Serious Groceries

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Benjamin Kwok (V00709243)

Jonathan Zhang (V00890446)

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Prof. Yvonne Coady
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Serious Groceries

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

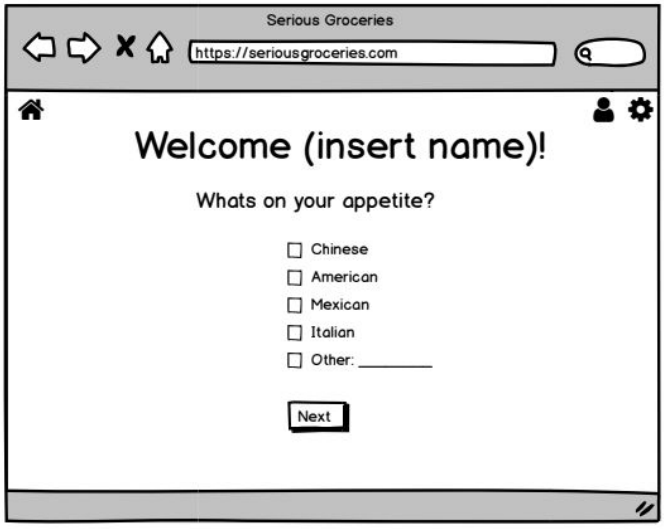
Problem and Specification

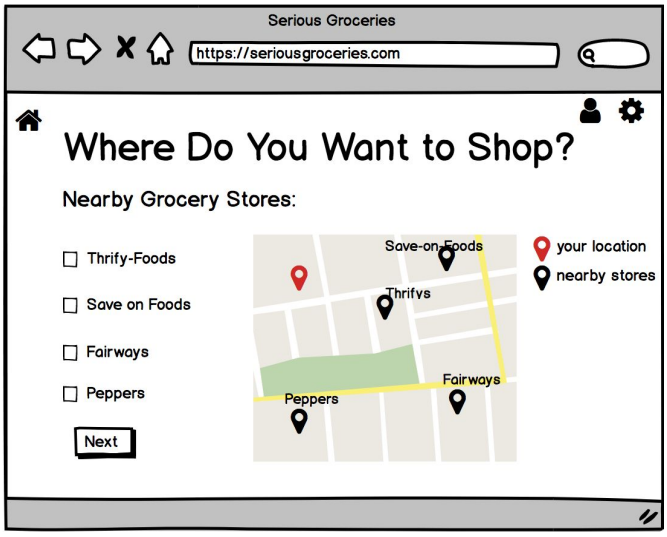
Serious Groceries solves the problem of deciding what to cook for a meal on a limited budget in Victoria. Often, people crave for certain food that they cannot afford. Our app eliminates this craving by providing the most affordable personalized recipes. It does this by scraping the sales flyers of nearby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

In contrast to flyer aggregator apps like Flipp which collect flyers from many different types of stores, this app focuses on groceries and recommends specific dishes to cook. Unlike grocery organization apps and recipe recommendation apps like Pepperplate, CookSmarts, Plan to Eat, and Paprika, this app not only presents a personalized shopping but also takes into account the items that are currently on sale nearby.

This app will focused on groceries stores in Saanich and Victoria initially but could be extended to other areas or types of stores in the future.

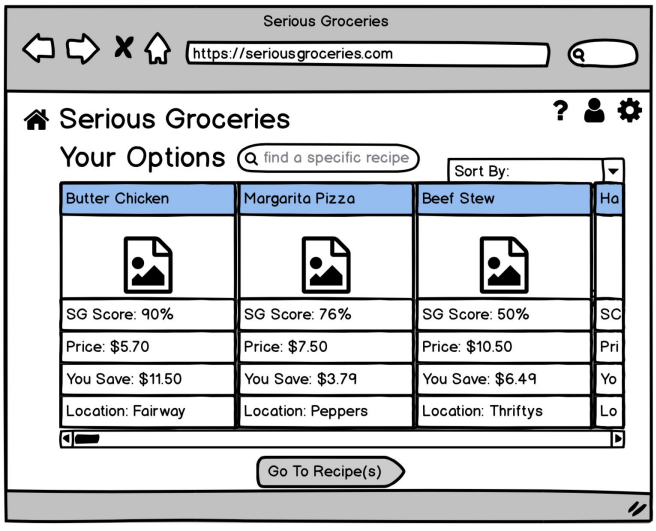
Design and Storyboard





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.



Every day, the website retrieves sales flyers from a set list of supported groceries and extracts the text and does a keyword analysis. This allows the user to view their daily recommendations. Recommendations are the recipes from the recipe list which have the most keyword matches and the best match for location with the local grocery store flyers. These recommendations can be filtered by a keyword search or ranked by price or distance. Because some flyers are available as a picture only, a back end would involve optical character recognition, either using an external library or a cloud service.

The first iteration of Serious Groceries was made with React and the React Starter Kit. Our current version is made using HTML/CSS/Javascript and 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:

Live Deploy (Implementation 1): http://web.uvic.ca/~bck6/project1/index.html
Live Deploy (Implementation 2): https://web.uvic.ca/~jonz09/project1/index.html
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:

Implementation 1

- 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
    - No errors
- Macbook Pro, macOS High Sierra 10.13.3, Safari 11.0.3
  - Cards need maximum width

Implementation 2

- Macbook Air, macOS High Sierra 10.12.6, Chrome Version 64.0.3282.186
  - Sign up page need max width set
- OnePlus 5, Android 8.0.0, OxygenOS version 5.0.4, Chrome 64.0.32.82.137
  - Menu bar not appearing
  - Positioning of components unorganized

We prototyped the initial design in Balsamiq and critiqued it using hallway usability tests with ourselves and 3 other people. Some of our initial designs that were based off a horizontal bar graph and that exposed the implementation of the algorithm received poor feedback. These designs also did not lend themselves to a mobile format. This feedback gave us a starting point for the next set of designs, which simplified the recommendation page. 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 on smartphone sized screens. We also discovered that the cards from the Today's Option page were becoming too large when stacked and the browser screen was being enlarged. Both of these issues are being currently addressed with use of Inspector Development tool. We also found that the main page loaded slowly due to the large size of the background image on all devices.

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