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Serious Groceries

An app to decide what to cook on a limited budget.
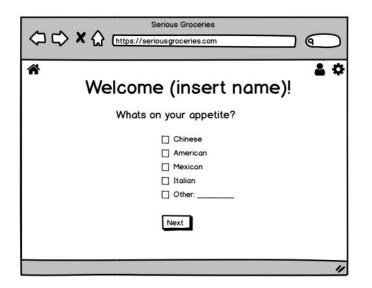

Problem and Specification

Serious Groceries solves the problem of deciding what to cook for a meal on a limited budget in Victoria. Often, people crave for certain food that they cannot afford. Our app eliminates this craving by providing the most affordable personalized recipes. It does this by scraping the sales flyers of nearby grocery stores in Victoria and matching the data against a personal library of dish recipes chosen by the user.

In contrast to flyer aggregator apps like Flipp, this app recommends specific dishes to cook, making the user's life easier. Unlike grocery organization apps and recipe recommendation apps like Pepperplate, CookSmarts, Plan to Eat, and Paprika, this app takes into account the items that are currently on sale nearby.
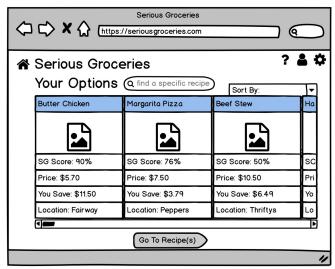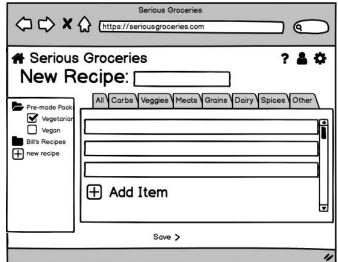
Design and Storyboard

First, new users are prompted to make an account. During this process, they provide login credentials, preferred grocery stores, and dietary or cuisine preferences that will be factored into the recommendation algorithm. Prompting users to make an account allow the server to make more useful and specific predictions for each user.

The user can also add to their personal shopping list by filling out the new recipe form. This list is available for editing at any time. Each list entry can be anything from standalone items to complete recipes. The user can toggle different categories of lists using the checkbox menu on the left.

After creating an account, the user can view their daily recommendations. These recommendations can be filtered by a keyword search or ranked by price or distance.

The first iteration of Serious Groceries was made with React and the React Starter Kit. Our current version is made using Semantic UI. The back end will be made with Node.js. Currently, it requires 121MB of server storage plus any stored user information and it will require web services and/or processing bandwidth for web-scraping, image to text conversion, and generating recommendations.

Implementation

The code for this application is available at:

Implementation 1: https://github.com/benkwokcy/seriousgroceries (master branch)

Implementation 2: https://github.com/jonz09/seriousgroceries-jon (master branch)

Previous Version in React: https://github.com/benkwokcy/seriousgroceries-react (ben branch)

Testing

This app was tested on:

- Macbook Pro, macOS High Sierra 10.13.3, Firefox 58.0.2
  - Responsive Design Mode: Apple iPhone 6 Plus
    - Menu bar not resizing
  - Responsive Design Mode: Samsung Galaxy S7
    - Menu bar not resizing
  - Responsive Design Mode: Apple iPad Air Mini 2
- Macbook Pro, macOS High Sierra 10.13.3, Safari 11.0.3
  - Cards need maximum width
- Macbook Air, macOS High Sierra 10.12.6, Chrome Version 64.0.3282.186
  - Cards need maximum width
- OnePlus 5, OxygenOS version 5.0.4
  - Menu bar not resizing

We prototyped the initial design in Balsamiq and critiqued it using hallway usability tests with ourselves and 3 other people. Our initial designs received poor feedback but served as a starting point for the next set of designs. The current appearance and functionality is loosely based off these wireframes with additional design inspiration from websites such as AirBnB, GitHub, Wistia, and the Semantic UI examples.

We tested the appearance on several device sizes using Firefox's Responsive Design Mode and discovered that the menu bar was not resizing and that the cards from the Today's Option page were becoming too large when stacked.

Documentation

Features left to implement include:

- Save account information on the server and authenticate during login
- Populate table using JSON data from the server
- Allow user to sort dishes into recipe packs and dynamically filter them using checkboxes
- Implement auto-completion for common ingredients and dishes
- Scrape grocery store flyers and match against keywords
- Convert flyer images into text using either cloud services or Tesseract and OpenCV
- Write and tweak recommendation algorithm
- Write pre-made recipe packs for different dietary preferences
- Allow users to share their recipe packs with other users
- Host on Amazon Web Services, Heroku, or SiteGround

Current features to be improved:

- Get feedback on the design of the recommendation page, dish entry page, and landing page
- Get feedback on website navigation flow
- Specify CSS to get rid of important tags

Biggest challenges that remain:

- Learning to make the back end
    - Data collection and storage
    - Recommendation algorithm
- Learning how to host a website

How could the app be generalized and extended to work in different domains:

- Adding support for more grocery stores in Victoria and in other cities
- Adding support for non-grocery store flyers
    - Fashion and apparel

- ■ Cheapest and most fashionable outfits
- Add recommendations for links to recipe instructions
  - ○ Online video tutorials
  - ○ Cooking show
- Create an online community
  - ○ Allow users to comment on or "like" each other's recipes
  - ○ Users can share recipes with one another
- Create partnerships with grocery stores and producers