Grocceries

Software Engineering
Software Requirements Specification (SRS) Document

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Contents

1. Introduction

The purpose of this document is to provide a detailed description about the requirements needed to develop a grocery delivery web application. The document will serve as a resource to the Crazy Butterflies development team, comprised of Donald Turner, Luke Doukakis, Ameer Abdallah, and Osman Halwani, to provide an interface for the developers to draw upon to see the project in the big picture, as well as help organize and implement every part of it. Throughout this document, we will provide a general description of the project, the functional and non-functional requirements for the application, a list of other relevant application attributes, application usage scenarios, use case diagrams, as well as an updated schedule.

2. Background

We are a team of programmers from California State Polytechnic University, Pomona who have experience in a multitude of different fields. Osman, a self taught programmer, found himself interested in computer science after he started building computers as a child. Osman's favorite programming language is Java which carries over well to this project with our databases as OOP is similar to tables. Luke, a quick witted individual, found himself interested in computer science after enrolling in a class in highschool. Luke's favorite thing to work with is Unity making games which carries over well as he knows what the end user wants to see in a functioning product aesthetically. Ameer, a homegrown computer scientist, uses his self taught skills to learn new and exciting computer science topics. Ameer's favorite thing about programming low level data manipulation which is perfect for managing the millions of entries we will be storing in our database. Donald, the CEO, uses his leadership skills to keep the team on a good pace. Donald's favorite thing about programming is working in VR which carries over to the project in that he can create a more immersive environment for the user.

3. Functional Requirements

Criticality Scale

Non-Critical	Non
Less Critical	Less
Critical	Normal
Very Critical	Very
Extremely Critical	Extreme

1. **The system will allow the user to create an account in response to a request to create an account (i.e: Create Account button).**
    a. **Criticality** - Extreme
    b. **Dependencies** - none
2. **The system shall allow the users to change their password**
    a. **Description** - The password can be changed if the user would like to change their

password
   b. **Dependencies** - none

3. **The system will prompt the user to input account information in response to creating an account**
   a. **Description -** The account creation process will require a full name, email, password and re-entry of password.
   b. **Criticality** - Extreme
   c. **Dependencies** - 1.
4. **The system will prompt the user to set up other account information in response to creating an account**
   a. **Description** - Other information includes primary address, addresses credit/debit cards, EBTs, etc.
   b. **Criticality** - Very
   c. **Dependencies** - 1.
5. **The system will allow users to select multiple items from multiple stores to add to their basket in response to adding item to their cart**
   a. **Description** - Allow the user to search for products from a filtered number of stores. Without filtering, it should automatically choose stores closest to the customer.
   b. **Criticality** - Very
   c. **Dependencies** - 1.
6. **The system will allow the user to checkout multiple items from multiple stores.**
   a. **Description** - Another attribute of a class are the days of the week and times of the day when that class meets, for example “M W F 10:00am - 11:50am”.
   b. **Criticality** - Very
   c. **Technical issues** - This attribute must be generated from either direct user input or data retrieved from a web service or remote database.
   d. **Risks** - Non-plaintext data could be more complicated to collect, store, and output appropriately.
   e. **Dependencies** - 1.
7. **The system will store data of all types in a secure relational database in response to an admin including new data or the user creating a new account**
   a. **Description** - Examples of data entities that will need to be included are Accounts, Store Items, Available Drivers, etc.
   b. **Criticality** - Extreme
   c. **Dependencies** - none
8. **The system will allow the user to search for items in response to input from the user in a text box**
   a. **Description** - The user should be able to search for items while by default selecting to search from stores nearest to them first.
   b. **Criticality** - Extreme
   c. **Dependencies** - 6.
9. **The system will remove items from the user’s cart in response to a request to remove an item from their cart**

a. **Description** - The user should be able to remove any item from their cart when reviewing their shopping cart before checking out.
b. **Criticality** - Very
c. **Dependencies** - 1, 4.

10. **The system will request a series of information from the user in response to the user checking out items in their basket.**
    a. **Description** - The system will request the user to add or select an address, then ask for delivery time, specific delivery instructions, a mobile number to contact the user at for updates on the order, and then select or add a payment method.
    b. **Criticality** - Extreme
    c. **Dependencies** - 1, 4, 6.
11. **The system will be mobile friendly**
    a. **Description** - The system will be as easy to use on the mobile side as it is in the browser itself.
    b. **Criticality** - Very
    c. **Dependencies -** none
12. **The system will have a shopping cart called a basket for each user**
    a. **Description** - The system will keep track of all of the items the user has selected to purchase in the current system
    b. **Criticality** - Very
    c. **Dependencies -** 7
13. **The system will remember the information entered by a user.**
    a. **Description** - The system will remember the items in a grocery cart
    b. **Criticality** - Very
    c. **Dependencies -** 7, 12
14. **The system will be easy to navigate through**
    a. **Description** - The system will have a clear line of direction in how to order and get groceries delivered
    b. **Criticality** - Very
    c. **Dependencies -** none
15. **The system will have a map showing nearby grocery stores**
    a. **Description** - The system will have a map displaying nearby grocery stores that are connected to the app.
    b. **Criticality** - Very
    c. **Dependencies -** external
16. **The system will have the ability to select a store**
    a. **Description** - The system will allow the user to select a store on the map
    b. **Criticality** - Very
    c. **Dependencies -** 15
17. **The system will store store's inventories in a table**
    a. **Description** - The system will store the available inventory of any store in a table
    b. **Criticality** - Very
    c. **Dependencies -** none
18. **The system will show a list of items available at the store**
    a. **Description** - The system will show a list of the current inventory at the store

b. **Criticality** - Very
c. **Dependencies** - 17

19. **The system will calculate the time to deliver your shopping cart**
    a. **Description** - The system will determine how long it will take all your items to get to you
    b. **Criticality** - Normal
    c. **Dependencies** - none
20. **The system will calculate the time to deliver your shopping cart**
    a. **Description** - The system will determine how long it will take all your items to get to you
    b. **Criticality** - Normal
    c. **Dependencies** - none
21. **The system will show the prices next to each product**
    a. **Description** - The system will show the user how much each item they are purchasing costs
    b. **Criticality** - Very
    c. **Dependencies** - 17
22. **The system will allow the user to select an item and see a blown up image with nutritional facts**
    a. **Description** - The system will show the nutritional facts and see a larger version of the image
    b. **Criticality** - Very
    c. **Dependencies** - 17

4. Non Functional Requirements

1. **The system shall have a nice looking interface**
    a. **Description** - The user interface for the system will be aesthetically pleasing to the user by keeping a consistent color palette.
    b. **Dependencies** - 14
2. **The system shall encrypt the passwords**
    a. **Description** - The passwords that the users enter when trying to log in will be encrypted.
    b. **Dependencies** - none
3. **The user will be able create an account using "Log in with Google".**
    a. **Description** - The user can use "Log in with Google" to create an account using their Google credentials.
    b. **Dependencies** - none
4. **The system shall allow the users to save their credit card information**
    a. **Description** - After inputting credit card information the user will be prompted if they would like to save their credit card information
    b. **Dependencies** - 10
5. **The system shall track the driver on their routes**
    a. **Description** - The system will keep track of the gps location of the driver to determine where they are

    b. **Dependencies** - none
6. **The system shall notify the user about delivery updates**
    a. **Description** - The user will receive updates at various stages of the process letting them know how soon they will receive their groceries.
    b. **Dependencies** - none
7. **The system shall keep track of the number of times a customer has used our service**
    a. **Description** - The system will store data for each time a user logs in and uses the service
    b. **Dependencies** - none
8. **The system shall delete inactive profiles of over a year**
    a. **Description** - The system will delete inactive profiles in order to keep our system low cost with less data to maintain.
    b. **Dependencies** - none
9. **The system shall notify you if an item can be found elsewhere cheaper**
    a. **Description** - The system will let the user know if something in their shopping cart can be found at another store for a cheaper price.
    b. **Dependencies** - none
10. **The system will reward repeat customers**
    a. **Description** - The system will check how often a user utilized our service and offer them rewards for being a repeat user
    b. **Dependencies** - none
11. **The system shall categorize all groceries into respective categories**
    a. Description - The system will group all vegetables, canned goods, etc into their respective categories
    b. Dependencies - 7
12. **The system shall limit the amount of "add item to basket" requests to 10 unique items every 15 seconds**
    a. Description - To prevent server overloads and ddos attacks, only 10 unique item requests over 15 seconds will be allowed
    b. Dependencies - 5
13. **The system shall be able to store up to 100k different users data**
    a. **Description** - The systems data storage will be large enough to have 100k different users information stored at a single time.
    b. **Dependencies** - 4
14. **The system shall be responsive to the users input**
    a. **Description** - The system shall not delay any longer than 3 second for processes that require reaching out to the server and getting data
    b. **Dependencies** - none
15. **The system shall reach out to the nearest driver**
    a. **Description** - The system will ensure the nearest driver to the store gets asked to pick up the items first before asking people further away to ensure quick deliveries for the customer.
    b. Dependencies - none
16. **The system shall have protection against password guessing systems like Hydra, a password cracker.**

a. **Description** - The system will ensure you can only try 7 login attempts before getting locked out for a certain period of time.
b. **Dependencies** - none

17. **The system shall have stress tests done upon it to ensure its integrity**
    a. **Description** - The system must be tested to ensure it can handle a high level of traffic at any certain time or a DDOS attack. To test this we will use LOIC or HOIC.
    b. **Dependencies** - none
18. **The system shall allow the user to access new items added to inventory within 2 seconds of being added**
    a. **Description** - The system will ensure that the user does not have to wait longer than 2 seconds to receive the most updated inventory
    b. **Dependencies -** 8
19. **The system shall allow the user to override the recommended amount of drivers**
    a. **Description** - The system will allow the user to choose how many drivers they want to deliver their goods from multiple stores
    b. **Dependencies -** none
20. **The system shall only allow up to 3 different stores per checkout**
    a. **Description** - The system shall not allow the user to order from more than 3 stores at a single time
    b. **Dependencies -** none

5. Approach

System
The application will run on any device that has a modern browser (ie: edge, firefox, chrome, etc). It will dynamically change the webpage depending on if the user is on mobile or desktop.

Response Time
The application server should be finished with any computations within 4 seconds of the user entering the URL and accessing the site.

Workload
The application must be able to support up to 10,000 users simultaneously.

Scalability
The application should be able to scale up as the demand for Grocceries increases.

6. Scope

In terms of the capabilities and maintenance costs of our application, we have defined a scope for the project based on our time and monetary restrictions. Capabilities will include the ability to access locations of both vendors and customers in order to calculate routes and make deliveries, where the route calculation will be handled by Google Maps' API for optimal performance and time efficiency. Also included will be the capability for users to create accounts and store information regarding their purchases, choices and delivery locations. All of this information will be able to be sent and retrieved from a database, with sensitive information encrypted for the sake of security. We will adjust our data storage/payment plan for the database according to how much data we find that our system uses to satisfy the requirements, though we will have a limit on this due to the fact that we will be paying out of pocket for this data storage. In terms of time restrictions, the goal is for the project to be completed by the end of the 2021 Spring semester, or May 15th.

7. Intended Audience

The intended audience of the application are consumers that go to grocery stores. Rather than physically going to the store we will allow groceries to be delivered to the consumer. We want to appeal to consumers that want the convenience of getting groceries delivered. Almost everybody in the USA goes to grocery stores therefore we want to attract the general population of the USA. We will try to make the service affordable to the average US consumer. More specifically we will target students, the working class, stay at home dads/moms, and businesses. Additionally, we want to target individuals who are more susceptible to illnesses such as COVID-19. By marketing to such individuals we can promote their safety and well being through the user of our app.

The second group of people we want to target are people who are in need of money as we will need drivers to deliver products to people once orders are filled. This will most likely be younger individuals or people just trying to make a quick buck. We will advertise flexible working hours and a manageable amount of weekly hours.

8. How our app will be used

The user will first go to our domain to get into the app. The user will register an account with our application. The user can either be a driver or a consumer. The consumer will find stores that he/she would like to buy groceries from. The consumer adds items to the cart and then a total is generated based on the miles the driver needs to travel. A driver will claim the job and fulfill the order. The driver will go to the stores and buy groceries with the company card. Then he/she will deliver the groceries.

9. Signatures

Name Of Customer: _____ Date:_____
Signature Of Customer: _____ Date:_____

Name Of CEO: Donald Turner Date: 2/26/2021
Signature Of CEO: *Donald Turner* Date: 2/26/2021

Name Of Employee: Luke Doukakis Date: 2/26/2021
Signature Of CEO: *Luke Doukakis* Date: 2/26/2021

Name Of Employee: Ameer Abdallah Date: 2/26/2021
Signature Of CEO: *Ameer Abdallah* Date: 2/26/2021

Name Of Employee: Osman Halwani Date: 2/26/2021
Signature Of CEO: *Osman Halwani* Date: 2/26/2021