New Recipe Recommendation with Visualization

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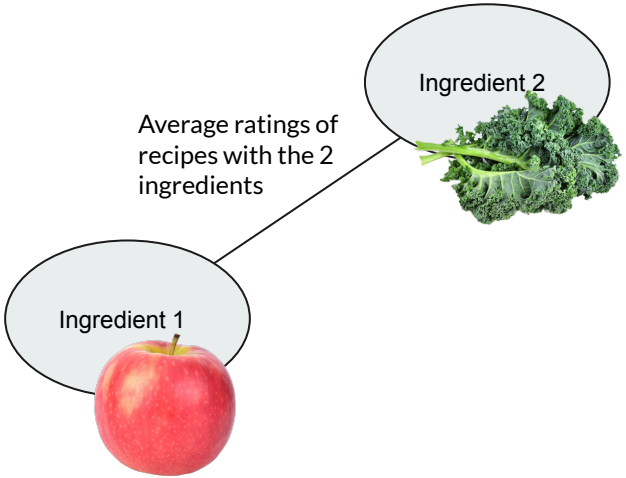
CSE 6242 Final Project

Motivation & Objective

The project goal is to create a recipe and ingredients visualization tool, providing insights and inspiration for chefs and restaurant runners so that they can use it to create new recipes or get recipes recommendation.

Our Approach

- Data source: food.com
- Recipe classification
- Ingredient Network based on recipe ratings
- Use D3.js to build interactive web application



Literature Survey

- Nutrition: food-pairing hypothesis (Ahn 2011) (Spence 2021), food bridging (Simas 2017)

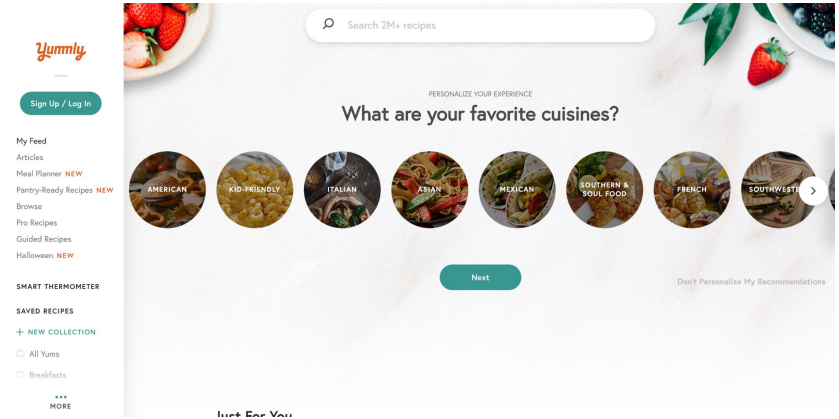
- Classification: gradient boosting (Jerome 1999), support vector machine (Vapnik 1995), k-nearest neighbors, random forest (Breiman 2001)

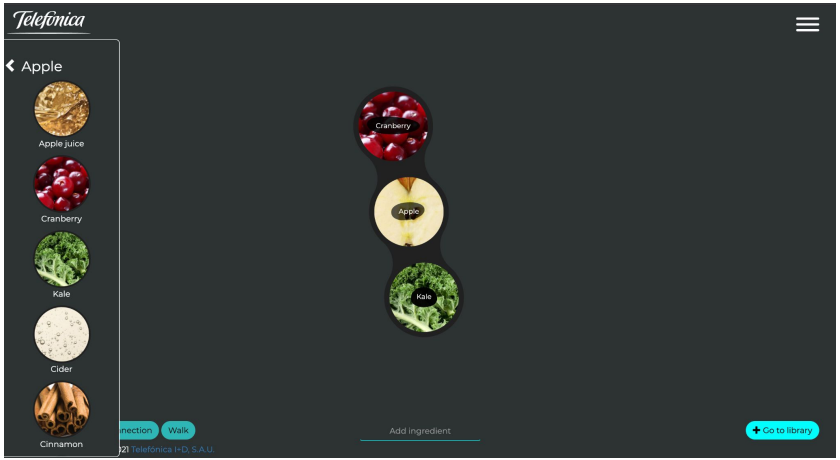
- Networks: protein interaction networks (Jeong 2001) (Wang 2012), collaboration recommendation network (Yang 2015), recommendation network (Liang 2012)

Related work & Innovation

- **Related work**: Yummly, Allrecipe.com
- Appetit (based on food-pairing hypothesis)

- **Innovation**: designed for professional users to create new recipes.
- Our model will be trained over real-world rating data.





Who Cares & Impact Assessment

Our application will provide insights and inspirations for Chefs, independent restaurant owners, amateur cooking lovers, and anyone who is interested in creating a new recipe. They can use it to create more delicious food recipes. We will measure the impact via user studies.

Risks, Payoffs & Costs

- **Payoffs:** more delicious recipe; advertisement revenue if enough user
- **Risk:** our dataset is large with 230K recipes, which could lead to a slow loading process and thus affect user experience
- **Cost:** effort of our team, web hosting cost

Project Plan & Timeline

- Midterm (11/5):
  - Data Cleaning (2 weeks)
  - Model Implementation (1 week)
  - UI Design (2 weeks)

- Final (12/1):
  - Build network graph (1 week)
  - UI Implementation with network graph, ingredient recommendation and filters (3 weeks)

Reference

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