Proposal - Foodex

CECS 491A

Aaden Tat

David Nguyen

Kelvin Pham

Devin Joseph

TEAM

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| 1. Aaden Tat: Project leader, specialized in java programming and user interface, experienced in project management. 2. David Nguyen: Team member, advanced in programming code from various languages such as Java and C++, good communicator and presenter, structured and timely mannered, will contribute and assist in the development of the code and the design of the user interface 3. Devin Joseph: Team member, fluent in coding from multiple languages including Java, C++, and C#, experienced in documentation and organization. 4. Kelvin Pham: Team member, experienced in multiple languages including Java, C++, and C#, will research data relevant to the project. |

INTRODUCTION

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| [*https://upload.wikimedia.org/wikipedia/commons/4/49/Fredmeyer\_edit\_1.jpg*](https://upload.wikimedia.org/wikipedia/commons/4/49/Fredmeyer_edit_1.jpg)  Cooking food has always been a tedious but necessary everyday task. When you are presented with aisles and aisles of food at a grocery store, it is overwhelming and paralyzing to decide on what meal to eat or make. Therefore, our team decided on a solution to develop a mobile application that can help alleviate the predicament of picking a meal. This mobile application will permit the user to select through various categories of food or to scan a shopping receipt of food items. Consequently, the user will then be presented a list of recipes that contain the selected or scanned food items. Additionally, the mobile application will include features of notifying the user on their food item’s expiration date. Overall, the mobile application will contain a simple and user-friendly interface, a database of user-inputted food items and recipes, and push notifications of expiring food and produce. By designing this mobile application, it will help quicken the process of deciding the perfect meal for the user. |

FEATURES

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| 1. Scan a shopping receipt (Includes only food and produce)     [*http://cdn.getforge.com/jeongsteph.com/1459391130/images/scanreceipt.png*](http://cdn.getforge.com/jeongsteph.com/1459391130/images/scanreceipt.png)   1. Store a database of user-inputted food items and recipes     [*http://www.dbta.com/Images/Default.aspx?ImageID=17413*](http://www.dbta.com/Images/Default.aspx?ImageID=17413)   1. Predict the expiration date of food items     [*http://www.foodbankcc.com/wp-content/uploads/2016/04/expiredfood.jpg*](http://www.foodbankcc.com/wp-content/uploads/2016/04/expiredfood.jpg)   1. Notify the user with push notifications of a food item's expiration date or of low food stock     [*https://material-design.storage.googleapis.com/publish/material\_v\_9/0B7WCemMG6e0VbzBIdUFTRDdHOE0/patterns\_notifications.png*](https://material-design.storage.googleapis.com/publish/material_v_9/0B7WCemMG6e0VbzBIdUFTRDdHOE0/patterns_notifications.png)   1. Selecting food items by camera scanning or manual keyboard input.     [*https://i-msdn.sec.s-msft.com/dynimg/IC530993.png*](https://i-msdn.sec.s-msft.com/dynimg/IC530993.png)   1. Contain a list of food items and relevant recipes with nutritional values.     [*http://epiphenie.com/wp-content/uploads/Snip20160623\_5.png*](http://epiphenie.com/wp-content/uploads/Snip20160623_5.png)   1. After you finished cooking and shared on social network, your items will automatically crossed off or you can click finish recipe or clicking on the item’s option menu to check it off.     [*https://d19n1ren9crl9v.cloudfront.net/wp-content/uploads/2015/09/bigstock-Modern-Keyboard-With-Colored-S-68403502.jpg*](https://d19n1ren9crl9v.cloudfront.net/wp-content/uploads/2015/09/bigstock-Modern-Keyboard-With-Colored-S-68403502.jpg) |

TARGET AUDIENCE

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| We are targeting conscious and active consumers who are willing to learn and cook from a variety of recipes ranging from a beginner to an advance level. They are required to be technological sufficient to use a mobile application and have high interest in having a balanced diet and healthy lifestyle. |

SCHEDULE

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| 1. Proposal approval period: Sept 13- Sept 27. 2. Execution planning: Sept 27- Oct 4. 3. Data gathering: Oct 6- Oct 18. 4. Project structural planning: Oct 13- Oct 20. 5. Team collaboration on implementation Oct 25- Nov 1. 6. Risk assessment: Nov 3- Nov 8.  * Our team will spend 1.5- 2 months on implementation planning and data collection for grocery items with their nutritional values. Collected data will be stored in a database index. Besides, there will be integration with external APIs such as OCR scanning and voice recognition for input, google links for recipes based on keywords extracted from the food list. Furthermore, our goal is to implement an algorithm to convert abbreviations to their original text form and nutritional values comparison between recipes. * With that being said, planning, data collection, connection to external APIs (CamFind, FoodNetworkApp, Vons, LiveStrongs) and main UI will be finished by the end of Fall semester. * Algorithm implementation will take place during the Spring semester with the use of Agile implementation. We will be focusing on the core features such as scanning receipts and sorting items first, along with testing after implementation as well as assemble, the time frame should stay within 6 weeks or from the beginning of the semester to the first week of March, where testing will occur in the last 2 weeks. In addition, Recipes suggestion, nutritional preference will take 3 weeks, well into April, where the last week is dedicated for testing and overall assembly. Extra features such as social media sharing and push notification will have 3 weeks for completion as well as an additional 1 week for testing. The last two week of the semester will be spent to focus on UI design as well as bug fixing before launching. |

DOCUMENT SCHEDULE:

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| * Tech specs/ requirements * Test plans * UML diagram   \_Class diagrams  \_IPO flowchart   * Use case * Database design * User manual * API listing * UI diagram | * 1 week * 1 week * 4 weeks   \_ 2 weeks  \_ 2 weeks   * 2 weeks * 2 weeks * 1 week * 1 week * 2 weeks |

ARE OF RESPONSIBILITY:

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| * UI Designer: Aaden Tat * Testing engineer: Devin Joseph * Database specialist: David Nguyen * Implementer: Kelvin Pham |

DEDICATION OF FEATURES

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| 1. Inputting Feature (OCR):    1. David, Kelvin 2. Food Database:    1. Aaden, David 3. Sorting Feature (Date):    1. Aaden, David 4. Suggesting Feature (Recipes):    1. Kelvin, Devin 5. Push Notifications:    1. Kelvin, Devin 6. Sharing on Social Media:    1. Aaden, Devin |

PROCEDURE

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| 1. Open app to main screen and input food items by scanning receipt or key in items.    1. Scanning: use camera to take picture of receipt to retrieve items.    2. Manual keyboard input: either enter your item or select from our food item database. 2. Next, the list of food will be displayed for confirmation in ascending order of expiration date measured by number of days. 3. By picking recipes tab, dishes will be displayed based on food items on the top of the list. Clicking on a certain recipe will open up another link. Users can launch the application after purchasing grocery to input the food items. There are many method for inputting the items: OCR, speech, or search menus. 4. The food is then categorized based on our collected data on expiration date or nutritional values in list order defined by the users. Users will know which food to use first by looking at the top of the list in the app and when clicking on the ingredient, the app will use those as key ingredients in order to suggest food recipes from easy to advance level along with the available options for different meals beside dinners and calories intake limits. In special scenarios where the ingredients that the users have are insufficient to generate a recipe, the app will generate single ingredient recipes with suggested side dishes by going further down the list. 5. The app will also come with push notification to remind users when grocery is running low from 3 to 1 day supply, depend on customized setting. 6. Since this application’s purpose is to make it as effortless as possible for people to use, we will focus on developing the most efficient input methods for data, focusing on OCR scan procedure as the keypoint for inputting and an algorithm to convert abbreviation words on the receipts into full text for indexing purposes. 7. From there our app will give the users a list of recipes based on what items they have on their list and also by what items the users select to use. So if a user selects multiple items, it will narrow down the amount of recipes that would show up due to the more specific ingredients used in recipes. 8. Then the user will be able to select whichever recipe they would like and it would then show the user what they would have to do in order to create that certain dish. The user would also be able to keep track of what items they used and what items they still have, so the user would have an idea of when they might need to stock up on food again. |

DATA COLLECTION

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| It’s pretty much no secret that all foods have a time in which they must either be used or eaten before it expires. It is almost impossible to tell how long each food or drink has before it expires due to many factors influencing the outcome. Even expiration dates listed on items in a grocery store are actually just an arbitrary date that manufactures put on it as a rough estimate. However based on research over the years, we can give a rough estimate of each food lifelines. Thanks to the fact we categorize food into one of five food groups. Researching each of the food groups thoroughly, we can roughly estimate expiration dates of food based when stored in certain conditions. Some of these conditions include whether or not the food was left in room temperature, if it was frozen, or if the food was refrigerated. |

EXTERNAL CONNECTIONS

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| With the program working mostly on mobile application, our program will utilize resources that are available for mobile applications. Due to the nature of our program, we will need to give the app access to our camera. Through the app we will take a picture and then connect our app to some form of text recognition software that will read the receipt. From there we can then use the features that we implemented to retrieve data on each food. This is all possible due to the OS features of a Smartphone that allows apps access to hardware, shared data, communication between other apps, and more. |

SOFTWARE ENGINEERING MODEL

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| The software engineering model that our group plans to use is the Agile Development Method. More specifically we are going to use the Extreme Programming methodology. Extreme Programming is a disciplined approach to delivering high-quality software. It encourages customer involvement, rapid feedback loops, continuous testing and planning, and close teamwork. It works to deliver software at very frequent intervals. The Extreme Programming idea is based on four values: simplicity, communication, feedback, and courage. The “Customer” works closely with the development team to prioritize functionality of the software. The team estimates, plans, and delivers the highest priority functions in the form of working tested software on an iteration-by-iteration basis. |

DATABASE PLANNING

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| The program will consist of three databases: a user-login database, food and nutrition database, and the recipes database. At the moment, our team has collectively decided the user-login database will be constructed by using MySQL and php. In the future, if we decide on a different methodology to store the user-login database, then we will update the changes necessary. For the food and nutrition database and the recipes database, our team will utilize APIs because there are already heaps of food and recipes data. Notably, we will be using the USDA Food API for our food and nutrition database and the Spoonacular API for our recipes. |