What for Dinner?

Recipe Recommendation System from M. Galdina

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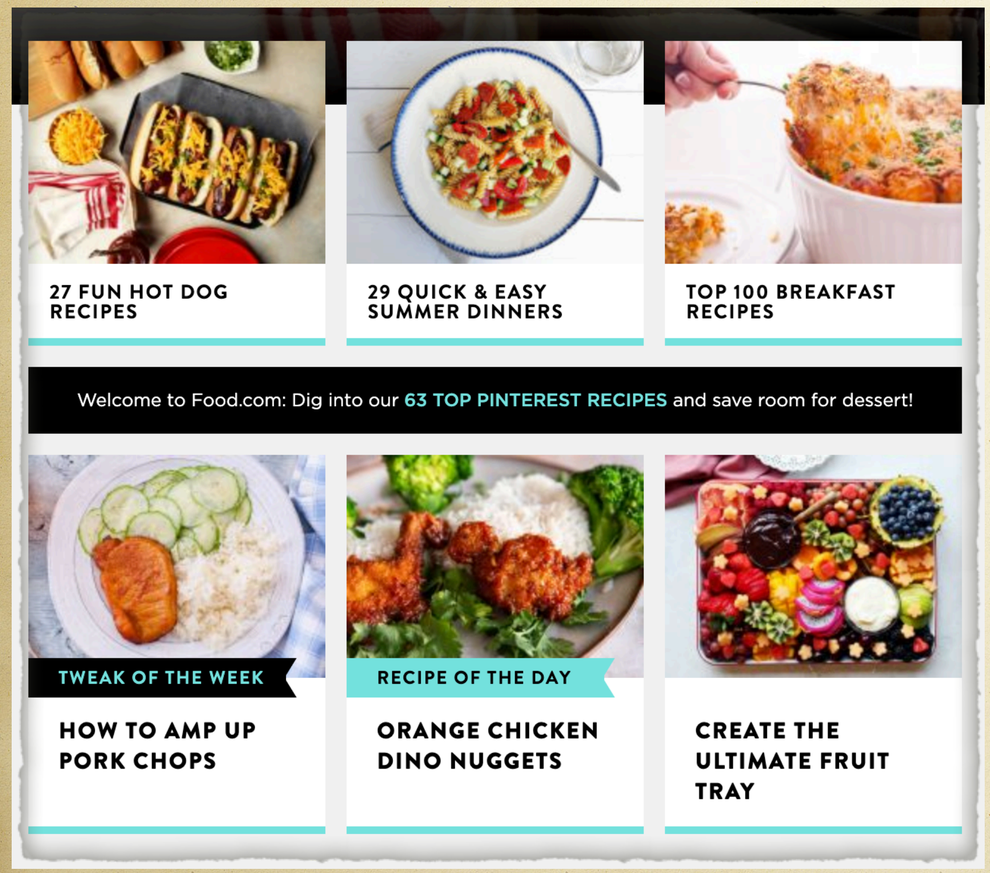
Introduction
Why recommendation system?

- personalise your experience on the web
- helps people find out what they want or discover something new
- Trends? Patterns? Joy?

Research Question

- Can we build recommendation system for people depend of their preference in the food?

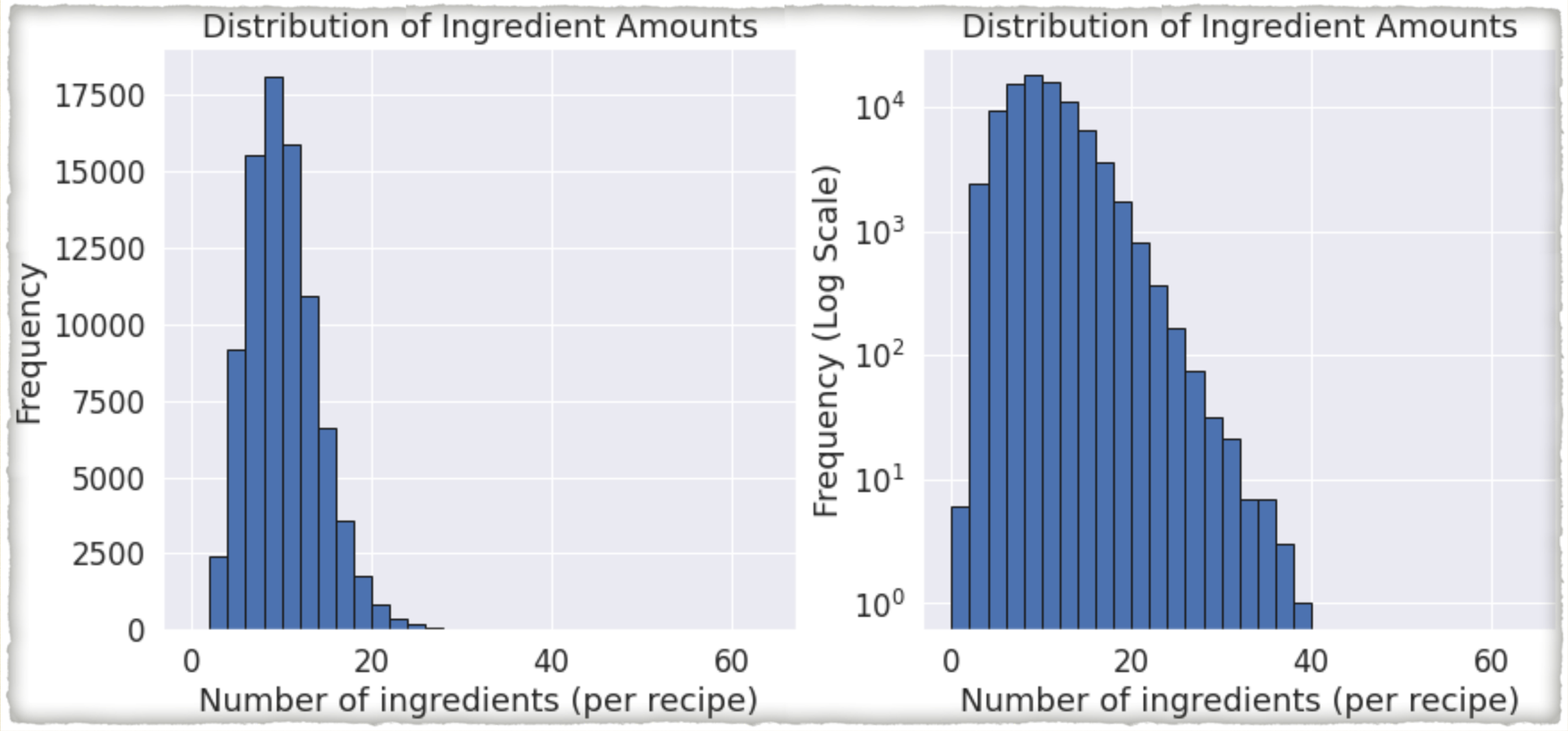
Data Gathering

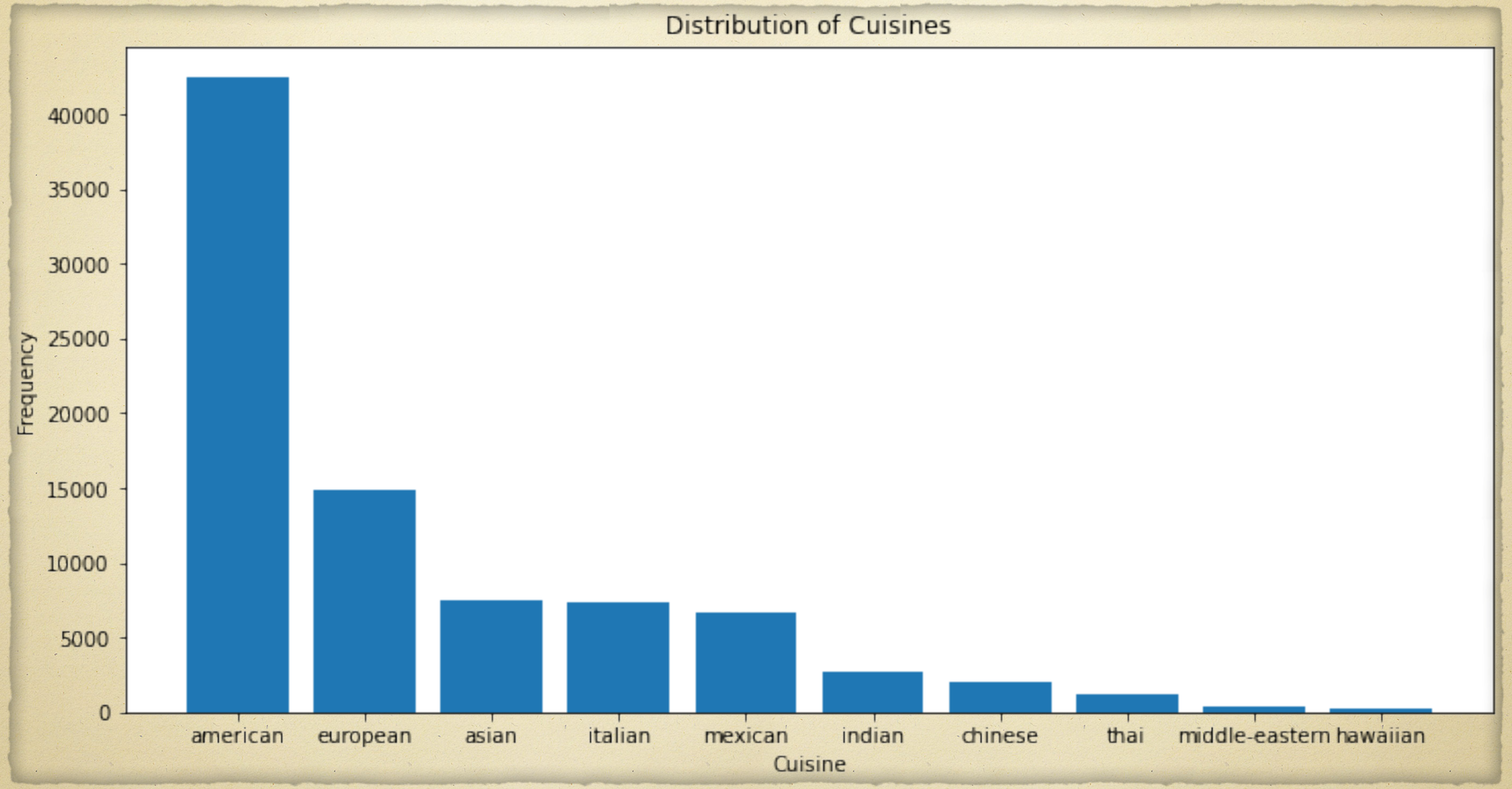


Data for this project extracted from web-site food.com and Kaggle

There are more than 150,000 recipes from more than 10 worlds cuisines

All recipes contain information about ingredients, steps, time for preparation and etc.


Distribution of Ingredient Amounts
Frequency
17500
15000
12500
10000
7500
5000
2500
0
0
20
40
60
Number of ingredients (per recipe)
Distribution of Ingredient Amounts
Frequency (Log Scale)
10^4
10^3
10^2
10^1
10^0
0
20
40
60
Number of ingredients (per recipe)

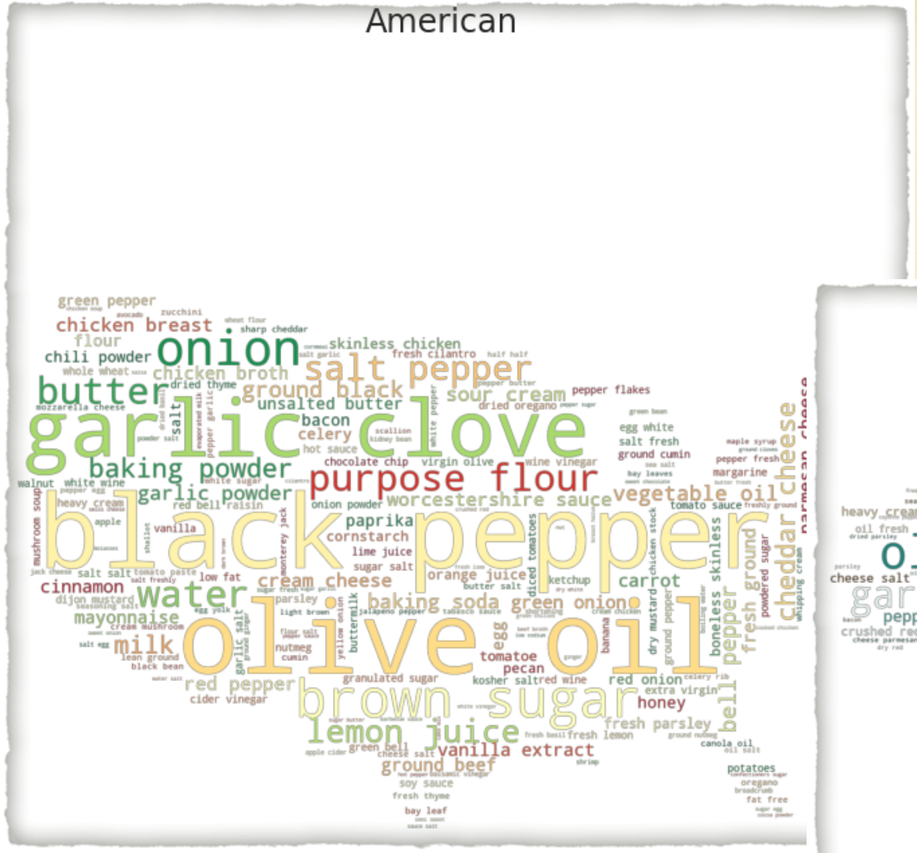

Distribution of Cuisines
Frequency
40000
35000
30000
25000
20000
15000
10000
5000
0
american
european
asian
italian
mexican
indian
chinese
thai
middle-eastern
hawaiian
Cuisine

Data Preprocessing

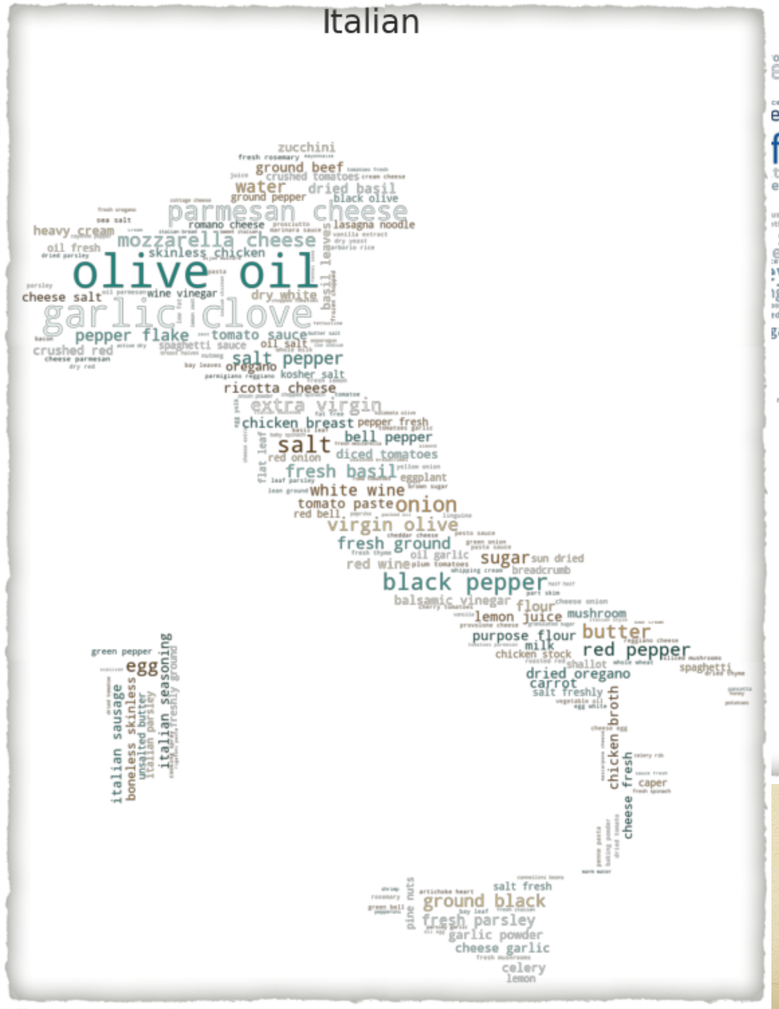
- Check data for missing values
- Select all preferred cooking style
- Research on nutrition information
- Transform and save data for faster work

Worldwide Ingredients

American



Italian



Chinese

Result

```
Reading all the data files....
Enter the pantry availability : cabbage, flour, carrot, cheese
Enter the n...        7

Cuisine:  indian
          mexican
          chinese
          thai
          italian
Enter the time limit you have for cooking:30
Preferred nutrition level(low,medium,high):low
Model has been successfully trained..
Trying to predict the cuisine and n closest recipes...

The model predicts that the ingredients resembles american

The ingredients resemble american with 42.857143 percentage
The ingredients resemble asian with 14.285714 percentage
The ingredients resemble european with 42.857143 percentage

The 7 closest meals are listed below :
 Bratwurst Chowder https://www.food.com/recipe/129334
 Coleslaw That Lasts https://www.food.com/recipe/79422
 Cabbage Braised In Butter https://www.food.com/recipe/197244
 Vegetable Puda  Indian Vegetable Pancake https://www.food.com/recipe/391603
 Bell Pepper Cole Slaw   No Mayonnaise https://www.food.com/recipe/50801
 Tushennaya Markov  Braised Carrots https://www.food.com/recipe/286683
 Bubble And Squeak   Traditional British Fried Leftovers https://www.food.com/recipe/256493

--- Search took 117.32846736907959 seconds ---
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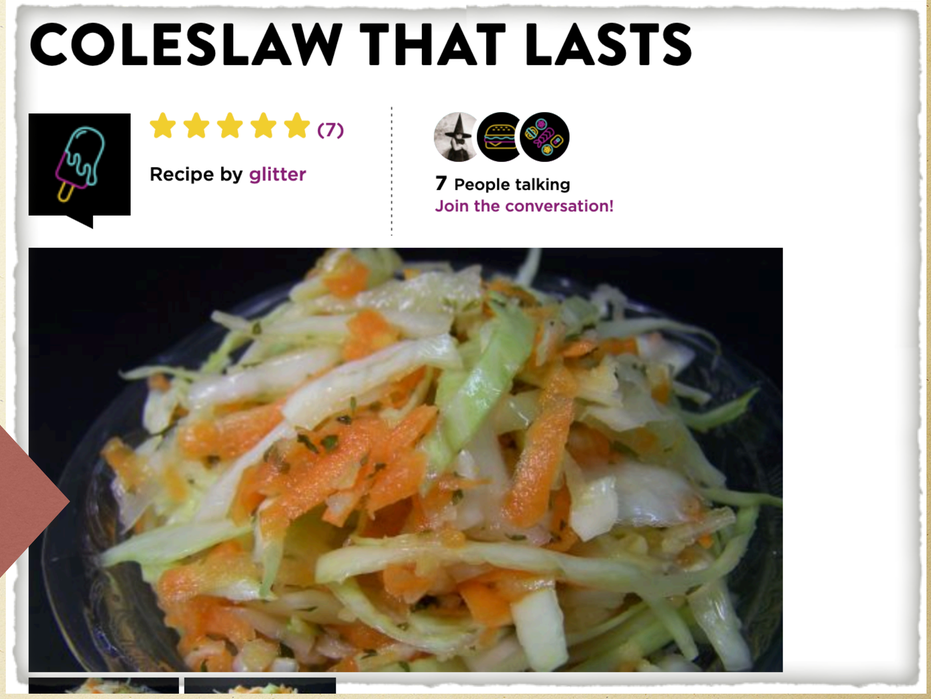
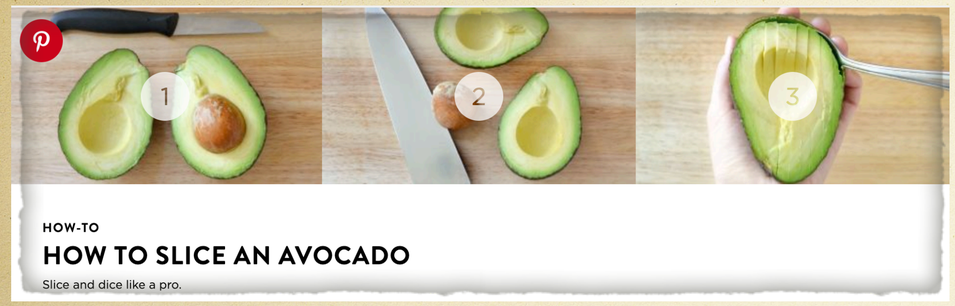
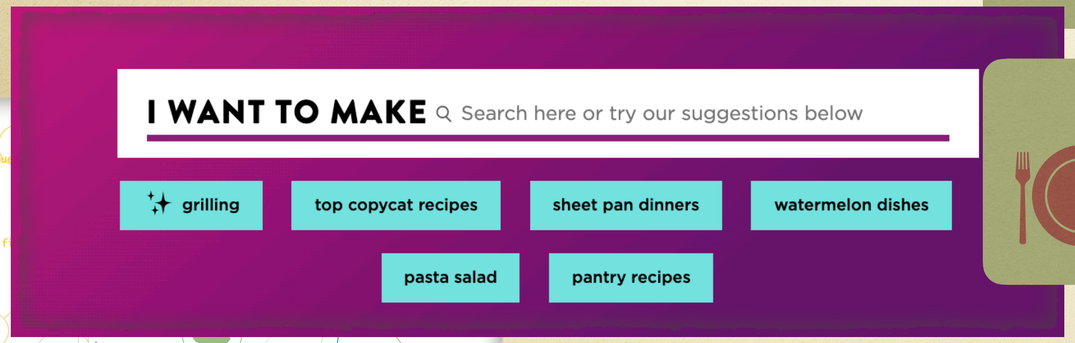


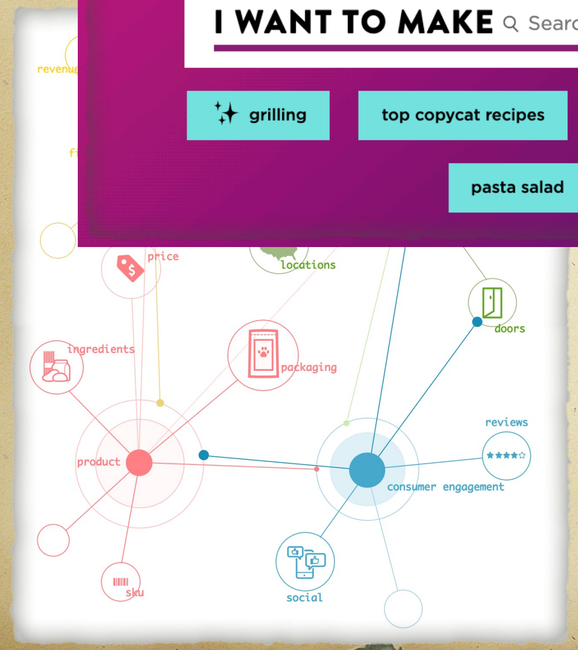
Conclusion

- In ideal situation users tells the recommender program what ingredients they have on hand and it given the best meal recipes. My recommendation system can give them only 75% of accuracy.

Future Work







Create an web-app or mobile app for my project

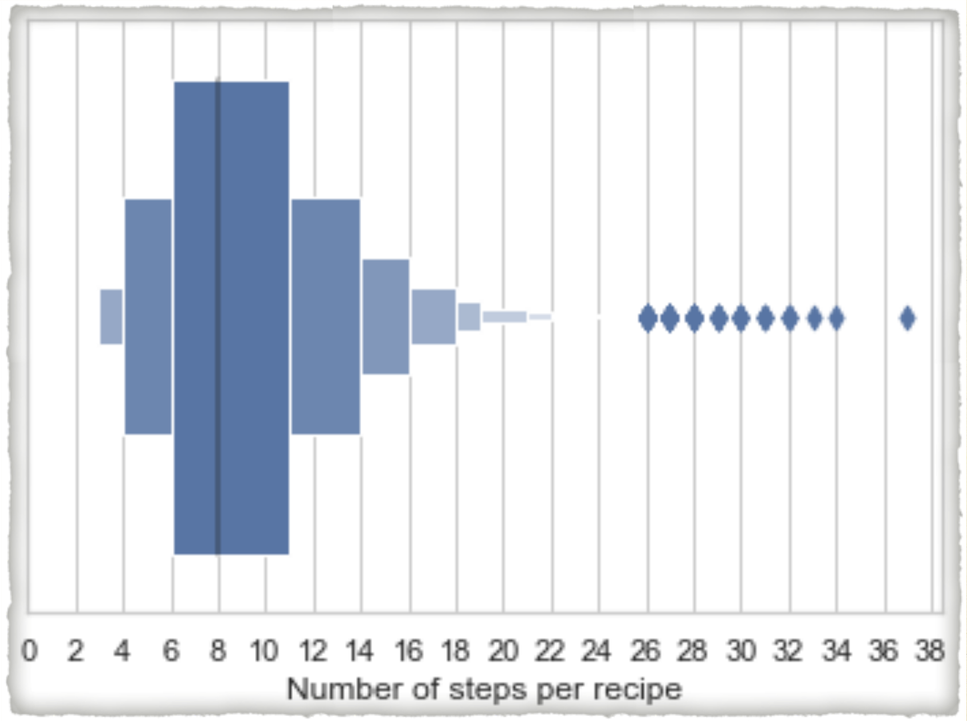
Scribe more information from web about cooking and nutrition

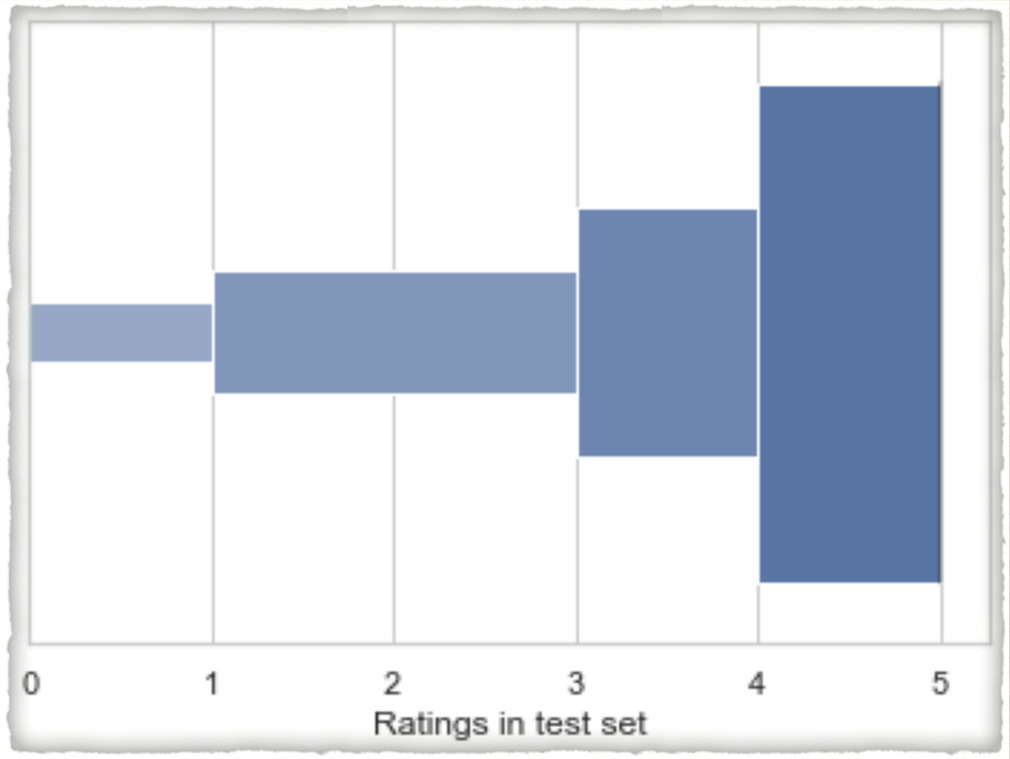
Try NLP - network for recipe ingredients

Thank you!

– Questions?

Appendix


0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38
Number of steps per recipe


0 1 2 3 4 5
Ratings in test set