Recipes to Infinity Application

SOFTWARE REQUIREMENTS DOCUMENTATION (SRD)

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Table of Contents

1 Introduction

1.3. Purpose

The purpose of the project is to create a working team product that connects to an API, specifically for the course CSC-340: Software Engineering at the University of North Carolina at Greensboro.

1.4. Document Conventions

To read this document one must have some knowledge on how web applications work.

1.5. Intended Audience

The intended audience for this SRD includes:

- The instructor for the course, Ike Quigley.
- The members of C340 who will refer to the document to build and update the application.

1.6. Definitions/Jargon

Definitions of the jargon used in this SRD Documentation
API - Application Programming Interface (API) is a set of rules, routines, and protocols to build software applications. APIs help in communication with third party programs or services, which can be used to build different software.

Backend - Backend is a term used for background in programming. A backend task is the one that is performed in the background with the user's direct interaction. Similarly, a backend developer is a person who designs programs that process data and performs tasks that users don't directly see.

Object-Oriented Programming - Object-oriented programming (OOP) is a model defined by programmers that revolve around objects and data rather than 'actions' and 'logic'. In OOP, not only the data type of a data structure is defined, but also the types of functions that can be applied to it. Through this, the data structure becomes an object that consists of both data and functions.

Class - In Object-Oriented programming, a class refers to a set of related objects with common properties.
Front-end - The Front-end is the user interface of a computer or any device. For example, any operating system provides users with the ease of navigation. Front-end developers are the programmers who design and develop the user interface of a device.

1.7 Project Scope

The main requirements of the application is that it should at least recommend the user a recipe based on the seasonal ingredients or the ingredients that they choose. The application should also have a graphical user interface (GUI), an API connection, and persistent data storage. Overall the project should satisfy these main requirements of the stakeholder.

1.8. Technical Challenges

One of the technical challenges with this project is enabling the user to find a supermarket nearby in case the application isn't able to connect them with a farmer's market. We can't control the location of the user, but we have to make sure that they at least have an alternative to the farmer's market, so that they know where they get their ingredients. We only have access to the limited features of the Recipe Search API, so we can't take advantage of the API's full potential.

1.9. References

This website has provided us with the Farmers Market API
https://www.usda.gov/media/digital/developer-resources

This website has provided us with the Recipe Search API that allows us to search for recipes by entering the desired ingredients
https://developer.edamam.com/edamam-recipe-api

This website has provided us with the definitions of the jargon in section 1.6.
https://hackr.io/blog/programming-terms-definitions-for-beginners

2 Overall Description

2.1. Product Features

There are three main features of the application which are, providing a list of in-season ingredients based on the month, suggesting recipes, and locating local farmers markets.

Users can select a month which will bring them to a list of fruits and vegetables that are in season during that month. From there, the user can click on one or more of the ingredients shown and then submit their choices. The app will then recommend recipes based on the ingredients that the user chose. The users can also choose to search for local farmer's markets to buy from. The location and distance of these farmer's markets will also be provided.

2.2. User Characteristics

The user characteristics includes anyone who is curious about seasonal produce, anyone who cooks or wants to cook using fruits/vegetables that are in season, and/or anyone who wants to find a farmer's market.

2.3. Operating Environment

This software will be used in the user's home, office, or anywhere the user would like to use the application to access recipes. The user will most likely use this application in their off work hours at home where they will be planning recipes and cooking their food.

2.4. Design and Implementation Constraints

The design and implementation constraints of Recipes to Infinity Application are as follows:
- Only providing the app in English which cuts off other potential users.
- Limited UI/UX knowledge which limits us to a simple web app.
- We were planning to have a Farmer's Market Feature, but we were unable to find an API that works with Java and is free to use.

2.5. Assumptions and Dependencies

Users of this application are assumed to have basic knowledge of technology and know how to navigate a web page. Thus, they should be able to navigate through tabs, check boxes, and click submit buttons. If the user runs into problems installing the application for use then they should have someone that can help them through this process since installation may be the hardest part in the process for them. The application isn't meant for long term use, so if the application doesn't work five years later then that's how long it will work. We are also assuming that the user already has the latest version of Windows 10 installed or at least an earlier version of Windows 10 for them to be able to use the application. The user should also be able to use Windows 10 easily as if it were their main operating system.

3. Functional Requirements

3.1. Primary

The primary purpose of this application is to help the user search for recipes based on the seasonal ingredients that they want to include in their recipe. Sometimes people may have a dietary restriction which limits them to consume only certain ingredients or they are looking to make the most of their leftover ingredients to prevent food waste. Our application is perfect for these people because they don't have to spend countless hours searching for recipes that don't have their required ingredients. Instead they can quickly find the recipes that satisfy their needs.

3.2. Secondary

The secondary purpose of this application is to let the user provide their account details in the application such as their first name, last name, date of birth, and email address. The user can choose not to provide these details, but if they decide to then the application will store their general information in their account details.

4. Technical Requirements

4.1. Operating systems/Compatibility

The application will be able to run on the latest version of Windows 10 which is the October 2020 update, version "20H2", which was released on October 20, 2020. The application may also be able to run on earlier versions of Windows 10, but it may not be able to run at its full potential, so the user is advised to already have the latest version of Windows 10. Currently the application isn't made to run on other operating systems such as Mac OS, or Linux, so our main audience is Windows 10 users. The application will run fine on either Windows 10 64-bit or on Windows 10 32-bit because the application doesn't require that much handling of large amounts of random access memory (RAM). Therefore, the application doesn't demand high performance from a computer since it doesn't occupy that much memory, so as long as the computer can run Windows 10 then everything should run smoothly.

4.2. Interface Requirements

4.2.1. User Interface

We used JavaFx to create our user interface. In our user interface the user can enter their zip code and a market id in text fields to get the address of a nearby farmers market. They can also submit the ingredients that they want to include when searching for recipe URLs.

4.2.2. Hardware Interface

Hardware interfaces refer to the connection and communication of different devices. Our application is going to be utilizing and depending on the USB interface, so that the user can use the application to its full potential using an external keyboard and mouse connected to the USB ports on their computer. These external devices that are connected to the USB ports are actually connected to the USB interface of the system. The USB interface is a serial interface which is

commonly used to connect all sorts of devices, including scanners, printers, mice, external storage devices, digital cameras and more. It has become one of the most common interfaces for external devices.

4.2.3. Software Interface

One software used in this application is the MySQL database which contains a table of in-season fruits and vegetables sorted by month. The database will be used to display fruits and vegetables named by month to the user through the application.
Another software used in this application is the Recipe API which allows the user to search for recipes based on ingredients they would like to use.
A third software used in this application is the Farmer's Market API which allows the user to

4.2.4. Communications Interface

The communications interface used in this application is when the controller communicates with the GUI, so that it can receive the API calls and process the commands being entered by the user.

5 Nonfunctional Requirements

5.1. Performance Requirements

The performance requirements of the desktop that our team members had to have in order to create an application is any standard desktop that can run a Java application.

5.2. Safety/Recovery Requirements

There are currently no back up systems in place for saving the searches that the user has made. If the user wants to have access to their previous searches such as the combination of ingredients that they entered or a zip code then they would need to restart the application. Hopefully, when they restart the application they will be able to remember the information that they have lost.

5.3. Security Requirements

The user can't enter an invalid zip code or a zip code from another country that isn't the United States. We don't want the application to crash when the amount of users exceed the limits of the API calls. This is a security requirement that we have in place.

5.4. Policy Requirements

All of our team members have to adhere to the UNCG Honor Code by not using any code that we found online without giving credit to the owner. All of our code will remain confidential and will not be shared online with third parties who might potentially violate our policies. Any problems that we have with our code will be shared with other team members in order to find a tool that fixes the problem.

5.5. Software Quality Attributes

5.5.1. Availability

The Recipes to Infinity application is available usually on demand. Whenever the user wants to use it, it should be available no matter the day, time, or month. However, when there is a software update on Windows 10 or when organizations cut off our access to the API connections we can no longer guarantee the applications' availability and functionality.

5.5.2. Correctness

Our application is accurate because of the information that we are getting back from our API connections and our database. We can't fully guarantee the accuracy of these parts of the application, but we can guarantee that they serve their basic purpose which is to get a recipe URL and the address of a close by farmers market.

5.5.3. Maintainability

The code for the application isn't going to be maintained by our team members after the project deadline. Any problems that arise with the application aren't going to be fixed and they will remain that way in the future. We have decided not to maintain our code because we would like to see how long our application will last without needed to be maintained.

5.5.4. Reusability

Our application isn't going to be available on other platforms such as MacOS or Linux, so our code doesn't have any reusability that will enable us to quickly make it available on these platforms. For now our code can only be reused on any standard desktop that can run a Java application.

5.5.5. Portability

This application is meant just for windows 10 users because we haven't been able to push our code to other platforms such as MacOS or Linux. Maybe in the future if our application has a lot of demand from the public we will be able to have our application available on these platforms. A great option for users of this application who want to run it on Linux can use WINE (Wine Is An Emulator) which is a compatibility layer for running windows applications.

5.6. Process Requirements

5.6.1. Development Process Used

The Development Process that we used is Agile methodology. As a team we tried to meet up through a two hour zoom call at least once every week at a time that would fit all of our schedules. Throughout the week we would be in constant contact with each other through a group chat on slack. If there were any problems relating to a team member's contribution to the project we would send them a direct message about the issue and wait for their response.

5.6.2. Time Constraints

Our team members have an entire semester to create this application for this course, so we have about sixteen weeks to complete it while learning some of the required skills to create the application. Our repo should have all of our finalized code pushed to the main branch and our repo link should be submitted to canvas by the deadline of 7:00 pm, April 30th, 2021.

5.6.3. Cost and Delivery Date

There is no cost with creating this application because our team members' main goal is to learn the main principles of software engineering by creating a simple application. The delivery date of creating the Recipes to Infinity Application is at 7:00 pm April 30th, 2021.