Seasonings 🥑

Recipe Recommender System

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Agenda

What's for dinner tonight? 🤔

- Can't decide

- Same repetitive meals

- Give up & order take-out

- Discover personalized content

- Surface new recipes

- Prepare for grocery runs

Machine Learning Problem

Given a person's preferences in past recipes, could I **predict** other new recipes they might enjoy?
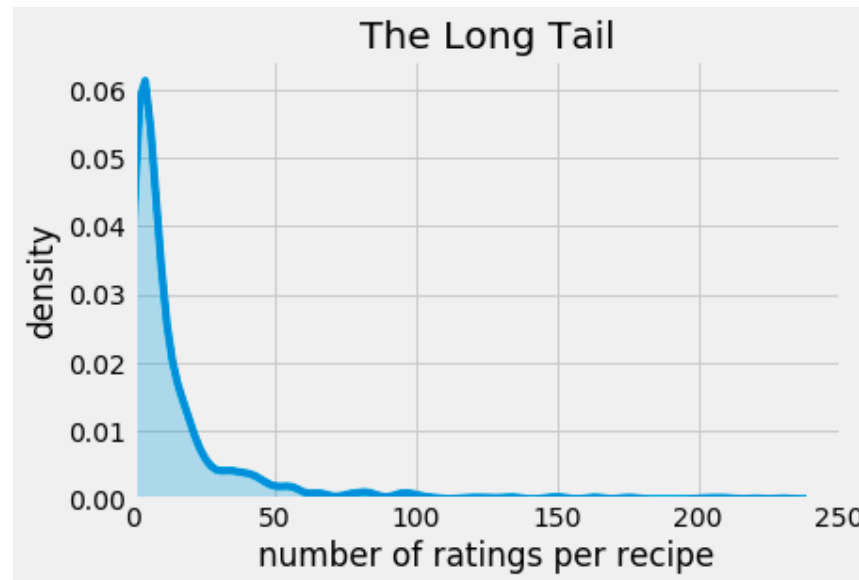
Use Recommender Systems

NETFLIX   **amazon**

 Spotify®

Data

460
Cuisines

55K
Users

1100
Recipes

allrecipes

73K
Ratings

⭐⭐⭐⭐⭐

The Long Tail

density vs. number of ratings per recipe

02

Live Demo

1A Collaborative Filtering

Cosine Similarity

Cosine Similarity - Users most similar to Baking Nana (9266)

User Profile of Baking Nana

User Profile of Rosie
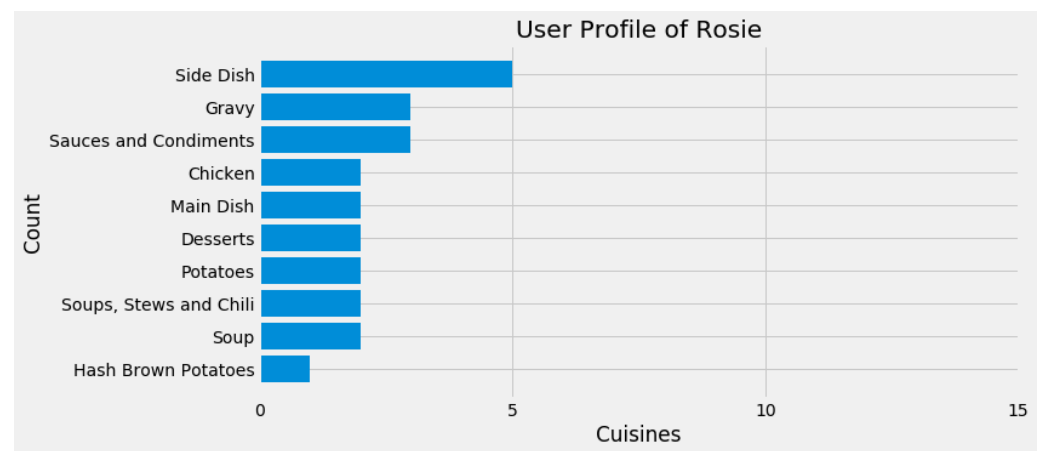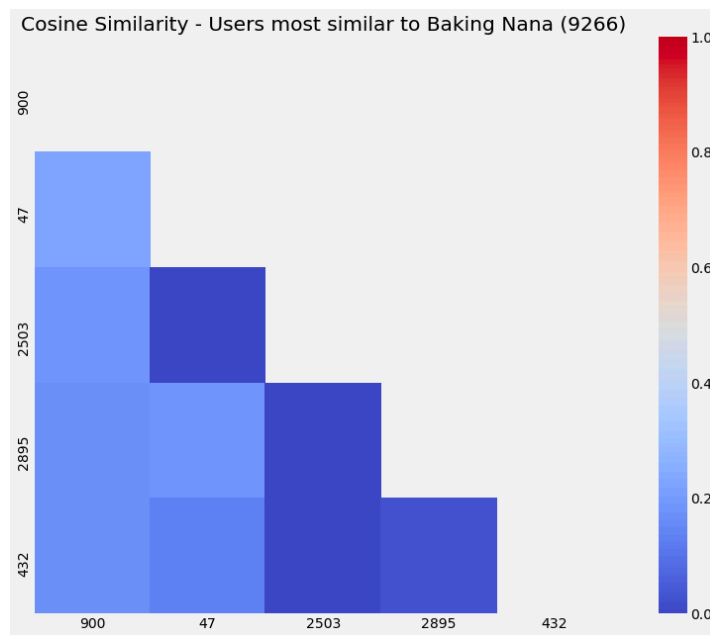
1B Content Filtering
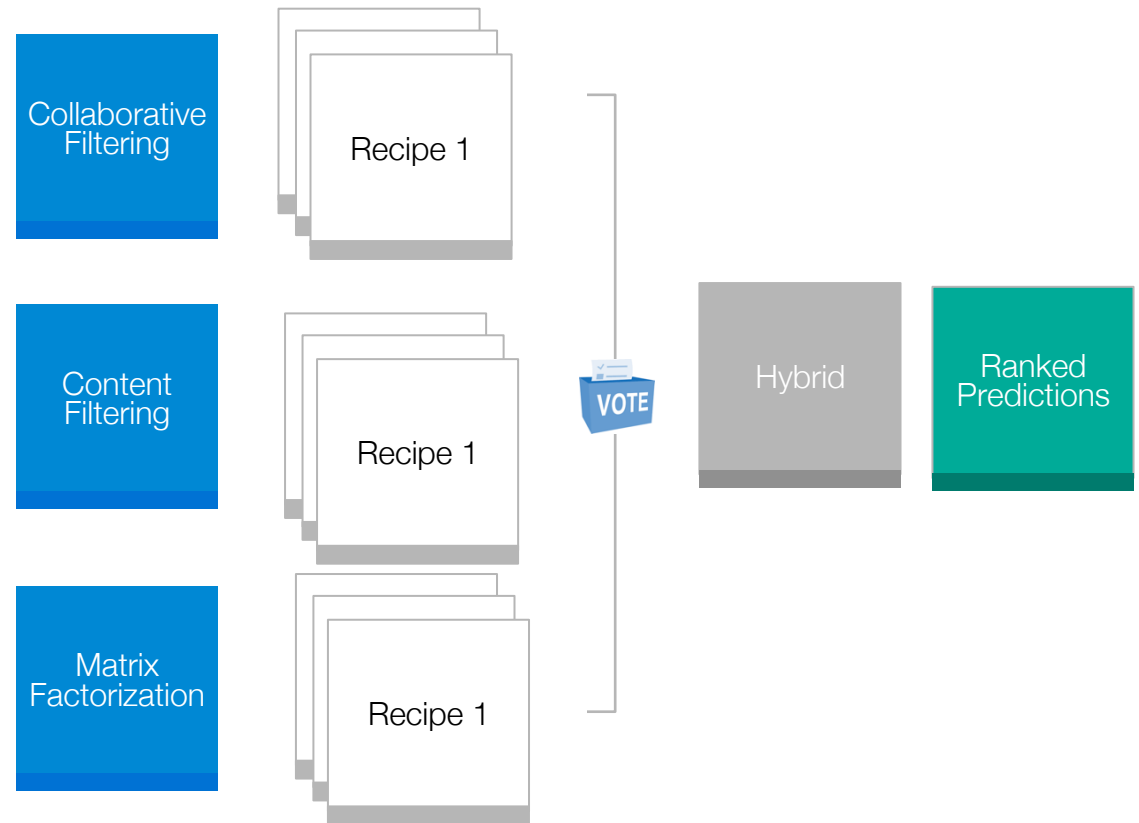
Solves cold start problem

But … curse of dimensionality

2 Matrix Factorization

Dimensionality reduction to predict ratings with latent factors

1000 -> 100 components explains 55% of variance

Put it all together in a hybrid model

Ensemble machine learning

Model Evaluation

	Naïve Model	Collaborative Recommender	Item Recommender	Factorization Recommender
Test RMSE	4.6	n/a	n/a	0.30
Precision at 6	0%	33%	17%	80%
Recall at 6	0%	3%	2%	4%

What fraction of recommended items did user consumed?

"Out of all items the user consumed, what was recommended?

Challenges

- More compute 🐌

- No Public API 😭

Version 2.0

- Natural Language Processing on user reviews & topic modeling

- Further testing with new user data

Thanks! That's a wrap.

I hope this inspires you to try something fresh in the kitchen.