescue

- Aim is to unify the datasets into one global dataset.
- Word2vec to map ingredients into vectors that were clustered into food type clusters using k-means (silhoutte analysis to find the best k).
- Logistic regression trained on reviews of allrecipe.com and used to predict ratings from food.com revies.



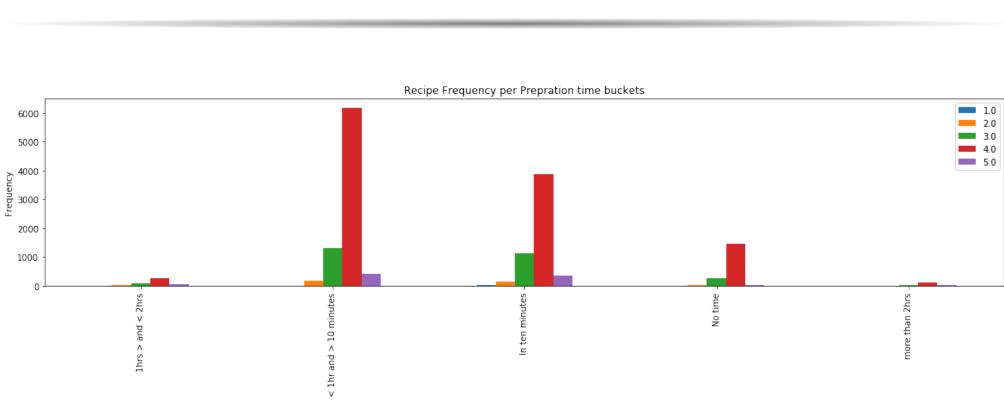
Figure 2:Process flow architecture

Data Analysis

General scheme:

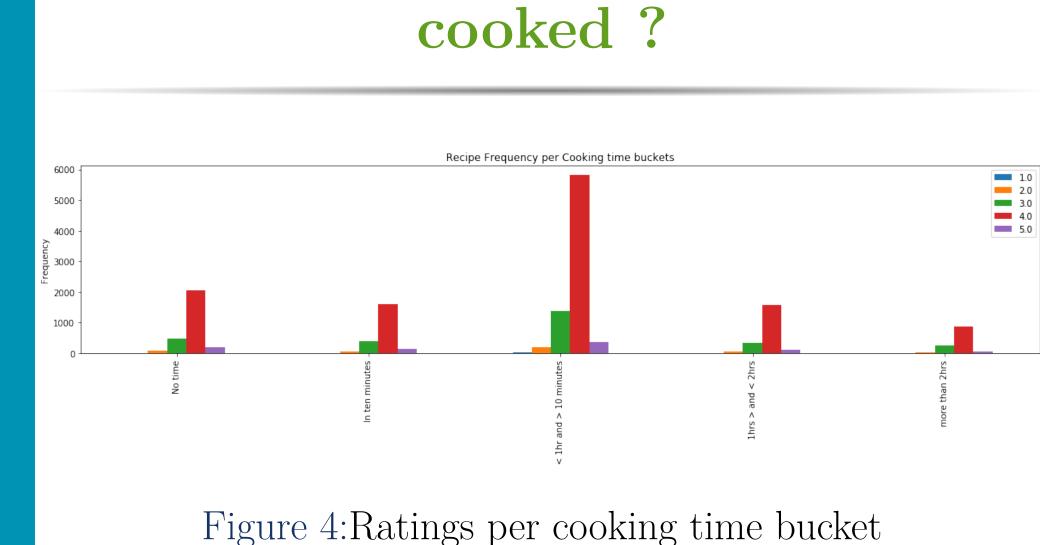
- 1) compute average of ratings per recipe
- 2 bucketize dependent variable if necessary
- 3 perform a count of rating value per dependent variable unique values

How much preparation time is needed?

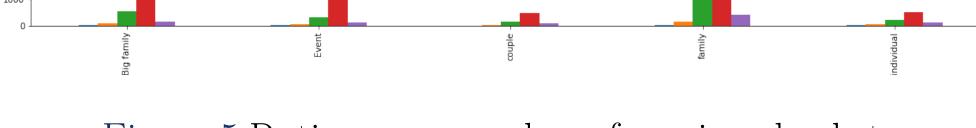


How long should your meal be

Figure 3:Ratings per preperation time bucket



How many people should you serve?



Meal sizes rating frequencies

1.0 2.0 3.0 4.0 5.0

Figure 5:Ratings per number of servings bucket

Health Scores

Figure 6:Number of Healthy recipes per rating

What is the best ingredient composition?

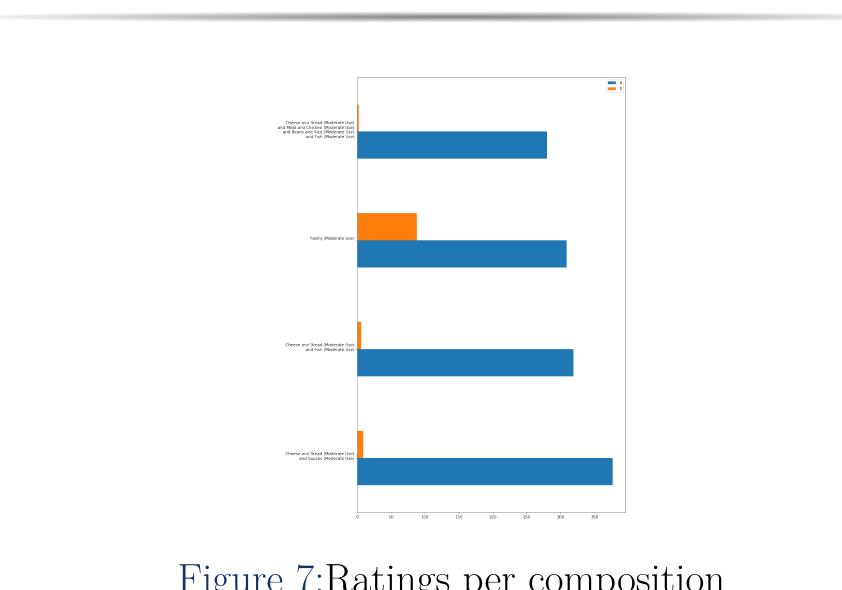


Figure 7:Ratings per composition

Our Advice to you

- Design a meal to be cooked and prepared in less than an hour
- 2 Try to serve as much people as you can
- Try to combine a moderate amount cheeses with bread along with some sauces (people like it)
- Don't worry about other users opinions, your recipes are awesome
- Try to have low levels of fats and cholesterol => negativley correlated with large numbers of servings
- Try to use ingredients used by other chefs, the more connected you are the better