**Technical Specifications Documentation**

**Group D**

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**Introduction**

The purpose of this document is to collect, analyze, and define high-level needs and features of Foodex. It focuses on the capabilities needed by the stakeholders, and the target users, and why these needs exist. It also list the necessary hardware needed to properly utilize this software application. The document will further explain some of the technical side of the inner workings of this program.

**Purpose**

Grocery indexing and suggestive application based on what the users have bought, including packaged and fresh food. This application will suggest easy everyday recipes to help to create an efficient and healthy lifestyle. This application will also give details about ingredients used such as a rough estimate of expiration date in certain conditions such as refrigeration.

**Scope**

Foodex — an application developed and intended for mobile devices — is capable of sending notification and social media sharing. The early development process involves using APIs, algorithms, and databases, which will work together to generate a list of food and recipes based on user input. This will mostly focus on creating the models on how the application will work overall, how some of the functions interact with each other, and how all of this is utilized on certain hardware.

**System Architecture**

The system will contain APIs to connect to popular social media, algorithms to both sort and search food, and MySQL databases to store information on food and recipes. They will all eventually connect and communicate with one another. The APIs and databases will be accessed first from the user input, and then the algorithms will take place next. The algorithms will convert and make sense of the data into recipes for the user. The algorithms will then display a list of recipes onto the user’s device while at the same time give the user several choices such as return to the main menu or updating their search terms.

**Functional Requirements**

The functional requirements are to decipher text from a picture, take user input, read and pull up relations from a database, recommend relative recipes, read data on food listed from on receipt, send push notifications to the user, and share to social media. The user can then add more inputs to narrow or expand the list of recipes, delete certain keywords from their search in the event of a mistake.

Special needs:

How to make database: internet connection, type, server

* Using the MYSQL environment to create an open source relational database.
* Internet connection will utilize a phone’s sensor for wifi or cellular data
* Have a server that holds the database, information of all the food and recipes, and account information of the users. The user will then use their app to connect to the server and retrieve the information they want.

What language and environment to use,

* Coded in Java and implemented through the Java Virtual Machine

What are the hardware to implement and OS to run on?

* Hardware that runs this application is a smart phone primarily using one of Android’s OS if user has an Android smart phone and also iOS for users with one of Apple’s iPhones.

**User Dialogs & Control Flow**

* 1. Input food or take picture of recipe
  2. Food will be sorted by expiration date from whichever food expiration date approaches first to which food expires last.
  3. Search algorithms take place to find recipes within the database based on the food the users input.

**Background Tasks**

The background tasks are the databases and APIs being utilized, pictures will be converted and deciphered using OCR text recognition, food will be listed by the order of their expiration date, recipes will be determined by the recipe selection algorithm and food, push notifications will be sent more aggressively when application is infrequently used, and the transition from the picture taken to social media.

**Database Model**

* + Food
    - Keys: Name, nutrition, expiration date
  + Recipe
    - Keys: Ingredients, nutrition
  + Social Media
    - Keys: User account, picture

**Interfaces to Other Systems**

* + Facebook, Twitter, Instagram, Snapchat
    1. Interfaces to connect to social media to share used recipe

**Nonfunctional Requirements**

* + User interface must look presentable
    1. Straightforward, intuitive, and easily understood
  + Application must run fast, reliable, efficient, and provide a seamless experience
  + Can run on both mobile platforms: Android and iOS
  + Login security should be encrypted for safety using a cipher such as a running key algorithm
  + Requires internet access

**System Requirements**

* Smartphone from Android/Apple.
* Desktop PC

**Terms**

1. Database: Structured set of data
2. API (Application Programming Interface): Set of tools for building software applications, how software applications should interact
3. OS: Operating System
4. Social Media: An Internet-required medium for users to create and share content