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Project Report

Nutritional Value Tracker System

TAPF – Group 58

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ACKNOWLEDGEMENTS

We express our sincere thanks and gratitude **to Symbiosis International University** for arranging this Service Learning opportunity and incorporating dedicated hours.

We thank **The Akshaya Patra Foundation** for providing an opportunity to work on a project of this caliber for the organization.

We are highly indebted to our Faculty Mentor, **Mrs. Shreya Ahire**, and External Mentor, **Mr. Rakesh Kumar**, for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

INTRODUCTION

The Akshaya Patra Foundation is an NGO in India headquartered in Bengaluru. The organization has several awards and recognitions like Barack Obama's Letter of Appreciation, mention in the Limca Book of Records, and the Gandhi Peace Prize.

Since 2000, Akshaya Patra has focused its efforts on providing fresh and nutritious meals to children every school day through their 55 hygienic kitchens across 13 states and 1 union territory of India. They leverage technology to multiply reach. Their state-of-the-art kitchens are a subject of study and attract curious guests from around the world.

Their partnership with the Government of India and various State Governments, along with the unwavering support from corporates and independent donors, have helped them to serve 1.8 million children.

Today, Akshaya Patra provides the world's largest (not-for-profit run) Mid-Day Meal Programme serving highly nutritional food every school day to 1.8+ million children from 19,039 schools across 12 states & 2 Union territories of India.

How do Akshay Patra Kitchen’s operate?

The Akshaya Patra centralised kitchens are equipped with cauldrons, trolleys, rice chutes, dal/sambar tanks, cutting boards, knives and other similar equipment that are sanitised before usage. The semi-automated kitchens have the capacity to undertake large scale feeding, typically up to 100,000 mid-day meals a day and they also adhere to Food Safety Management Systems (FSMS) to ensure safe handling, preparation and delivery of the food.

Using these highly mechanised units, Akshaya Patra is able to achieve the highest levels of hygiene by reducing human contact with the food. After cooking, the food is packed into stainless steel containers and transported via conveyor belts to be loaded into custom made food distribution vehicles, to be taken to the beneficiary schools.

Problem Statement

Food Nutritional Value Tracker and Suggestion System for TAPF:

- Building a centralised hygiene and nutritional value tracking system which will give suggestions for improvement.
- It would suggest recepies also according to available food resources.

PROJECT PLANNING

Project Timeline:

A. Communication with the organization (The Akshaya Patra Foundation)

1. Initial project proposal
2. Requirements elicitation
3. Project approval from the organization
4. Project report
5. Presentations of major prototypes and obtaining organization's feedback
6. Final presentation
7. Deployment and testing of software
8. Completion formalities and collection of feedback.

Software Development Life Cycle:

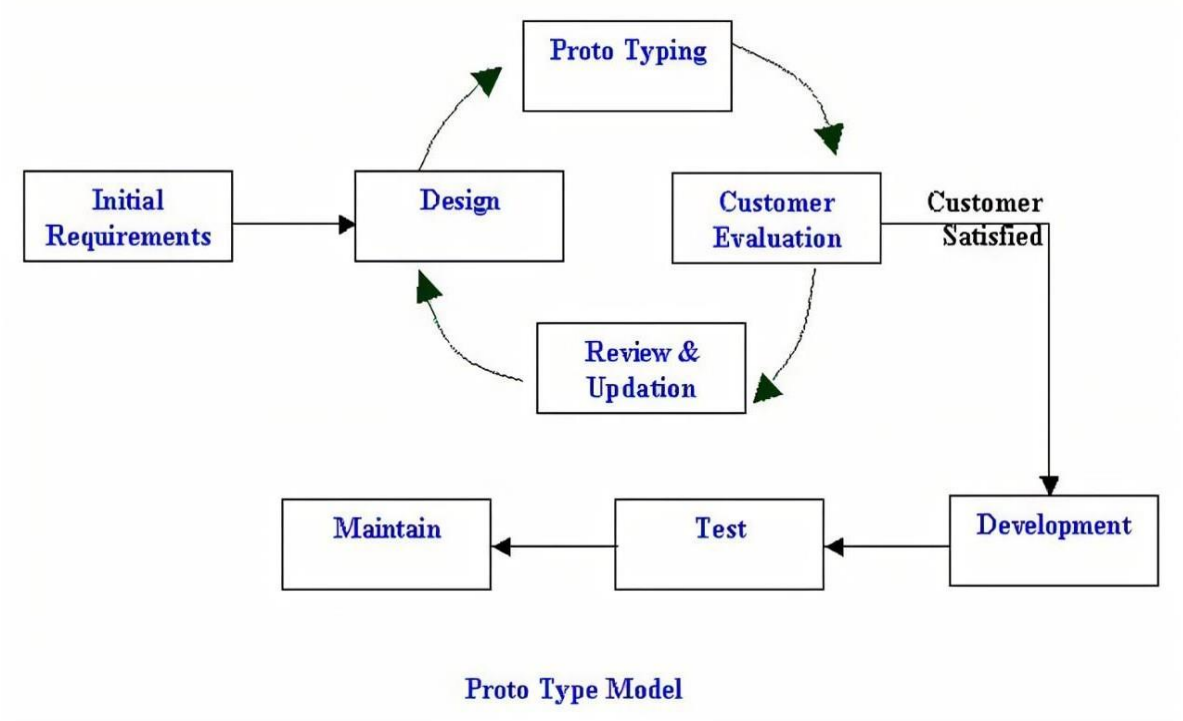
Software development methodologies are adopted for computer information systems serving various purposes. The build of an information system passes through various identifiable stages.

These stages together form the SDLC, i.e., Software Development Life Cycle. The SDLC is simply a series of orderly, interrelated activities leading to the successful completion of a system. The periods of time that these activities require are called phases.

The SDLC is widely used in the design of our Nutritional Value Tracking and has provided us with a well-defined workflow. Our team has methodically progressed from one stage to another, answering key questions in each stage and achieving results.

The prototyping model was chosen as the suitable Software Development Lifecycle (SDLC) model for the development of the website and application.

Prototyping is the process that enables the developer(s) to create a working model of an information system application. It gives an idea about the system and does not perform all the necessary functions of the final system.



Proto Type Model

Key Milestones.	
Date	**Work Done.**
09/10/2021	Project Ideation.
13/10/2021	Project idea approval from The Akshay Patra Foundation.
19/10/2021	Project planning.
24/10/2021	Started working on workflow of the application.
06/10/2021	Coding completed.
07/10/2021	Testing website.
08/10/2021 – 11/10/2021	Working on errors and UI modification.
12/10/2021	Again testing after modification.
14/10/2021	Prototype ready.

CONTENTS

1. Introduction

1.1 Purpose.

This App is for automatically tracking nutritions consumed by students in Akshaya Patras free school lunch campaign so that each and every student in school should get nutritious diet.

It maintains only one level of user (the one who is tracking the nutritional value of food in kitchens.)

This software includes nutritional content of each and every food item.

It helps in tracking all kind of essential nutrients per serving.

1.2 Project Scope.

This App is created by keeping in mind the nutritional requirements of children during their growing years.

The App will get all the information from Nutritionix and will store the date recorded by user for future use. We have also added the recipe search which collects its information from Edamam and provide output to user.

The requirement statements in this document are both functional and non-functional.

1.3 Overview.

This Software Requirement Specification is the requirement work product that formally specifies Nutritional Value Tracking System.

The objective of this document therefore is to formally describe the system's requirement including functional and non-functional requirement and business rules and constraints. The detailed structure of this document is organized as follows:

Section 2 of this document provides an overview of Nutritional Value Tracker System and include a general description of the product, user characteristics, general constraints, and any assumptions for this system.
Section 3 presents the detailed requirements of the system.
Section 6 presents the non-functional requirements of the system

2. General Description

2.1 Product Perspective.

This Nutritional Value Tracking System is a self-contained system that manages activities of Akshaya Patra by tracking nutritional content of food in Akshaya Patra's Kitchen's, providing information on recipies of new food items and other facilities.

2.2 Product Features.

The features of the system are as follows:

1) Universal auto-search bar to search food items.
2) Get nutritional values of food searched and add it to inventory.
3) Get recipes for the searched food item.
4) Tracker – keeps track of food items added to inventory as per date.
5) Calculates total of nutritions consumed.

2.3 Design and Implementation Constraints.

1) Search Information: - Search information is fetched from Nutritionix and Edamam which is a open source information.

2) Operating system: - The Development environment shall be windows.

3) Web-Based: - The system shall be a web-based application.

2.4 Assumptions and Dependencies.

1) It is assumed that the Akshaya Patra's kitchen should have enough trained staff to take care of the system and can maintain the system very well.

2) It is assumed that the user of kitchen and app is well qualified to us the system properly as all the rights are given to user as whole database is under his control.

3. Functional Requirement

3.1 Description.

1) **Main page: -**
    - It is the starting page when you run the app it contains a Akshaya Patra banner and a ‘Start App” button.
2) **Main Interface: -**
    - On clicking “Start App” it will take you to main interface on which you can see two thing that are Search and Tracker.
3) **Search page: -**
    - It consists of a auto-complete search bar which will search for required food item and will directly fetch the nutritional content of searched food item from Nutritionix.
    - Further on searching below search bar you can see a “Recipe Suggestion” button which searches recipe of searched food item and this recipe is fetched from Edamam.
    - On searching you can see the search result of food item below with its nutritional content.
    - After selecting food item on right hand side you will be able to see a nutrition facts page which contains nutritional value of food per serving and also you can increase the serving size through up arrow button and down arrow button. We have also provided with the pie chart of nutritional content.
    - Above pie chart there are two buttons “Back” and “Add” on selecting “Add” it will take you to food summary page on which you have to select track date, other fields are considered according to nutritional fact page further on clicking “save food” button that particular food item will be saved in tracker. On clicking “Back” it will again take you back to result of search.
4) **Tracker page: -**
    - Tracker page contains date selector in which you have to select the date of which you have to view the tracked information.
    - On selecting date, it will show the food item which you added on search page and if there is no food item added on that particular date it will show message ‘No foods are being tracked and Do a search and add something!’.
    - After selecting date, it will show all food items added in inventory on that particular date and calculate the total of all nutritions such as total calories, fats, carbs, and proteins.
    - You can also delete a particular food item added on that date by just clicking cross button and in such way you can keep track of nutrition provided to students in Akshaya Patra’s kitchen.

3.2 Technical issues

1) Search Information: - Search information is fetched from Nutritionix And Edamam which is a open source information.

2) Operating system: - The Development environment shall be windows.

3) Web-Based: - The system shall be a web-based application.

3.3 Front End (Includes Designing UI).

Front end is done by using HTML, CSS, Bootstrap.

3.4 Back End (Includes Internal Connections).

- Back End includes all the connections made between different buttons which is done using JavaScript.
- Adding, Deleting, Updating information can be tracked live in the app.

4.External Interface Requirements

4.1 User Interfaces

1) The App provides good graphical interface for the user any user can operate on the system, performing the required task such as create, update, viewing the details of the nutritional content.
2) Allows user to view quick report like total nutrients consumed etc. in between particular date also stock verification and search facilities based on different criteria.

4.2 Hardware Interfaces

1) Operating system: Windows.
2) Hard Disk: 50GB.
3) RAM: 512MB.
4) Processor: i3 6th generation x32-bit and above

4.3 Software Interfaces

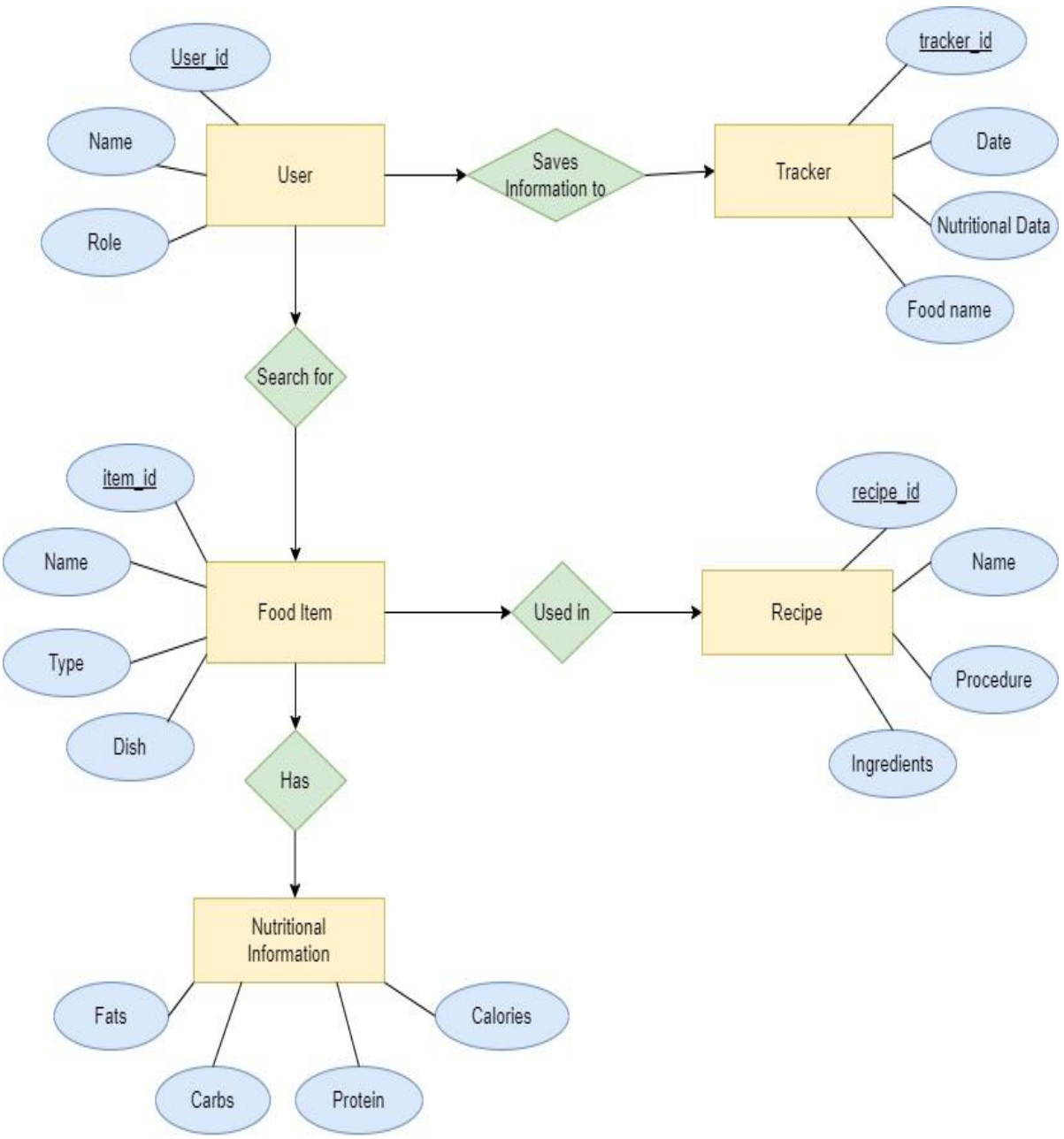
1) HTML, CSS, Bootstrap, JavaScript.
2) VS code

4.4 Communications Interfaces

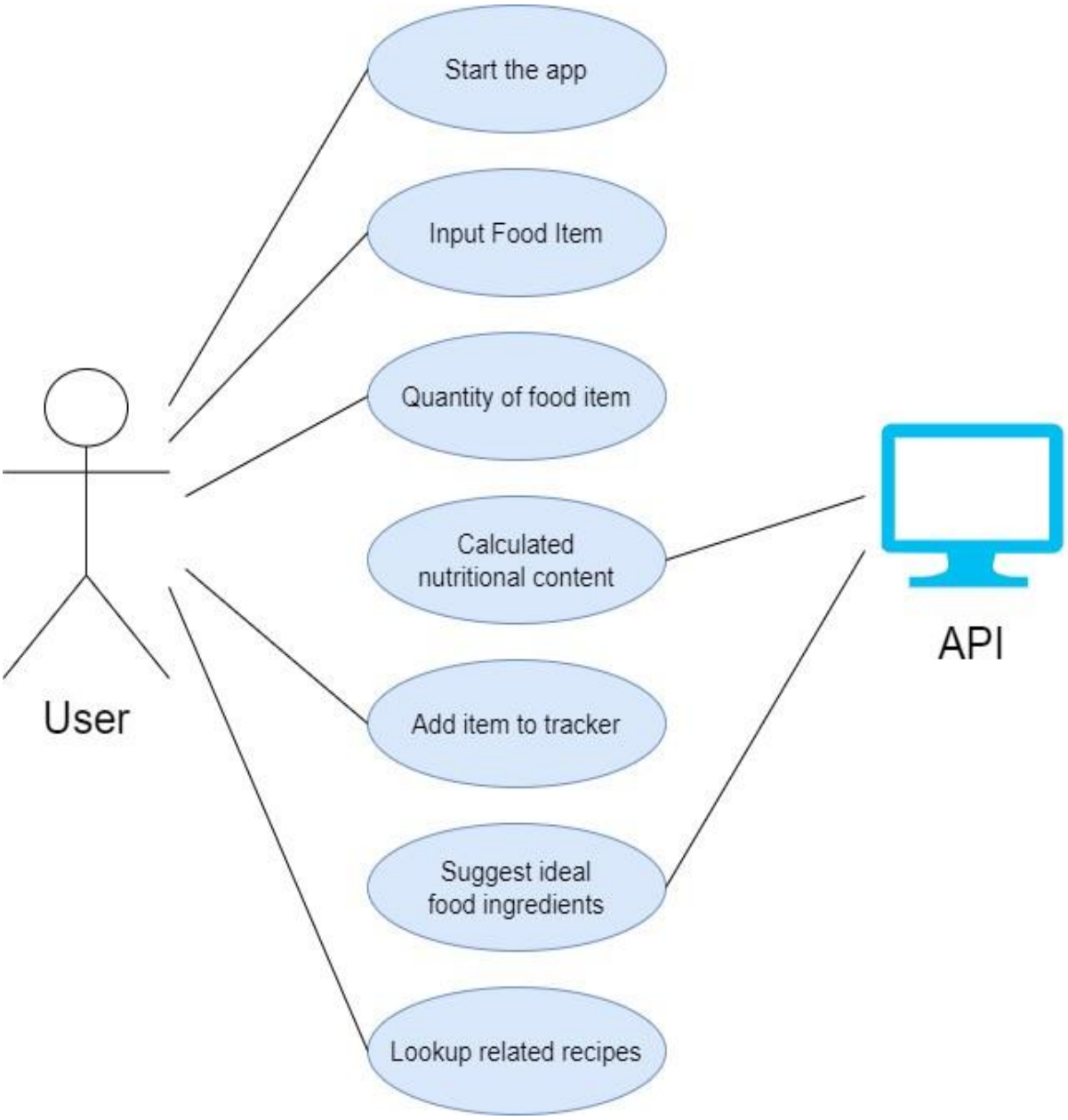
1) Windows

5. Software Design.

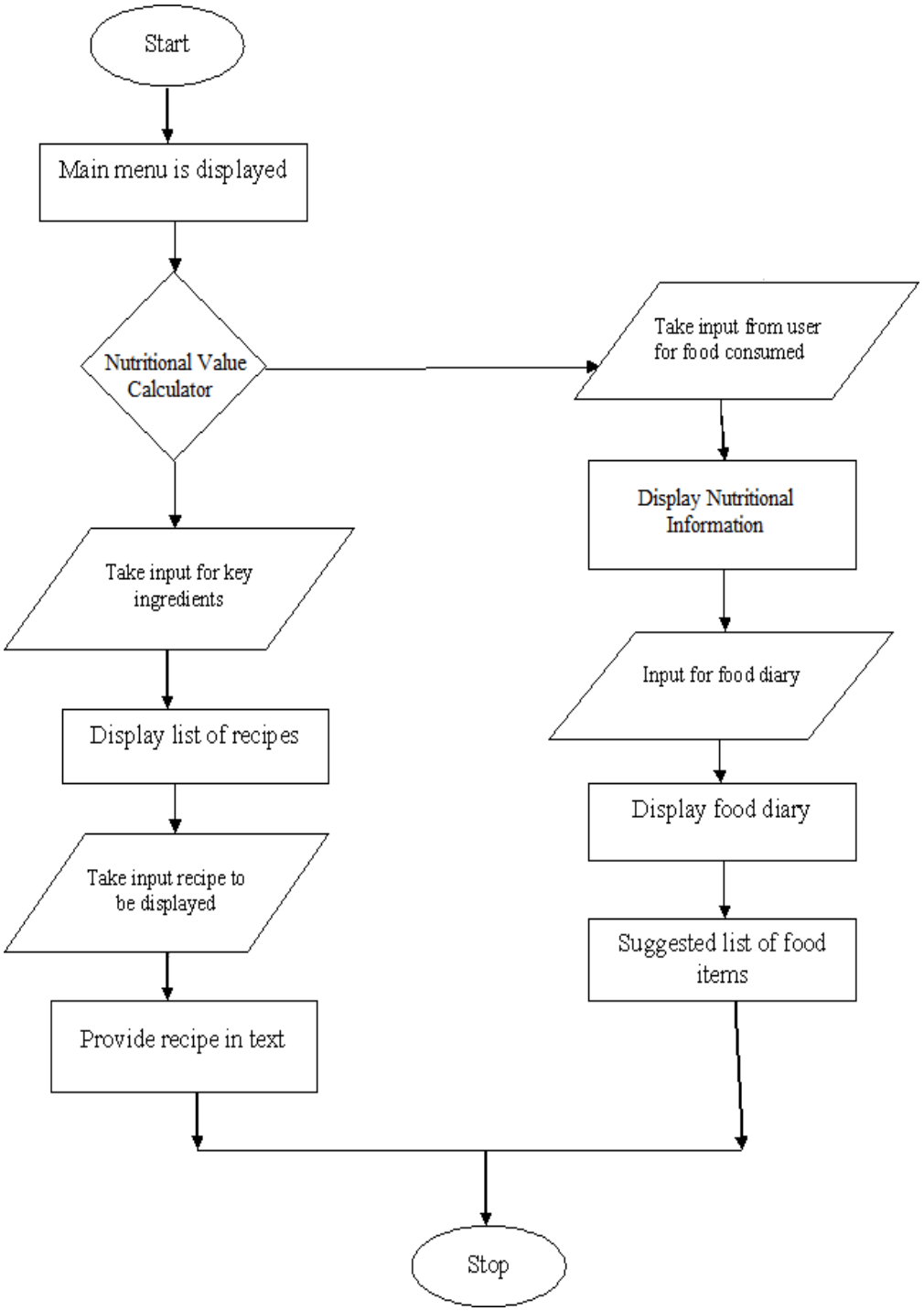
5.1 E-R Diagram.



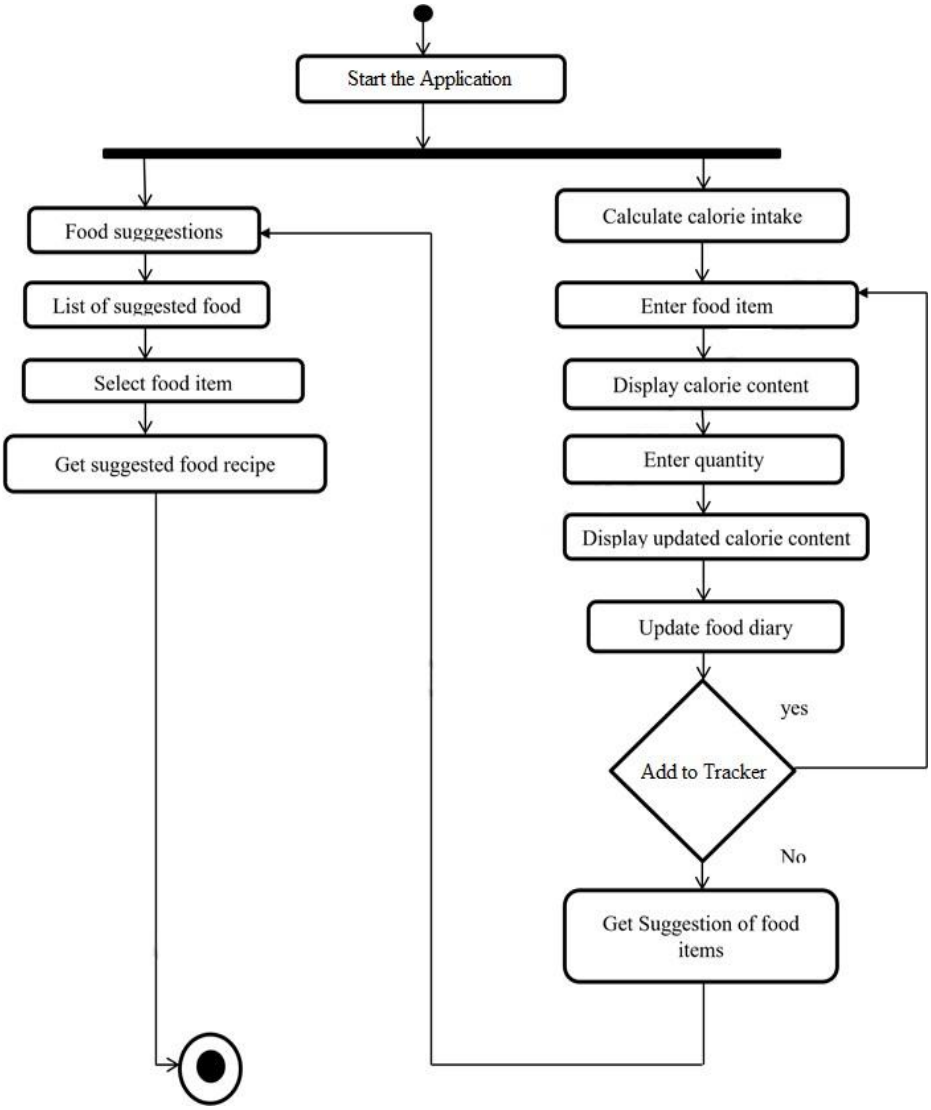
5.2 Use Case Diagram.



5.3 Workflow Diagram



5.4 Activity Diagram.



6. Non functional Requirements.

6.1 Performance.

1) **Response Time:** The system shall give response in 1 second after checking any information.
2) **Capacity:** The system must support tracking of more than 100 food items at a time.
3) **User Interface:** The user-interface shall respond within 3 seconds.
4) **Conformity:** The system conforms to the Microsoft Accessibility

6.2 Reliability.

1) How general the form generation language is Simplicity vs. functionality of the form language = speed up form development but does not limit functional.

6.3 Availability.

1) The system shall be available all the time.

6.4 Safety.

1) humans are error-prone, but the negative effects of common errors should be limited. E.g., Users should realize that a given commands will delete data and be asked to confirm their intent or have the option to undo.

6.5 App Quality.

1) Good quality of the framework = produces robust, bug free software which contains all necessary requirements Customer satisfaction.

6.6 Reusability.

1) Is part of the code going to be used elsewhere = produces simple and independent code modules that can be reused.

6.7 Maintainability.

1) Back Up: The system shall provide the capability to back-up the Data.
2) Errors: The system shall keep log of all the errors and Data

7. Future Scope.

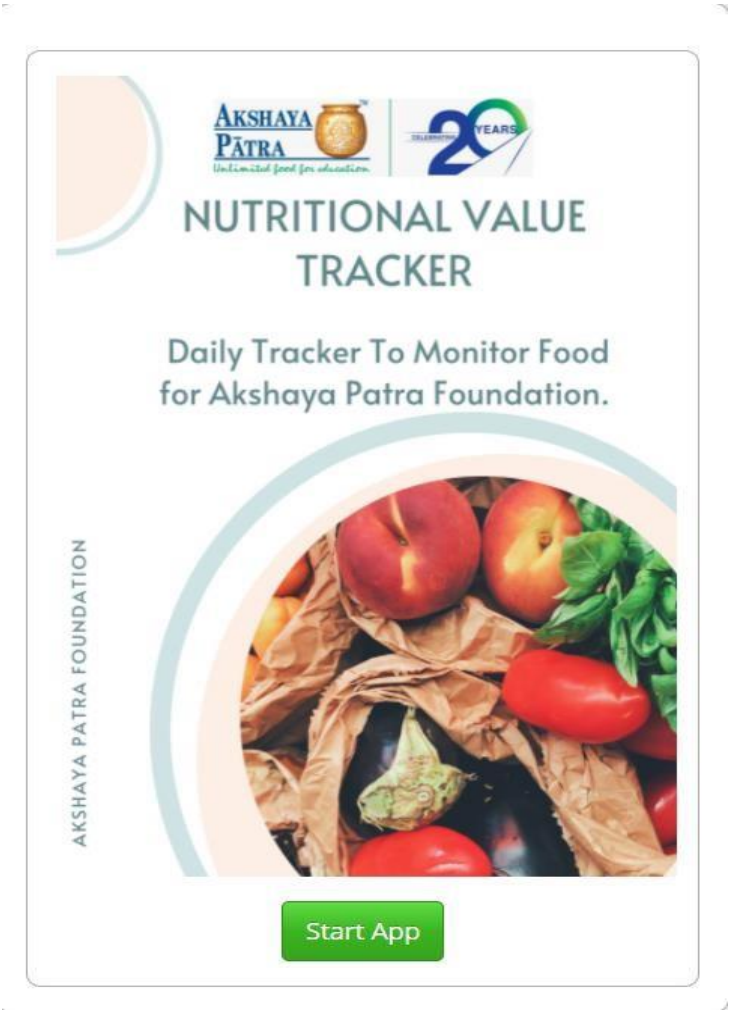
1) The size of the information increases day-by-day, increasing the load on the App back up and data maintenance activity. So, we can increase the capacity of our App.

2) In this system we can update the system and make it transparent to user so that they can get easy access.

3) We can also add login system to the App which will add number of users to app such as admin, user etc.

4) We can also create our own database of recipe so that we don't need to fetch them form open-source database. The recipes will be curated according to indian food produces.

8. Working and Functionality.



Search | Tracker

Food Search

khichadi

Recipe Suggestions

Kitchari - 1 cup

Cals: 238.31 | Fat: 3.45g | Carbs: 41.33g | Prot: 11.45g

Serving: 1 cup

Sabudana Khichdi

Cals: 270 | Fat: 8g | Carbs: 49g | Prot: 2g

Serving: 5 ounces

Sabudana Khichdi - 1 cup

Cals: 262.13 | Fat: 10.88g | Carbs: 38.38g | Prot: 4.55g

Serving: 1 cup

Sprouted Millet Khichdi

Cals: 140 | Fat: 3.5g | Carbs: 17g | Prot: 4g

Serving: 1.7 oz

Khichdi Mix (Split Moong Lentils and Rice)

Cals: 200 | Fat: 1g | Carbs: 37g | Prot: 10g

Serving: 0.33 cup dry

Search | Tracker

Food Search

khichadi

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Khichdi Mix (Split Moong Lentils and Rice)
Cals: 200 | Fat: 1g | Carbs: 37g | Prot: 10g
Serving: 0.33 cup dry

Not Tracking

← Back | + Add

Nutrition Facts

Kitchari - 1 cup
Serving Size: 1 cup

Amount Per Serving	
Calories 238.3	Calories from Fat 31
	% Daily Value*
Total Fat 3.5g	5%
Saturated Fat 1.8g	9%
Trans Fat 0g	
Cholesterol 6.6mg	2%
Sodium 123mg	5%
Total Carbohydrates 41.3g	14%
Dietary Fiber 112g	45%
Sugars 2.9g	
Protein 11.4g	
Vitamin A	5%
Vitamin C	3%
Calcium	5%
Iron	17%

* Percent Daily Values are based on a 2000 calorie diet.

Search

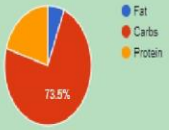
Nutrition Tracker

November 20, 2021

Food	Cals	Fat	Carbs	Prot	
Kitchari - 1 cup	238.31	3.45	41.33	11.45	✘
TOTALS	**238.31**	**3.45**	**41.33**	**11.45**	

Tracking

← Back | Edit | ✘ Remove



Nutrition Facts

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Serving Size: 1 cup

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Calories 238.3	Calories from Fat 31
	% Daily Value*
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Sahrated Fall8g	9%
Chde5tgfϕ6.6mg	2%
Sodium 1	5%
Intel Carb0h/dWS â1.3g	14%
Diealy Fiber 11.2g	45%
Sugars 2.9g	
Protein 11.4g	
Vitamin A	5%
Vitamin C	3%
Calcium	5%
Iron	17%

* Percent Daily Values are based on a 2000 calorie diet.

Food Summary

Track Date	
Name	Kitchari - 1 cup
Calories	238.31 kcal
Fat	3.45 g
Carbohydrates	41.33 g
Protein	11.45 g
Serving	1 cup

Save Food

9. Conclusion.

The project Nutritional Value Tracking System is for computerizing the working in Akshaya Patra's kitchen. It is a great improvement over a manual system. The computerization of the system has speed up the process. The App takes care of all information related to food that come up to the kitchen. It also provides tracking facilities based on status. It also includes facilities like recipe system for the cook in the kitchen. Providing such enables the users to include more comments into the system. Also, it was our great experience to work on this project, we enjoyed it a lot and hope this project full fills all the needs of The Akshaya Patra Foundation.

Link for source code – Click Here.

10. References.

https://www.akshayapatra.org/
https://github.com/
https://stackoverflow.com/
https://www.w3schools.com/sql/
https://www.google.com/
https://www.geeksforgeeks.org/