Business Requirement Document: Exogredient

Team A

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Note: This document heavily references Request For Proposal: Exogredient

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Project Overview

Problem

Home chefs want to cook using exotic ingredients, but don't know where to buy them or how to determine their quality. On the other hand, small store owners have these products for sale but lack a strong online presence to connect with these customers.

Solution

Our solution is a community-based, crowdsourced Progressive Web Application. We rely on users to submit reviews identifying the store locations of these hard-to-find ingredients. The community can then verify that these submissions are accurate through an upvote / downvote system. We also offer an interface for store owners to communicate accurate information about their store inventory. This system is designed to grow more accurate with time and increased community involvement.

Project Scope

- Intended Initial Target Audience: Home chefs and store owners living in California.
- Intended Goal Target Audience: Home chefs and store owners in the United States of America (the continental US as well as Alaska and Hawaii).
- Domain Of Characters
  - Every character constraint in this document is implied to be in ASCII encoding unless labeled differently.
- Domain Of Currency: U.S. dollars.
- Domain Of Mobile Devices: Phones and tablets.
- Desktop/Mobile Browser Support (Latest Versions):
  - Chrome
  - **Note: All features and views should be legible for both Mobile and Desktop devices.**
- Application Type: Progressive Web Application
- Intended Internet Connection Of Users: 5 Mbps minimum for downloading. 10 Mbps minimum for uploading Uploads.
- Intended Data To Be Collected From Users:
  - Users' uploads of ingredients
  - Users' account information (username, password, etc.)
  - Users' comments on uploads
  - Users' save list
  - Normalized claimed stores (stores that store owners have claimed)
  - Normalized store names
  - Normalized ingredients
  - Normalized addresses
  - Logs of all successful and unsuccessful actions that users of the application make
- Time Out Failure:
  - Any operation that takes more than 3 seconds will be terminated, the failure will be logged, and the user will be notified.

Documentation

FAQ - This document is for end users. It answers commonly asked questions involving how to use our application.

User Manual - This document is for end users. It is a detailed manual of all the features in our application.

Business Requirements Document - This document is for developers. This document allows developers to understand the requirements and business rules for the application's features.

Design Document - This document is for developers. It is a high level model of the application's features. It will help the developers understand how the features will function.

Tech Spec - This document is for developers. This document analyzes the development and deployment technologies used to build the application and presents the standard that was chosen.

Project Plan - This document is for developers. It will lay out a specific plan of attack for dividing the project into tasks and timelines. It will rely heavily on the Scrum methodology.

Project Roadmap - This document is for clients. It is a high level view of the Project Plan, showing milestones of what important features will be finished at certain time periods. It also includes a timeline for deployment, maintenance, and end of support.

Site Map - This document is for clients. It is a general overview of how the application is laid out and traversable.

User Roles

Unregistered Customer - An individual who can only search for ingredients or stores.

Registered Customer - An individual who has registered for an account on our application, granting them more features than an Unregistered Customer (such as upload).

Store Owner - A Registered Customer who has successfully claimed a store and has elevated permissions regarding that store's information.

Admin - An individual who has the highest level of control over the information on our system.

System Admin - An admin, the only one who can create other admins.

Key Terms

Individual - Term used to encompass a member of one of the roles listed for that feature's scope.

Upload - An upload is a user's advocacy of an ingredient location. It consists of:
- A mobile image of the ingredient.
- The ingredient's price.
- Quality of the ingredient (1 - 5 stars).
- Description of the ingredient.
- Date and location of the upload (inferred from the image's metadata).

Store - A physical store that is selling an ingredient.

Save List - A list of ingredients along with their store locations saved in a list on the user's profile.

Home View - The starting view of the application. The main features of this page is the search option, access to profile, and access to upload creation.

Ingredient View - The view containing the store name and ingredient name at the top, and lists of all uploads associated with that ingredient at that store. This view is reached through an ingredient search. See page 14 for more information.

Store View - The view containing all the ingredients for a specific store as well as the store advertisement if the store owner has added one. This view is reached through a store search. See page 18 for more information.

Profile View - The view containing account information for the user. See page 22 for more information.

Manage Store View - The view where store owners can manage advertisements and ingredients on their claimed store. See page 24 for more information.

Registration View - The view allowing an unregistered user to create an account on the application. See page 32 for more information.

Registration Verification View - The view that confirms the user's account information during registration by entering codes for email and phone. See page 34 for more information.

Log In View - The view allowing a registered user to authenticate themselves for the application by entering their account information. See page 35 for more information.

Reset Password View - The view that allows the user to reset their password after selecting a link that was sent to them. See page 36 for more information.

Admin Manage Account View - The view that allows admins to create, enable, disable, and delete users. See page 39 for more information.

Admin Usage Analysis Dashboard View - The view that shows admins statistics about the usage of the system. See page 45 for more information.

Business Rules

Logging: Data Store

Functional Requirements:
Description: Every successful and unsuccessful operation is logged by the system to a data store.

Preconditions:
- An unsuccessful or successful operation occurs on the web application, except for successful logs and archiving operations.
- There is data store separate from the web application to store logs.

Required Inputs:
- Timestamp (00:00:00:00 UTC)
- Operation performed
- User/system unique ID
- IP address
- Type of error

Successful Postconditions:
- File is saved in the designated storage.
- Logs should have:
  - Timestamp (00:00:00:00 UTC)
  - Operation performed
  - User/system unique ID
  - IP address
  - Type of error
  - A naming convention: archive_YYYYMMDD (example)
- There is a new collection/table/etc. for each day, according to UTC time.

Failure Postconditions:
- Any of the successful postconditions failing.
- Flat file logging of the same event failed.
  - Logging is transactionable: flat file and data store logs must be kept consistent.

- Failure to log.
  - Attempts to log the log 3 times, then notifies the system administrator. System prevents further logging of that specific entry.

Non-Functional Requirements:
- Logs should be sortable by timestamp and in ascending/descending order.
  - Sorting in ascending/descending order is accurate based on the timestamp.
- It should take a maximum of 3 seconds to complete the logging process.

Logging: Flat File

Functional Requirements:
Description: Every successful and unsuccessful operation is logged by the system to a Flat file.

Preconditions:
- An unsuccessful or successful operation occurs on the web application, except for successful logs and archiving operations.
- There is storage to save the logging flat file.

Required Input:
- Timestamp (00:00:00:00 UTC)
- Operation performed
- User/system unique ID
- IP address
- Type of error

Successful Postconditions:
- Logs should have:
  - Timestamp (00:00:00:00 UTC)
  - Operation performed
  - User/system unique ID
  - IP address
  - Type of error
- Logs should be saved in a .CSV file
  - A naming convention: YYYYMMDD.CSV
  - There is a new file for each day, according to UTC time.

Failure Postconditions:
- Any of the successful postconditions failing.
- Data store logging of the same event failed.
    - Logging is transactionable: flat file and data store logs must be kept consistent.
- Failure to log.
    - Attempts to log the log 3 times, then notifies the system administrator. System prevents further logging of that specific entry.

Non-Functional Requirements:
- Logs should be sorted by timestamp and in ascending/descending order.
    - Sorting in ascending/descending order is accurate based on the timestamp.
- It should take a maximum of 3 seconds to complete the logging process.

Archiving: Flat File

Functional Requirements:
Description: The system should compress flat file logs that are at least thirty days old into a compressed file on the first of every month at 00:00:000 UTC.

Preconditions:
- Application has flat file logs that are at least thirty days old.
- The date is the first of the month 00:00:000 UTC.
- There is storage separate from the web service to save the archive.

Required Input:
- 30 day or older flat file log entries.

Successful Postconditions:
- All flat files from the input are compressed.
- Compressed file is saved in the designated storage.
- Compressed file must be in .ZIP format.
- Naming convention: YYYYMMDD.ZIP (DD = 01).
- The archive should be saved in a different file from other archive files.
- Compressed files shouldn't be editable.

Failure Postconditions:

- Any of the successful postconditions failing.
  - Notify the system administrator.
  - Log only once.
- Archived on incorrect date / incorrect time.

Non-Functional Requirements:
- Should be accurate (timestamps should fall within the correct time constraints).
- Archive file should be sortable by date.
  - Sorting in ascending/descending order is accurate based on the date.

Data Store Access (Error Handling)

Functional Requirements:
Description: Our application should respond to any errors that occur when accessing the data in our data store.

Preconditions:
- Has access to data store.

Required Input:
- Data store access error.
  - If resource is unavailable or temporarily not available.
  - Resource does not exist.
  - If User is not authorized.
  - Resource already exists (duplicates).
  - Data type mismatch
  - Data store is full.

Successful Postconditions:
- If resource is unavailable or temporarily not available.
  - After 3 times of failure tell the user that we are unable to satisfy request and to try again at a later time. The user, however, is not locked out from attempting again.
  - Notify the system administrator after 3 times of failure.
- Resource does not exist.
  - Notify user that resource does not exists / invalid operation.
- If User is not authorized.
  - Notify user that operation is invalid.
- Resource already exists (duplicates).

- - Users have to be unique.
    - Otherwise, user attributes can be duplicated but entire records cannot.
    - Notify user that information is invalid.
  - Data type mismatch
    - Notify user that information is invalid.
  - Data store is full.
    - Notify user that it is unable to save or enter in this information.
    - Notify the system administrator..

Failure Postconditions:
- Any of the successful postconditions failing.

Error Handling

<u>Functional Requirements:</u>
Description: All errors will display an appropriate error message.

Required Input:
- Operation occurs within the system.

Successful Postconditions:
- If error can be solved by the users give steps of what they should perform.
- If an attempt to do an operation fails three times and there are no possible steps to solve the problem with, notify the system administrator. Inform the user to try again later.

Failure Postconditions:
- Any of the successful postconditions failing.
- System crashes.

<u>Non-Functional Requirements:</u>
- Error message is legible for users.

Features

Note: subcomponents of a feature have two arrows surrounding their name.
(e.g. ⮕ subcomponent ⬅)

Upload

<u>Scope:</u> Registered Customer, Store Owner, Admin, System Admin

⮕ **Create An Upload** ⬅

<u>Functional Requirements:</u>

Description: The roles listed in the scope will be able to create an upload of an ingredient's information for a specific store onto the application.

Preconditions:
- Individual has access to image.
- Image must have required metadata: time, date, location, and time zone.
- Individual must be at the Upload View and select the submit option.
- Individual must be logged in.

Required Input:
- Image.
  - To select the image on a desktop, the individual will be able to browse their files. To select the image on a mobile device, the individual will be able to browse their photo album.
  - Image must be of file type JPG.
  - The image must be at least 0.5 MB and at most 4 MB.
  - Time, date, location, and time zone are retrieved from the image's metadata, not gathered directly from the individual.
- Ingredient's name.
  - The name can be selected from an auto-generated list, can be edited to correct typos after selecting. There is also an option for a free-form field to enter the name.
  - Ingredient name is a maximum of 100 characters.
- Ingredient's price.
  - Price has a format of two decimal places (eg. $12.22).
  - Unit choices are:

- Per item.
- Per pound.
- Per gram.
- Per oz.
    - The price must be greater than or equal to 0.
- Rating: 1 - 5 stars.
- Description.
    - Maximum of 200 characters.

Successful Postconditions:
- After submitting, an upload's data is stored in persistent storage.
- After submitting, an upload can be viewed in the UI.
- After submitting, individual is taken to the Profile View.
- After submitting, if the upload is by a Store Owner to their own store it has a higher importance among other uploads.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- After submitting, the upload process should take a maximum of 2 seconds.

☐ **Save Progress Of An Upload** ☐
Function Requirements:
Description: The roles listed in the scope will be able to save the progress of an upload in creation.

Preconditions:
- Individual must be at the Upload View.
- The ingredient name input is needed and its constraint met.
- Individual must be logged in.

Required Input:
- The individual selects the save option.

Successful Postconditions:
- After saving, the progress is stored in persistent storage.
- After saving, the progress can be viewed and continued in the Profile View.
- After saving, the individual is taken to their Profile View.

Failure Postconditions:
- Any of the successful postconditions failing.
- Saved progress of upload has incorrect name.

Non-Functional Requirements:
- The progress is saved in a maximum of 1 second.

☐ **Delete Progress Of An Upload** ☐

Functional Requirements:

Description: The roles listed in the scope will be able to delete their saved progress of an upload.

Preconditions:
- Individual must be at their Profile View.
- Individual must be logged in.

Required Input:
- Select delete progress of upload option.

Successful Postconditions:
- Upload progress is deleted from persistent storage.
- Upload progress is removed from the UI.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- Progress deletion should take a maximum of 1 second.

☐ **Continue Progress Of An Upload** ☐

Functional Requirements:

Description: The roles listed in the scope will be able to continue their saved progress of an upload.

Preconditions:
- Individual must be at their Profile View.
- Individual must be logged in.

Required Input:
- Selected the continue option on a saved progress of an upload.

Successful Postconditions:
- Taken to Upload View with fields filled in from the last saved progress.

Failure Postconditions:
- Any of the successful postconditions failing.
- Taken to upload creation with incorrect fields from the last saved progress.
- Taken to upload creation with no fields filled.

Non-Functional Requirements:
- Continue progress process should take a maximum of 1 second.

◻ **Delete Own Upload** ◻
Functional Requirements:
Description: The roles listed in the scope will be able to delete their own upload.

Preconditions:
- Individual must be at their Profile View.
- Individual must be logged in.

Required input:
- Select delete own upload option.

Successful Postconditions:
- Individual's own upload is deleted from persistent storage and UI.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- Deletion process should take a maximum of 1 second.

Report An Upload

Scope: Registered Customer, Store Owner, Admin, System Admin

Description: The roles listed in the scope will be able to fill out a report description of an upload to notify admins who will decide on the deletion of the upload.

Preconditions:
- Individual selected the report upload option from an Ingredient View.
- Individual must be logged in.

Required Input:
- Report description.
    - Maximum character length of 500.

Successful Postconditions:
- Report description is stored in persistent storage.
- Report description is accessible to admins.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- Report process should take a maximum of 0.5 seconds.

Search By Ingredient Name

Scope: Unregistered Customer, Registered Customer, Store Owner, Admin, System Admin.

⬜ **Conduct Search** ⬜

Functional Requirements:
Description: The roles listed in the scope will be able to search for stores that are associated with the searched ingredient that has been uploaded in our application by inputting the ingredient name, valid street address, and the mile radius.

Preconditions:
- Individuals are not required to be logged in.
- Individuals must be in view that has a search option. Individual must then select the ingredient search option and select the perform search option.

Required Input:

- Ingredient name.
  - Maximum character length of 100.
- Valid street address.
  - A valid street address is in the format: Street# Street Name, City, State, Zip Code (no need for suite number, just the center of the search).
  - Maximum character length of 100.
- Mile radius.
  - Maximum of 100 miles and a minimum of 1 mile.

Successful Postconditions:
- Results display valid data only.
- Search displays store names of stores containing at least 1 upload of an ingredient containing the ingredient name input (e.g. ingredient name = soy sauce, results = jason's soy sauce, aged soy sauce, etc.) that exist in the mile radius centered around the street address. If there are no stores satisfying the criteria, the results are empty.
- Search displays the amount of distinct ingredients associated with the searched ingredient for each store.
- Search displays the distance from each store to the street address.
- Search can return 0 results.
- There can be less than or equal to 100 results shown by closest distance.
- If there are more than 100 results, pagination will occur with results grouped in multiples of 100 by closest distance if they exist.
- Selecting one of the results will take the individual to Store View.

Failure Postconditions:
- Any of the successful postconditions failing.
- A store is displayed that doesn't include the search ingredient.
- A store that has the searched ingredient uploaded to it is not displayed.

Non-Functional Requirements:
- It should take a maximum of 1 second to conduct the search.
- Pagination should take a maximum of 1 second.
- Distance of stores are accurate.

Search By Store Name

Scope: Unregistered Customer, Registered Customer, Store Owner, Admin, System Admin.

☐ **Conduct Search** ☐

Functional Requirements:

Description: The roles listed in the scope will be able to search for any store with at least one upload in our application in order to see all ingredients belong to that store. Search is done by inputting the store name, valid street address, and the mile radius.

Preconditions:
- Individual is not required to be logged in.
- Individual must be in view that has a search option. Individual must then select the store search option and select the perform search option.

Required Input:
- Store name.
  - Maximum character length of 100.
- Valid street address.
  - A valid street address is in the format: Street# Street Name, City, State, Zip Code (no need for suite number, just the center of the search).
  - Maximum character length of 100.
- Mile radius.
  - Maximum of 100 miles and a minimum of 1 mile.

Successful Postconditions:
- Results display valid data only.
- Search displays store names containing the store name input (e.g store name = market, results = night market, day market, etc.) that exist in the mile radius centered around the street address. If there are no stores satisfying the criteria, the results are empty.
- Search displays the amount of ingredients associated with each store.
- Search displays the distance from each store to the street address.
- Search can return 0 results.
- There can be less than or equal to 100 results shown by closest distance.
- If there are more than 100 stores, pagination will occur with stores grouped in multiples of 100 by closest distance if they exist.

- Selecting one of the results will take the individual to Store View.

Failure Postconditions:
- Any of the successful postconditions failing.
- A store is displayed that does not contain the store name input.
- A store that contains the store name input is not shown.

Non-Functional Requirements:
- It should take a maximum of 1 second to conduct the search.
- Distance of stores are accurate.
- Pagination should take a maximum of 1 second.

Display Search Results View

Functional Requirements:

Description: The roles listed in the scope will be able to view the results after a successful Search By Ingredient Name or Search By Store Name.

Preconditions:
- Individual performed an ingredient search.
- Individual is not required to be logged in.

Optional Input:
- Sort option.
    - By distance (closest or farthest first).
    - By amount of distinct ingredients (most or least first).
- Individual selects one of the results.

Successful Postconditions:
- Sort option:
    - All sorts successfully update the view.
    - Sorting will update the view to display 100 results if they exist in the desired order. If there are more than 100 results, pagination will occur with results grouped in multiples of 100 in the desired order if they exist.
- Selecting one of the results will take the individual to the Store View.

Failure Postconditions:
- Any of the successful postconditions failing.

- All performed sorts are accurate to ascending or descending order (based on distance, price, or amount of uploads) depending on the individual's choice.
- All sorts should be performed in a maximum of 1 second.
- Pagination should take a maximum of 1 second.

Display Store View

Scope: Unregistered Customer, Registered Customer, Store Owner, Admin, System Admin.

Functional Requirements:
Description: The roles listed in the scope will be able to select a store from a Search Results View for a more detailed view about that store.

Preconditions:
- Individual is not required to be logged in.
- Individual has arrived at this view from a Display Search Results view.

Optional Input:
- Individual selects the store name.
- Individual selects one of the results.

Successful Postconditions:
- Display a Store Owner's advertisement if it exists for his store.
- The store name is displayed.
- After selecting the store name the individual should be taken to a new tab containing the directions of the store.
- Correct results are displayed in the UI:
  - List of ingredients associated with that store.
  - The amount of uploads for each ingredient.
  - Average price for each ingredient.
- There must be at least 1 result shown.
- There can be less than or equal to 50 results shown alphabetically by ingredient name.
- If there are more than 50 results, pagination will occur with results grouped in multiples of 50 alphabetically by ingredient name if they exist.
- Selecting one of the results will take the individual to the Ingredient View.

Failure Postconditions:
- Any of the successful postconditions failing.
- New tab with map fails to load when selecting the store name.
- Location of the store on the map is wrong.
- Display an ingredient that does not correspond to the store.

Non-Functional Requirements:
- Displaying should take a maximum of 1 second.
- Pagination should take a maximum of 1 second.

Display Ingredient View

Scope: Unregistered Customer, Registered Customer, Store Owner, Admin, System Admin.

Functional Requirements:
Description: The roles listed in the scope will be able to select an ingredient from a Store View to see a more detailed view.

Preconditions:
- Individual is not required to be logged in.
- Individual has arrived at this view from either a Store View.

Optional Input:
- Sort option.
    - Amount of upvotes for the upload (most or least first).
    - The date of the upload (most recent or oldest first).
- Individual selecting the ingredient name / store name.

Successful Postconditions:
- The name of the ingredient and the store it's located at is displayed.
- After selecting the ingredient name / store name the individual should be taken to a new tab containing the directions of the store.
- All uploads for that ingredient are displayed in the UI. For each upload show:
    - The amount of upvotes and downvotes for each upload.
    - The username of each uploader.
    - The price in U.S. dollars for that upload.

- ○ The rating for each upload (1 - 5 stars).
  - ○ The time and date for each upload (e.g Tuesday September 23, 2019 4:00pm PDT).
  - ○ The comments on each upload, by recency.
    - ■ The comments on each upload are hidden by default.
    - ■ After selecting the show comments option, selecting the hide comments option will hide all the comments that were shown. Selecting show comments again will display the original amount.
    - ■ After selecting the show comments option, there can be 0 comments shown.
    - ■ There can be less than or equal to 10 comments.
    - ■ If there are more than 10 comments, pagination will occur with comments grouped in multiples of 10 by most recent if they exist.
  - ○ All verified uploads and uploads by the store owner are displayed at the top of the view initially if they exist, sorted in chronological order (newest first) if there are multiple.
- There must be at least 1 upload shown.
- There can be less than or equal to 10 uploads shown by the most upvotes.
- If there are more than 10 uploads, pagination will occur with uploads grouped in multiples of 10 by most upvotes if they exist.
- The Store Owner's description of the ingredient is displayed on the top of the page if it exists.
- If a sort option is selected:
  - ○ All sorts successfully update the view.
  - ○ Sorting will update the view to display 10 uploads if they exist in the desired order. If there are more than 10 uploads, pagination will occur with uploads grouped in multiples of 10 in the desired order if they exist.

Failure Postconditions:
- Any of the successful postconditions failing.
- Displays an upload for an incorrect ingredient.
- New tab with map fails to load when selecting the store name.
- Location of the store on the map is wrong.

Non-Functional Requirements:
- All performed sorts are accurate to ascending or descending order (based on the amount of upvotes or the date of the upload) depending on the individual's choice.
- All sorts should take a maximum of 1 second.

- Displaying the view should take a maximum of 1 second.
- Selecting the show / hide comments options should take a maximum of 1 second.
- Pagination should take a maximum of 1 second.

Comment On An Upload

Scope: Registered Customer, Store Owner, Admin, System Admin.

Functional Requirements:
Description: The roles listed in the scope will be able to comment on an upload from an Ingredient View.

Preconditions:
- Individual must be logged in.
- Individual must be in on an Ingredient View and have selected the comment option on an upload.

Required Input:
- Comment text.
    - Character length is a maximum of 200.

Successful Postconditions:
- Comment is stored on persistent storage.
- Comment is shown in the UI.

Failure Postconditions:
- Any of the successful postconditions failing.
- The comment shown is not what the individual entered.

Non-Functional Requirements:
- It should take a maximum of 1 second for comment action to complete.

Claim Store

Scope: Registered Customer, Store Owner, Admin, System Admin.

 Initiate Claim
Functional Requirements:

Description: The roles listed in the scope will be able to initiate a claim on an unclaimed store in our application.

Preconditions:
- Individual must be logged in.
- Individual must be at a Store View of the store they want to claim.
- The store's phone number or address is publicly available.
- The store has not been successfully claimed yet.

Required Input:
- Select the claim store option.
- Choose the verification code reception method.
  - Automated call to the store's phone number if available.
  - Automated text message to the store's phone number if available.
  - Postcard through mail to the store's address if available.

Successful Postconditions:
- Verification code is sent via the chosen method.
  - The code is valid for 14 days.
- If the verification code was sent in the mail, the tracking number is available to the individual.
- Verification code input is available in the UI of the Profile View.
- Claiming of the store is in the pending stage.
- Individual is taken to Profile View.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- The call should be initiated within a maximum of 3 seconds.
- It should take a maximum of 3 seconds to send the verification code for text message.
- Initiating the claim process should take a maximum of 2 seconds.
- The code should be sent in the mail within 2 business days.

◻ **Satisfy Claim** ◻
Functional Requirements:
Description: The roles listed in the scope will be able to satisfy a pending claim for claiming a store.

Preconditions:
- Individual must be logged in.
- Individual must have completed the Initiate Claim action.

Required Input:
- Verification code.
    - 7 numerical characters.

Optional Input:
- Individual chooses the verification code resend option. Individual then chooses the reception method:
    - Automated call to the store's phone number if available.
    - Automated text message to the store's phone number if available.
    - Postcard through mail to the store's address if available.
- Individual chooses to cancel the verification option.

Successful Postconditions:
- Verification code matches.
    - Store is now associated with the store owner in persistent storage.
    - Individual have access to the Manage Store View for that store.
    - Claiming of the store is no longer in the pending stage.
- Individual chooses the resend option.
    - Verification code is sent via the chosen method.
    - If the verification code was sent in the mail, the tracking number is available to the individual.
- Individual choose to cancel the verification option.
    - Claiming of the store is no longer in the pending stage.
    - Verification code input is no longer available in the UI.
    - The code sent is no longer valid.

Failure Postconditions:
- Any of the successful postconditions failing.
    - Verification code mismatch allows a maximum of 3 failures before the individual is locked from attempting again. The individual must contact an admin to continue the claim.

Non-Functional Requirements:

- Satisfy claim, initiate resend, or cancel verification processes should take a maximum of 2 seconds.
- It should take a maximum of 3 seconds to send the verification code for text message.
- The code should be sent in the mail within 2 business days.

Upvote / Downvote An Upload

Scope: Registered Customer, Store Owner, Admin, System Admin.

Functional Requirements:
Description: The roles listed in the scope will be able to upvote or downvote an upload in the Ingredient View.

Preconditions:
- Individual must be logged in.
- Individual must be at an Ingredient View.

Required Input:
- Individual selects either the upvote or downvote option next to an upload.
   - An upload cannot be upvoted and downvoted at the same time.

Successful Postconditions:
- Number of upvotes or downvotes is updated in persistent storage and the UI.
   - Clicking an already selected choice will undo that choice.
   - An individual can switch their choice by clicking on the opposite option.
   - The numbers of upvotes and downvotes will be displayed in K when it reaches 1,000 (e.g. 1.3K).
   - The maximum amount of upvotes and / or downvotes an upload can get is 1,000,000 (1M). The upvote / downvote options are disabled when the max is reached.

Failure Postconditions:
- Any of the successful postconditions failing.
- The updated number of upvotes or downvotes is incorrect.

Non-Functional Requirements:
- It should take a maximum of 1 second to complete the upvote / downvote process.

Display Profile View

Registered Customer, Store Owner, Admin, System Admin.

Functional Requirements:
Description: The roles listed in the scope will be able to access their profile.

Preconditions:
- Individual must be logged in.
- Individual must be at the Home View to initiate the action.

Required Input:
- User selects the profile option.

Successful Postconditions:
- Username is displayed in the UI.
- Profile score is displayed in the UI.
    - Profile score is a sum of all upvotes and downvotes of the individual's uploads. Upvote contributes +1 and downvotes contribute -1.
- All uploads that the individual submitted are displayed in the UI.
    - There can be 0 uploads shown.
    - There can be less than or equal to 10 uploads shown by recency.
    - If there are more than 10 uploads, pagination will occur with uploads grouped in multiples of 10 by most recent if they exist.
- Verification code input option is displayed in the UI if the individual's claim store is in the pending stage.
- All drafts of uploads are displayed in the UI.
    - There can be 0 drafts shown.
    - There can be less than or equal to 20 drafts shown by least recency.
    - If there are more than 20 drafts, pagination will occur with drafts grouped in multiples of 20 by oldest first if they exist.
- All items from the individual's save list are displayed in the UI.
    - Selecting an item from the save list will take the individual to the Ingredient View for that ingredient.
    - There can be 0 items shown.
    - There can be less than or equal to 20 items shown by least recency.
    - If there are more than 20 items, pagination will occur with items grouped in multiples of 20 by oldest first if they exist.

- Store owners only can see a list of the stores they claimed.
  - Selecting a store takes them to the Manage Store View for that store.
  - There must be at least 1 store shown.
  - There can be less than or equal to 5 stores shown alphabetically.
  - If there are more than 5 stores, pagination will occur with stores grouped in multiples of 5 alphabetically if they exist.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- Displaying the profile should take a maximum of 2 seconds.
- Pagination should take a maximum of 1 second.

Admin Delete Upload

Scope: Admin, System Admin.

Functional Requirements:
Description: The roles listed in the scope will be able to delete any upload from an Ingredient View.

Preconditions:
- Individual must be logged in.
- Individual must be at the Ingredient View.

Required Input:
- Select deletion option next to an upload.

Successful Postconditions:
- Deletion of the upload from the UI.
- Deletion of the upload data from the persistent storage.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- The deletion process should take a maximum of 2 seconds.

Display Manage Store View

Scope: Store Owner, Admin, System Admin.

Functional Requirements:
Description: The roles listed in the scope will be able to view all ingredients for their claimed store and view multiple options to manage their store.

Preconditions:
- Individual must be logged in.

Required Input:
- Individual selects a store from their Profile View.

Successful Postconditions:
- All necessary information is displayed:
  - Store name.
  - Unclaim store option.
  - Advertisement picture upload option.
  - Advertisement description input option.
  - A list of all ingredients with at least 1 upload associated with them for that store.
    - There can be 0 ingredients shown (individual claimed the store and all uploads associated with the store were deleted).
    - There can be less than or equal to 100 ingredients shown.
    - If there are more than 100 ingredients, pagination will occur with ingredients grouped in multiples of 100 if they exist.
  - Flag / unflag option next to each ingredient.
  - Descriptions of ingredients, hidden by default.
    - Selecting show description option displays the current description edit option. Can subsequently select hide description to re-hide.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- Displaying the manage store view should take a maximum of 1 second.

- It should take a maximum of 0.5 seconds to display the description once the show option is selected.
- It should take a maximum of 0.5 seconds to hide the description once the hide option is selected.
- Pagination should take a maximum of 1 second.

☐ Flag / Unflag An Ingredient ☐

Functional Requirements:

Description: The roles listed in the scope will be able to flag / unflag an ingredient in their store to label that the ingredient is unavailable for the moment and unflag when it becomes available again.

Preconditions:
- Individual must be logged in.
- Individual must be at the Manage Store View.

Required Input:
- Select the flag / unflag option.

Successful Postconditions:
- Selecting the flag option of an already flagged ingredient will unflag the ingredient and vice versa.
- The flag option should be updated in the UI, here and on the Ingredient View for that ingredient.
- Flag status is updated in persistent storage.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- The flag / unflag process should take a maximum of 1 second.

☐ Advertisement ☐

Functional Requirements:

Description: The roles listed in the scope will be able to upload an image of an advertisement and input a description associated with it as well.

Preconditions:

- Individual must be logged in.
- Individual must be at the Manage Store View.
- Individual must have access to the image.

Required Input:
- Image.
  - To select the image on a desktop, the individual will be able to browse their files. To select the image on a mobile device, the individual will be able to browse their photo album.
  - Image must be of type JPG, JPEG, PNG, GIF.
  - The image must be at least 0.5 MB and at most 4 MB.
- Description.
  - Maximum of 500 characters.

Successful Postconditions:
- Advertisement data is stored in persistent storage.
- Advertisement is displayed in the UI here and on the Store View for that store.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- Image
  - Should take a maximum of 2 seconds for the image to upload.
- Description
  - Should take a maximum of 2 seconds to display description.
- It should take a maximum of 2 seconds for the data to be saved and displayed in the UI.

☐ **Unclaim Store** ☐
Functional Requirements:
Description: The roles listed in the scope will be able to unclaim a store they have claimed.

Preconditions:
- Individual must be logged in.
- Individual must be at the Manage Store View.

Required Input:

- Select the unclaim store option and confirm the selection.

Successful Postconditions:
- Individual cannot access this Manage Store View any more and is taken back to Profile View.
- Store is removed from the individual's Profile View.
- All ingredient flags for that store are unflagged.
- All verified uploads are undone.
- Added advertisements are cleared.
- All ingredient descriptions are deleted.
- Store is unassociated with the individual in persistent storage.
- Store status is now unclaimed.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- The process of unclaiming should take a maximum of 3 seconds.

Verify An Upload

Scope: Store Owner, Admin, System Admin.

Functional Requirements:
Description: The roles listed in the scope will have the ability to change the appearance of an upload on an ingredient's page to confirm its accuracy.

Preconditions:
- Individual must be logged in.
- Individual must be at the Ingredient View

Required Input:
- Select the verify option from an Ingredient View.

Successful Postconditions:
- Verification information is stored in persistent storage.
- The verify option is updated in the UI.

Failure Postconditions:

- Any of the successful postconditions failing.

Non-Functional Requirements:
- Verification of an upload should take a maximum of 0.5 seconds.

Ingredient Save List

Scope: Registered Customer, Store Owner, Admin, System Admin.

☐ **Add To Save List** ☐
Functional Requirements:
Description: The roles listed in the scope will be able add an ingredient and the store that ingredient is associated with to their save list.

Preconditions:
- Individual must be logged in.
- Individual must be at the Ingredient View.
- The individual's current save list contains 99 or less items.

Required Input:
- Individual selects the save ingredient option from the Ingredient View.

Successful Postconditions:
- Selection is saved in persistent storage.
- Update the Profile View UI to reflect the newly added ingredient.
- Remove the save ingredient option from the UI.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- It should take a maximum of 1 second to complete the saving process.

☐ **Delete From Save List** ☐
Functional Requirements:
Description: The roles listed in the scope will be able to delete an ingredient and the store associated with that ingredient from their save list.

Preconditions:

- Individual must be logged in.
- Individual must be at their Profile View.
- Individual must have at least 1 item in their save list.

Required Input:
- Individual selects the delete save list item option from the Profile View.

Successful Postconditions:
- Item data is removed from persistent storage.
- Item is removed from the UI.
- Save ingredient option is now available at that ingredient's Ingredient View.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- It should take a maximum of 1 second to complete the deletion process.

⬜ View Item From Save List ⬜

Functional Requirements:
Description: The roles listed in the scope will be able to select an item from their save list to be taken to that item's Ingredient View.

Preconditions:
- Individual must be logged in.
- Individual must be at their Profile View.
- Individual must have at least 1 item in their save list.

Required Input:
- Individual selects the item from the save list in the Profile View.

Successful Postconditions:
- Individual is taken to that item's Ingredient View.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:

● The redirection process should take a maximum of 1 second.

Registration

<u>Scope:</u> Unregistered Customer.

<u>Functional Requirements:</u>
Description: The roles listed in the scope will be able to register for an account on our application.

Preconditions:
- Individual must not be logged in.
- Individual must be at the Registration View.
- Admins and system admin can't register.

Required Input:
- First name.
  - 200 characters maximum, alphanumeric and special characters allowed.
- Last name.
  - 200 characters maximum, alphanumeric and special characters allowed.
- Email
  - 200 characters maximum, alphanumeric and special characters allowed.
  - Must be in email format (name@domain).
  - Must be unique across application users.
- Username.
  - 200 characters maximum, alphanumeric and special characters allowed.
  - Must be unique among application users.
- Mobile phone number.
  - 10 numeric characters only. Will be transposed into a valid format (###-###-####).
  - Must be unique among application users.
- California, YES or NO?
  - Only two valid options: YES and NO.
- Password [1].
  - Can be up to 2000 characters.
  - Can be alphanumeric with special characters.
    - The allowed special characters are every special character on the US standard keyboard except for < and >.
  - Should be a minimum of 12 characters.

- ○ The password should be compared a list of values known to be commonly-used, expected, or compromised:
  - ■ Passwords obtained from previous breach corpuses.
  - ■ Words contained in a dictionary.
  - ■ Repetitive or sequential characters (e.g. '1234', 'bbbbbb').
  - ■ Context specific words, such as the name of the application or the current username.
- ○ A strength meter should be offered to assist the user in choosing a strong password.
- ○ The password should be able to be copied and pasted into the field.
- ○ Individual's entered characters should be displayed for a short time before being hidden to verify correct entry.
- ○ An option to display the password should be available.
- Re-enter password.
  - ○ Must match the entry above.
  - ○ The password should be able to be copied and pasted into the field.
  - ○ An option to display the password should be available.

Optional Input:
- System administrator's powers.
  - ○ Only the system administrator can create admins.
  - ○ Only the system administrator can remove admins.

Successful Postconditions:
- Admins cannot remove or lock the system administrator.
- Apart from the listed differences, same functionality for admins and the system administrator.
- Verification code sent to mobile phone using text.
- Verification code sent to email to the address that was entered.
- Individual is taken to the Registration Verification View.

Failure Postconditions:
- Any of the successful postconditions failing.
- User selected they are NO regarding their location being in California.
  - ○ This user will currently not be allowed to register.
- Email, username, or phone number entered already exists among application users.
  - ○ Tell the user one of these fields was invalid, but not which one.

- ○ After 3 failures of this type, lock out the Individual and inform the system administrator.
- User is outside of the scope location.
  - ○ User is notified that they are unable to register at this time.
- Password do not meet the requirements.
  - ○ User is notified of the failure and the reason for the failure.

Non-Functional Requirements:
- The verification should take a maximum of 5 minutes to be sent.
- The verification is valid for 15 minutes after it is sent.

☐ **Verify Phone Number And Email** ☐

Functional Requirements:

Description: The roles listed in the scope will be able to verify their phone number and email address during registration.

Preconditions:
- Individual must not be logged in.
- Individual must be at the Registration Verification View.
- Only normal users can perform this action.
  - ○ System admin is only user built into system, can create admins. Admins cannot delete system admin. Same functionality otherwise.

Required Input:
- Phone verification code.
- Email verification code.

Successful Postconditions:
- Account data is saved in persistent storage.
  - ○ Passwords are saved hashed with SHA-2 and a random salt value.
- Individual is logged in and taken to the Home View.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- Checking of verification code and account creation should take a maximum of 1 second.

Authentication

Scope: Registered Customer, Store Owners, Admin, System Admin.

Functional Requirements:
Description: The roles listed in the scope will be able to log into our application after our system authenticates them.

Preconditions:
- Individual must not be logged in, and can't be an unregistered user.
- Individual must be at the Log In View.

Required Input:
- Username or email (unique identifier).
- Password.
  - Individual should be allowed to copy and paste into this field.
  - Individual's entered characters should be displayed for a short time before being hidden to verify correct entry.
  - An option to display the password should be available.

Successful Postconditions:
- Individual is taken to the Home View.
- Individual now have access to functionality requiring being logged in.

Failure Postconditions:
- Any of the successful postconditions failing.
- Unique identifiers and passwords do not match.
  - User is told either the identifier or password was incorrect, not the specific field.
  - After 3 failures of this type the individual is permanently locked out of their account. To re-enable their account they must contact the system administrator.
- User is outside of the scope based on IP address.

Non-Functional Requirements:
- Authentication process should be completed in a maximum of 2 seconds.

☐ **Log Out** ☐

Functional Requirements:
Description: The roles listed in the scope will be able to log out of the application.

Preconditions:
- Individual must be logged in.

Required Input:
- Individual selects the Log Out option.

Optional Input:
- 20 minutes of inactivity (time since the system last contacted the server).

Successful Postconditions:
- User is logged out and taken to the Home View. Any functions that require being logged in are no longer accessible.
- If the user was forced to log out due to inactivity, they are taken to the Log In View and allowed to continue where they left off once they log back in.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- The log out process should take a maximum of 2 seconds.

☐ **Request Password Reset** ☐
Functional Requirements:
Description: The roles listed in the scope will be able to request password reset for their registered account in the case that they forgot their password.

Preconditions:
- Individual must not be logged in, and can't be an unregistered user.
- Individual is not locked out.
- Individual must be at the Log In View and select the Reset Password option.

Required Input:
- Verification method: email or phone.

Successful Postconditions:
- Verification link is sent via the chosen method.

Failure Criteria:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- The verification should take a maximum of 5 minutes to be sent.
- The reset password verification is valid for 15 minutes after it is sent.

☐ **Reset Password** ☐

Functional Requirements:

Description: The roles listed in the scope will be able to reset their password after successfully requesting a password reset.

Preconditions:
- Individual must not be logged in, and can't be an unregistered user.
- Individual is not locked out.
- Individual must be at the Reset Password View after selecting the link they were sent.

Required Input:
- Password [1].
    - Can be up to 2000 characters.
    - Can be alphanumeric with special characters.
        - The allowed special characters are every special character on the US standard keyboard except for < and >.
    - Should be a minimum of 12 characters.
    - The password should be compared a list of values known to be commonly-used, expected, or compromised:
        - Passwords obtained from previous breach corpuses.
        - Words contained in a dictionary.
        - Repetitive or sequential characters (e.g. '1234', 'bbbbbb').
        - Context specific words, such as the name of the application or the current username.
    - A strength meter should be offered to assist the user in choosing a strong password.
    - The password should be able to be copied and pasted into the field.
    - Individual's entered characters should be displayed for a short time before being hidden to verify correct entry.

- An option to display the password should be available.
- Re-enter password.
  - Must match entry above.
  - The password should be able to be copied and pasted into the field.
  - An option to display the password should be available.

Successful Postconditions:
- Password is updated in persistent storage.
- Individual is logged in and taken to the Home View.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- The resetting process should take a maximum of 2 seconds.

Authorization

Scope: Unregistered Customer, Registered Customer, Store Owner, Admin, System Admin

Functional Requirements:
Description: The roles listed in the scope will be checked for authorization privileges before they perform any action.

Required Input/Precondition:
- Individual attempts to interact with the application.

Successful Postconditions:
- The individual's user type is identified and compared to the scope set. The individual is allowed to perform this action if and only if their user type is contained in the scope set of the feature or view.

Failure Postconditions:
- Any of the successful postconditions failing.

 ☐ **Scope Change** ☐
Scope: Registered Customer, Store Owner, Admin

<u>Functional Requirements:</u>

Description: The roles listed in the scope will be forced to log out during a scope change if they were affected by it.

Preconditions:
- Individual must be logged in.

Required Input:
- Privileges are removed within the system.

Successful Postconditions:
- The individuals who are affected by the scope change are logged out and prompted to log back in to continue.
  - If they log back in, they should be at the same page they were at. If they no longer have access to the page, an error message is displayed along with a way to go to the Home View.

Failure Postconditions:
- Any of the successful postconditions failing.

<u>Non-Functional Requirements:</u>
- The log out force should take 2 seconds to initiate.

Ticketing System

<u>Scope:</u> Registered Customer, Store Owners, Admin, System Admin.

<u>Functional Requirements:</u>

Description: The roles listed in the scope will be able to submit a ticket to the System Admins to view, in case there are any errors.

Preconditions:
- Individual must be logged in

Required Input:
- Ticket category
- Ticket description, minimum of 10 characters.

Successful Postconditions:
- Individuals are taken to the Home View.
- System Admin now has an additional ticket that they can view.

Failure Postconditions:
- Any of the successful postconditions failing.
- Individual did not provide enough characters in the description.
- Individual did not provide a ticket category.

Non-Functional Requirements:
- Submitting tickets should be completed in a maximum of 2 seconds.

⬜ **View Tickets** ⬜
Scope: System Admin

Functional Requirements:
Description: The roles listed in the scope are allowed to view all the tickets that have been submitted by an Individual.

Preconditions:
- System Admin must be logged in.

Required Input:
- None.

Successful Postconditions:
- All current open tickets are displayed.
- All past tickets that have been closed are allowed to be searched through.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- The loading of open tickets should take a maximum of 3 seconds.

User Analysis Dashboard

Scope: Admin, System Admin.

Functional Requirements:

Description: The roles listed above would be able to access the User Analysis Dashboard View. They will be able to filter and look at the data collected by the system. E.g. Amount of registered users.

Preconditions:
- Individual must be logged in as an admin and selected user analysis dashboard option.

Successful Postconditions:
- Individuals are taken to the User Analysis Dashboard View.
- Default graph and information is generated if there is data
  - Default Graph: Amount of users that registered previous month.
  - Default Info: Top 10 searched ingredient, top 10 searched store, top 10 most liked users, top 10 most disliked users, etc.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:
- View should be displayed in a maximum of 3 seconds.

☐ **Create Snapshot** ☐

Scope: System

Functional Requirements:

Description: The roles listed in the scope will create a snapshot for the previous month on the first of every month at 00:00:000 UTC.

Successful Postconditions:
- The snapshot is created with information specific to the previous month.
  Note: snapshot will still be created if there is no information for that month.

Failure Postconditions:
- Any of the successful postconditions failing.

Non-Functional Requirements:

- The snapshot creation should take a maximum of 3 seconds.

References

1. https://pages.nist.gov/800-63-3/sp800-63b.html