Team: 8

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Project name: Grocer App

Project Synopsis: An application that provides you a shopping list of the ingredients you are missing for a recipe, and provides the best locations to buy them.

Project Description:

In an effort to make customized grocery shopping as efficient as possible, we've designed an application that brings all aspects of food to the table. The integration of the many fully customizable settings below means every user, no matter their preferences, can make use of this app. Feature below is a mockup of the homepage:

Grocer Home Page

Before gaining access, the user will need to make use of our login system ensuring their data is saved to a cloud datacenter for easy access on both a desktop and mobile device. This also allows the data to be backed up in case the user loses their device.

Where our process begins is with recipe integration to easily import either a url or raw text. Grocer App automatically identifies any and all ingredients quickly saving them to a hub on the main menu with every other user inputted recipe. The app can then search nearby locations for those ingredients weighted off of the users preferences. These preferences are obtained through surveys over time as well as the ability to fully customize what the app weighs as important. From freshness to cost and distance to number of stores, the system is completely in the hands of the user (or by their choice an AI). Community scoring is also made public to maximize the data the user can make decisions off of.

In addition to functioning as a shopping helper, Grocer App will also save recipes for later and store the contents of the user's pantry. This allows the app to recommend a meal on the fly based on the contents of their pantry and previously enjoyed meals. It also means the app knows exactly what you need to buy to maximize cost efficiency all the while making sure food doesn't spoil unexpectedly. Allergy and preferred ingredients can all be manually inputted to ensure customer convenience is maximized.

When a journey is ready to be made, a completely original image can be printed informing the user where they need to go and what they need to buy. This ensures that even if mobile data is lost the user has access to everything they need at their fingertips.

Once shopping has been completed (or at any time really) the user can choose to plan in advance what meals they'd like to have on any given day. The application itself can help make their decision by giving users item freshness information or health tips to aid in placing a meal in the best spot. After the consumption of a meal, a survey can be answered asking the user for generic feedback like how much they liked the meal and how much they liked individual ingredients. This information is then taken into account for future shopping trips and can even be used by other users to make informed decisions (provided the user allows such a functionality).

Grocer App is designed to be heavily community driven. Not only does community survey data help every user make informed decisions about their purchases, but could also be useful to companies looking to improve their product. Users also have the ability to post to social media any information they feel is useful.

The final system we are planning to have in place is assistant functionality that uses speech to text to allow a user to quickly add every item in their pantry to the app. This allows for a hands free and fast method of quickly importing every item the app needs to function properly. The app can then use this pantry information to recommend recipes to make while at the same time giving the user a quick way of making sure they have an ingredient.

The beauty of the Grocer App development process is the potential it has at growing over time all the while being fully functional every step of the way. Our first priority is the user interface functioning as a bare bone note taking application but with an emphasis on cooking recipes. The main three pages are a launch page, recipe storage page essentially just functioning as a list of checklists, and the pantry page that lists every ingredient and spice in the user's pantry. With just the added functionality of pdf/url recipe reading, the user experience is already better than the system many people already use, that being a pad and pen or nowadays smart speakers such as Amazon Echos shopping list functionality. Over time, however, the application will grow as we add more and more of the features we alluded to above.

This approach to app development also allows us to quickly change gears away from something too time consuming. Because most of the features aren't dependent on one another, we can easily scrap one and exchange it with a different piece. This maximizes the scope of our end product by ensuring we don't chase down a functionality we desperately need and thus allowing us to push forward with new innovations.

Some of the major roadblocks we're expecting have to do with how eager we are to implement feature after feature without fully understanding the back-end complexities each might hold. It's our hope to be able to use machine learning algorithms to use pantry items as an input from a user to match them to recipes that they might like and use collaborative filtering to make sure that recipes that are being recommended are

favored by the user. While we are certain we'll be able to bring this functionality in some form, we may be ignorant to just how difficult implementing machine learning into the project in this form truly is.

Another concern we have is how much data is publicly available and in a form we can actually make use of. While many of the big shopping centers now have online websites that allow users to see what's in stock or even order online, it's not necessarily a given that they'll have a proper API to tap into. Worst case we might not be able to give the user information on what a shopping location has in stock and instead must rely on a list of hard data containing the generic inventory of each store.

Recipe Options Menu

- Menu Displayed when 3 vertical dots are clicked

Grocer
Grocery List ▽
◯ Apple
◯ Steak

Recipe Options
Plan
Leftovers
Remove
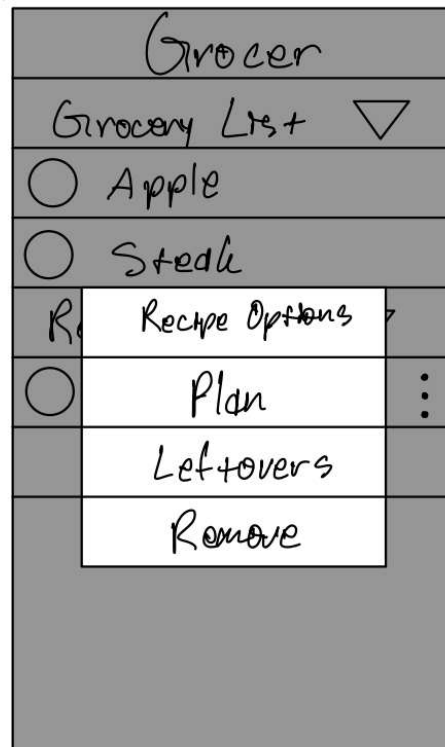
- Plan allows you to plan a day to eat the recipe
- Leftovers indicates you've cooked the recipe, but you don't want to remove it since you have leftovers
- Remove removes the recipe from the recipe list which will automatically remove the ingredients required from your pantry

Grocery List Ingredient Vacation

- When you've acquired all ingredients for a recipe, that recipe will automatically be added to your Recipe List

```
┌─────────────────────────┐
│         Grocer          │
├─────────────────────────┤
│  Grocery List       ▽   │
├─────────────────────────┤
│  ◯  Apple               │
├─────────────────────────┤
│  ◯  Steak               │
├─────────────────────────┤
│  Recipe List        ▽   │
├─────────────────────────┤
│  ◯  Burgers         ⋮   │
├─────────────────────────┤
│     Add to List         │
└─────────────────────────┘
```

1. You picked up steak

```
┌─────────────────────────┐
│         Grocer          │
├─────────────────────────┤
│  Grocery List       ▽   │
├─────────────────────────┤
│  ◯  Apple               │
├─────────────────────────┤
│  ☑  Steak               │
├─────────────────────────┤
│  Recipe List        ▽   │
├─────────────────────────┤
│  ◯  Burgers         ⋮   │
├─────────────────────────┤
│     Add to List         │
└─────────────────────────┘
```

2. Check it off Grocery List

```
┌─────────────────────────┐
│         Grocer          │
├─────────────────────────┤
│  Grocery List       ▽   │
├─────────────────────────┤
│  ◯  Apple               │
├─────────────────────────┤
│  Recipe List        ▽   │
├─────────────────────────┤
│  ◯  Burgers         ⋮   │
├─────────────────────────┤
│  ◯ Chimichurri Steak ⋮  │
├─────────────────────────┤
│     Add to List         │
└─────────────────────────┘
```

3. Upon tapping check-box for ingredient, recipe has been added to Recipe List