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CBS1005 Software Engineering Methodologies

Lab Assessment – SDS

Name: Omkar Kabadagi

Registration Number:19BBS0038

Slot: L59+L60

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Software Design Specification

Health and Fitness Tracking Website

Revision 1.0

Prepared by 19BBS0031-Rithvik Ayithapu Sai

19BBS0038-Omkar Kabadagi

19BBS0039-Akhil Chaitanya Ghanta

SEM, SCOPE, VIT University, Vellore, 12/09/2020

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Revision History

Version	Name	Reason For Changes	Date
1.0	*Rithvik Ayithapu Sai* *Omkar Kabadagi* *Akhil Chaitanya Ghanta*	*Initial Revision*	*10/09/2020*

Approved By

Approvals should be obtained for project manager, and all developers working on the project.

Name	Signature	Department	Date

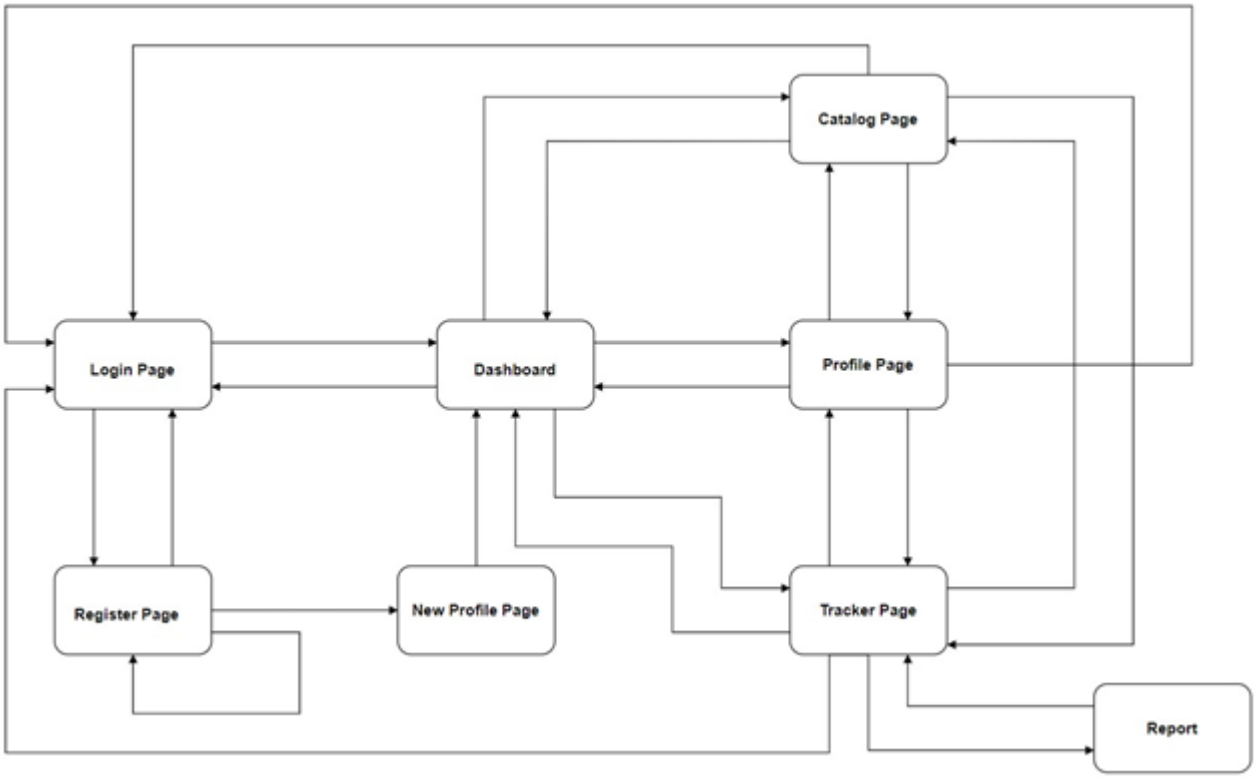
1. Introduction

1.1 Purpose

This design will detail the implementation of the requirements as defined in the Software Requirements Specification – Health and Fitness Tracking Website.

1.2 System Overview

A web app that can track calorie intake, blood pressure, sugar levels and provide insights about the user's health. The website will track and maintain health records of the user which can be used to assess the quality of the user's health. The system will provide a report regarding the various metrics and will provide suggestions based on the same to improve the user's health.



1.3 Design Map

Will be covered later.

1.4 Definitions and Acronyms

Slack – 3rd party workflow management software used by the team.

Process – One instance of a workflow.
Task – One step or piece of a workflow.
Metrics Recording – Recording data of the user to be used for tracking calories, blood pressure and blood sugar.

2. Design Considerations

2.1 Assumptions

Will be covered later

2.2 Constraints

None that we are aware of.

2.3 System Environment

The product will run on any web browser. It is a website that will work on mobile phones, desktops and laptops. The recommended web browser versions are:

- Google Chrome 84
- Safari 13.1
- Edge 84
- Firefox 79
- Opera 69

A MongoDB database will be used to store the data. A REST API will be used for the client side to communicate with the backend.

2.4 Design Methodology

Some principles to be followed while making the website are:

- The design must be consistent across web pages. For example, each page of the site will have a navbar with all the links.
- The website must be responsive or mobile compatible.
- A simple and consistent color palette has been used.
- For easy navigation we will have a navbar which can be used to navigate to all the pages of the website.
- To establish effortless communication with the visitors, information will be organized by making good use of headlines and sub-headlines, cutting the waffle, and using bullet points.

Pseudocodes for various components/pages:

- Login/Signup component:
  STEP 1: If user has an account, input user details. GOTO STEP 3.
  STEP 2: If user does not have an account, direct user to signup page. GOTO STEP 5.
  STEP 3: Access database and validate login credentials. If validation fails show error.
  STEP 4: If validation succeeds, load user profile and direct user to dashboard. STOP.
  STEP 5: Input details of the user and add data to database.
  STEP 6: Create profile for the user and direct them to dashboard. STOP.

- Dashboard component:
  STEP 1: Fetch user's target calories, protein, carbohydrates and fats. Display on screen.
  STEP 2: Fetch trending dishes from database and display on screen.
  STEP 3: Fetch user diet and display.
  STEP 4: If user clicks on the hamburger icon, display hamburger menu. If User chooses Diet, GOTO STEP 5. Else GOTO STEP 6.
  STEP 5: Direct to diet page. STOP.
  STEP 6: Direct to tracker page. STOP.

- Diet page:
  STEP 1: Fetch foods from database and show on screen.
  STEP 2: If user selects "Add", add dish to cart.
  STEP 3: If user types in search, find dish from database and display it.
  STEP 4: If user selects checkout, then save contents of cart as a diet.
  STEP 4: If user clicks on the hamburger icon, display hamburger menu. If User chooses Dashboard, GOTO STEP 5. Else GOTO STEP 6.
  STEP 5: Direct to dashboard page. STOP.
  STEP 6: Direct to tracker page. STOP.

- Tracker page:
  STEP 1: Fetch metrics data of the user from database and display it.
  STEP 2: Plot graph based on data received and display it.
  STEP 3: If user chooses "Update" button, input metric from user and update database.
  STEP 4: If user chooses "Set Target" button, input target from user and update database.
  STEP 4: If user clicks on the hamburger icon, display hamburger menu. If User chooses Dashboard, GOTO STEP 5. Else GOTO STEP 6.
  STEP 5: Direct to dashboard page. STOP.
  STEP 6: Direct to diet page. STOP.

2.5 Risks and Volatile Areas

None have been identified.

3. Architecture

3.1 Overview

The website has a dashboard to which the user arrives at when the site is opened. From there the user can login and access all the components of the website.

3.2 Subsystem, Component, or Module 1 …N

3.2.1 Login Component

The login component will ask the user for their username and password. Upon entering the same the data will be passed to the backend where validation takes place. If authorized the user can proceed to the dashboard.

3.2.2 Dashboard Component

The dashboard component is what the user sees after successful login. The dashboard showcases trends and shows the calorie goals of the user and how far they are from reaching it. This is done by accessing data from the database and using some analytics data to find popular diets being taken up by the users.

3.2.3 Catalog Component

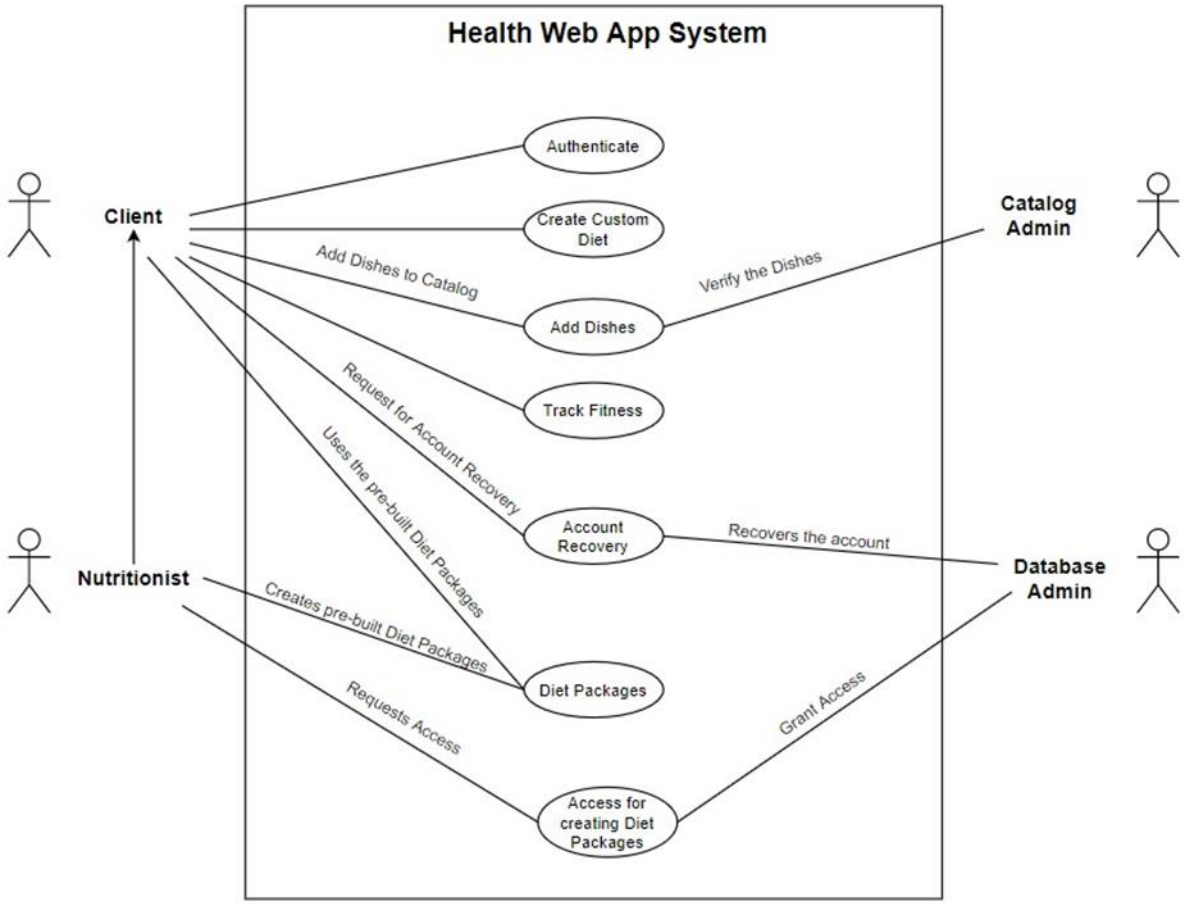
The catalog component is meant to serve as a collection of dishes which can be added together to create a diet, this diet can be saved by the users. Users can also add a dish of their choice to the catalog and the dish will be verified. All the dishes and diets will be stored in the database and once verified the dish will get a verified tag.

3.2.4 Overview Component

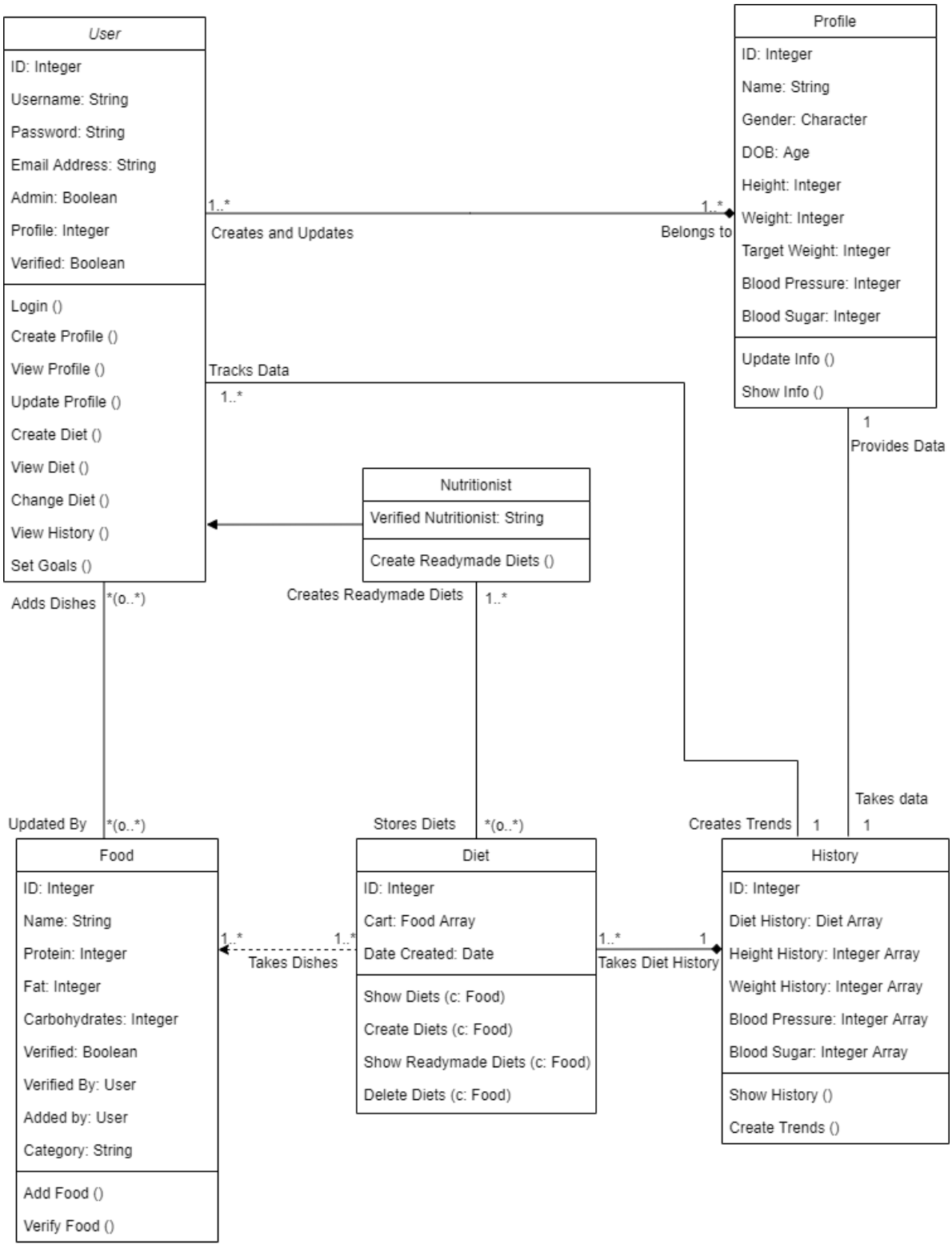
The overview component is to give the user a comprehensive report of how various metrics like their blood pressure, blood sugar, weight and more have been changing. In case any of the metrics are not within the range that is considered healthy, there will be suggestions given to the user to help them improve the same.

3.3 SDS Diagrams

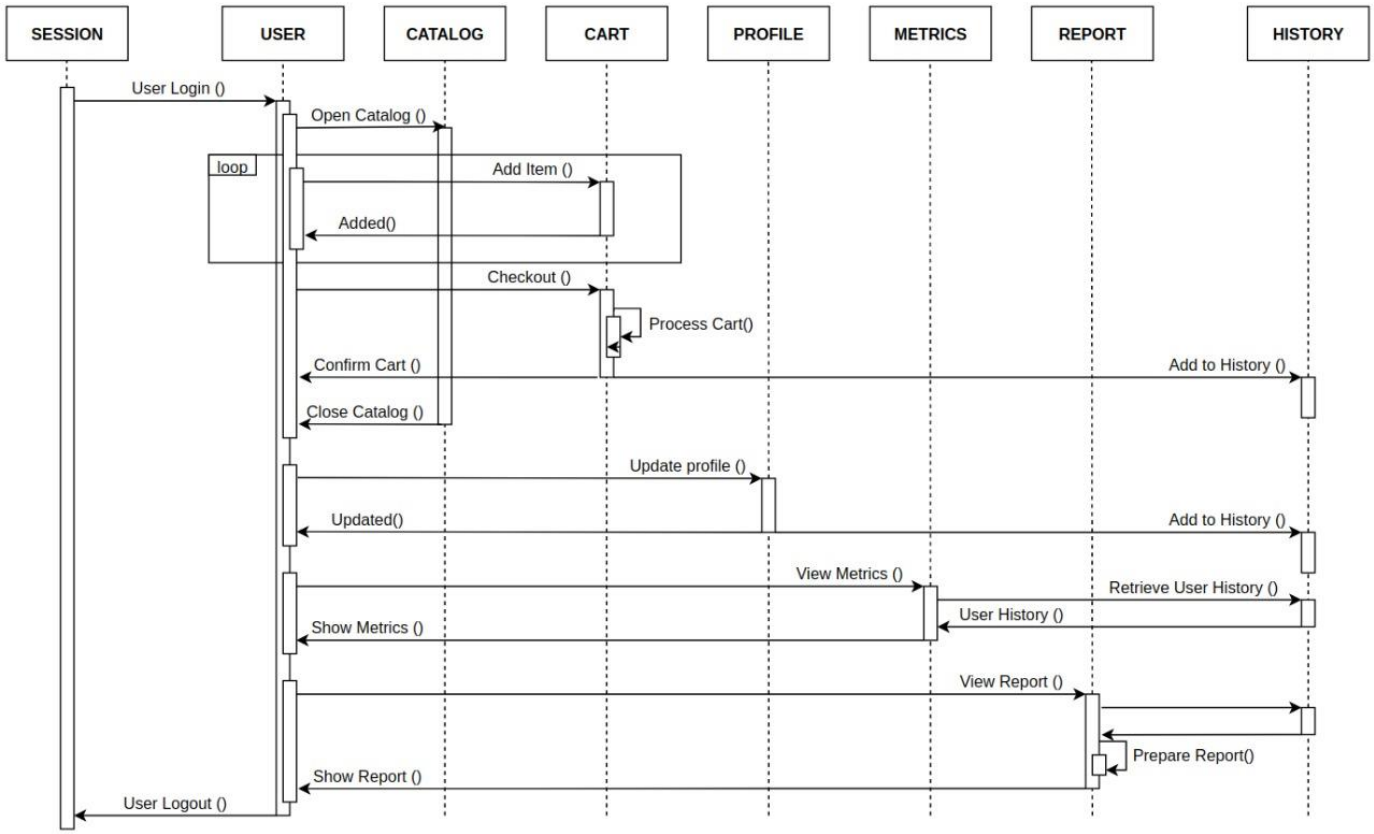
3.3.1 Use Case Diagram



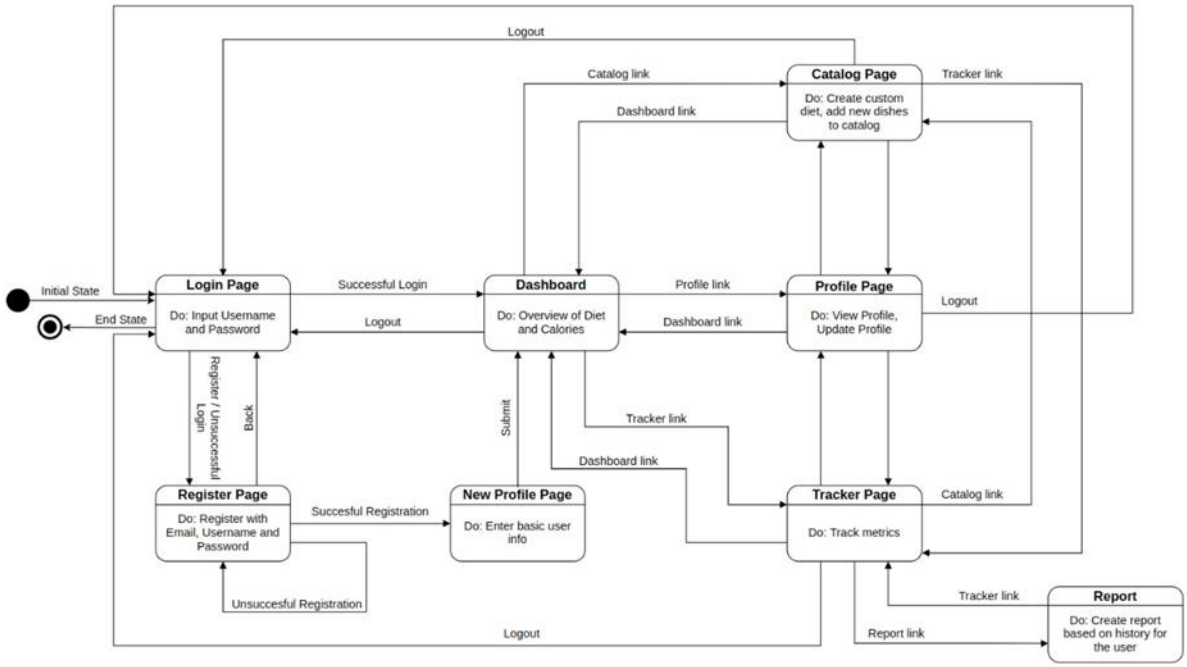
3.3.2 Class and Object Diagram



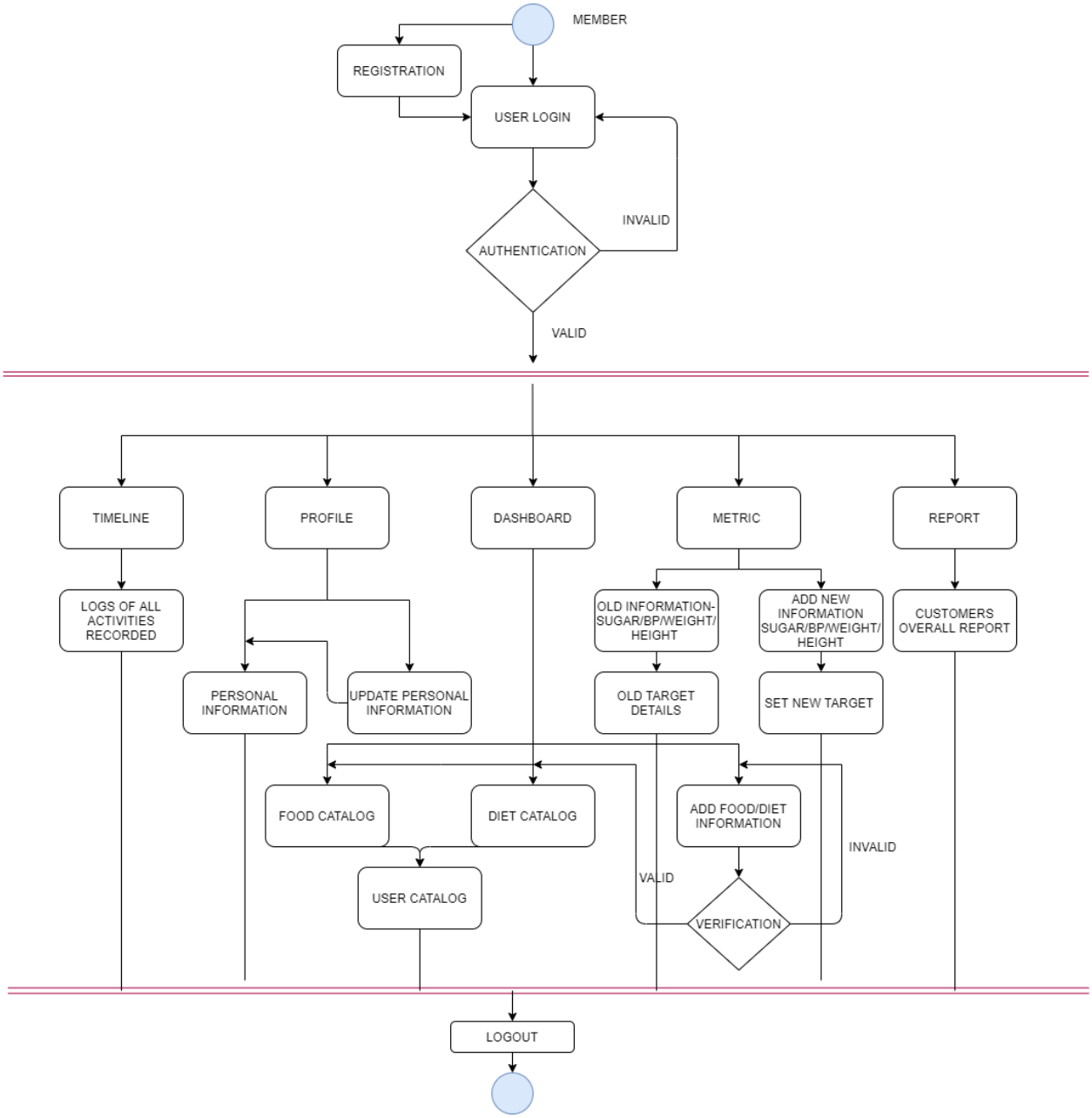
3.3.3 Sequence Diagram



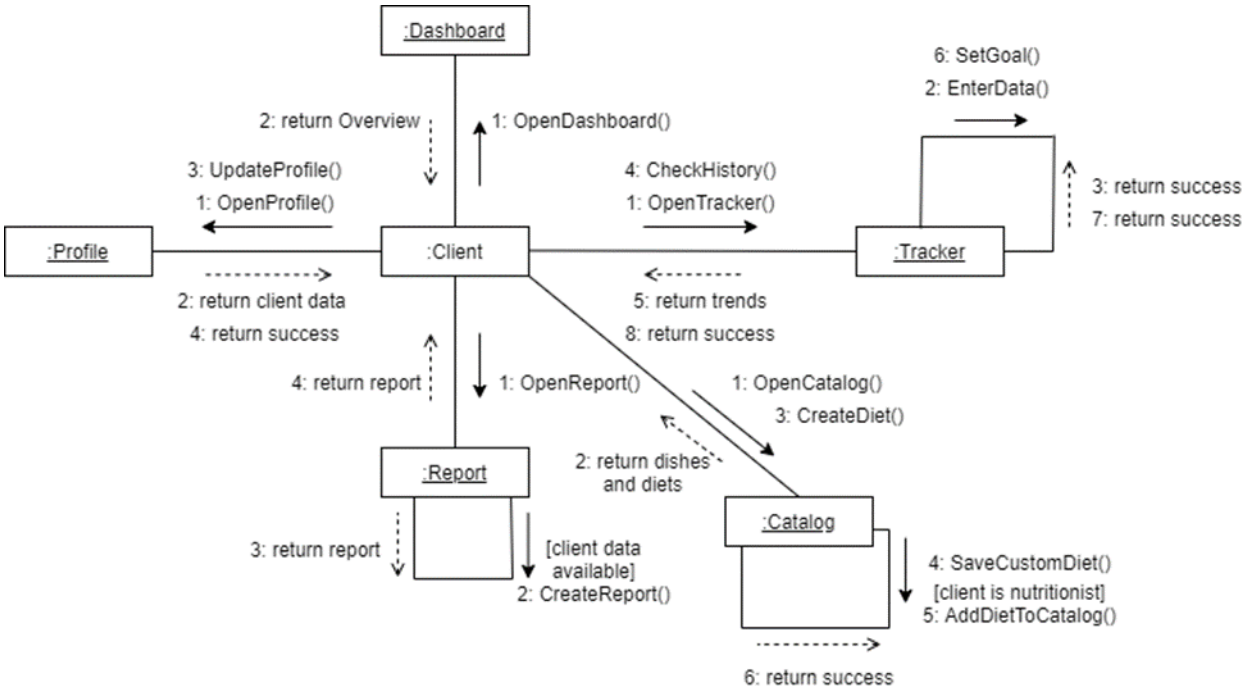
3.3.4 State Chart Diagram



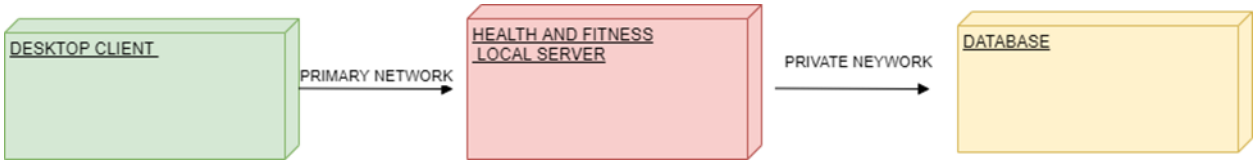
3.3.5 Activity Diagram



3.3.6 Collaboration Diagram



3.3.7 Deployment Diagram



4 Database Schema

4.1 Tables, Fields and Relationships

5 tables have been used in this project. They are:

- User – Contains all the login credentials of the client.
- Profile – Contains the goals and current value of metrics like height, weight, blood pressure and more.
- History – Contains the record of all the metrics of the user since the first login.
- Diet – Contains details of the food that the user has in a day for tracking calories.
- Food – Contains the catalog of dishes from which diets can be made.

4.1.1 Databases

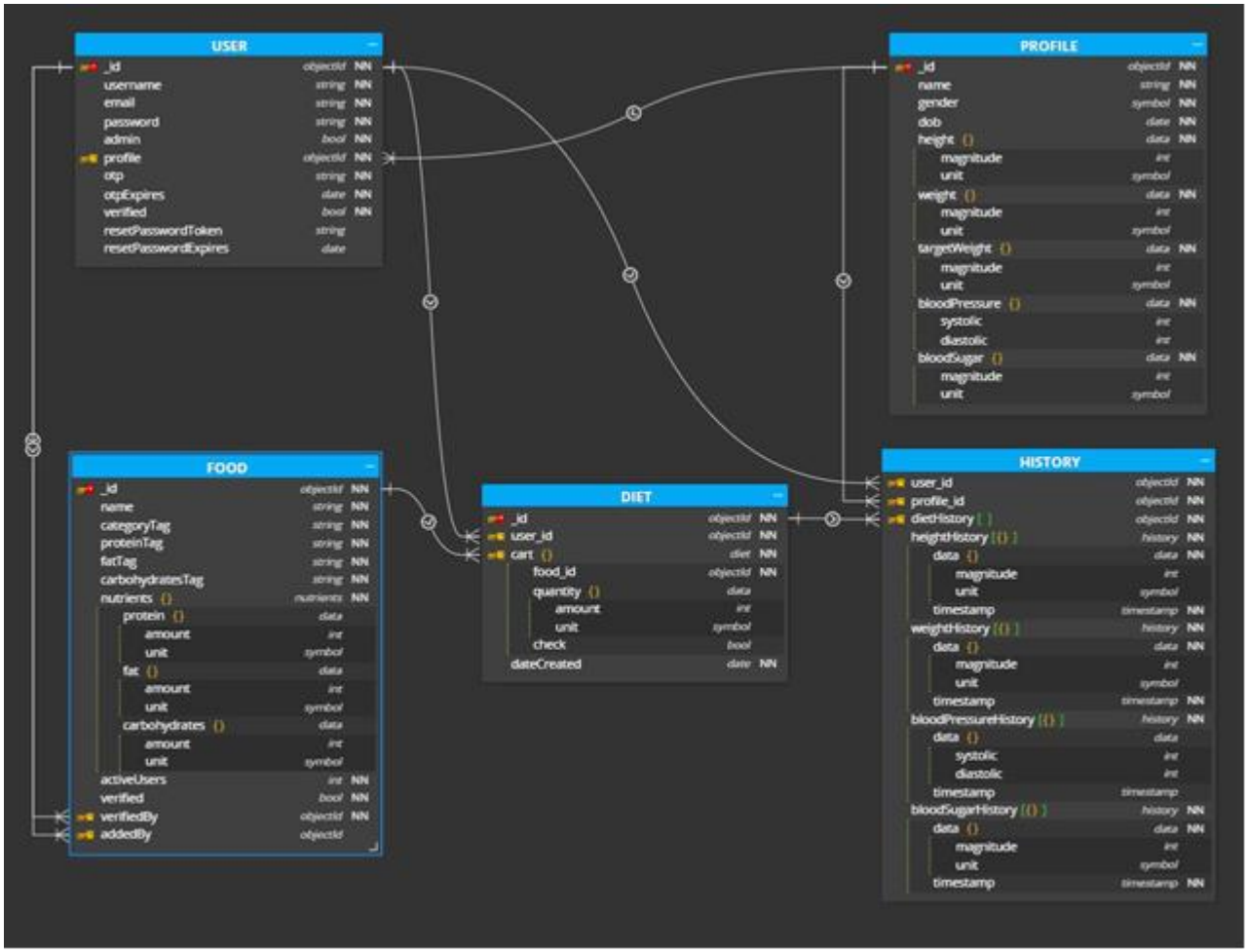
MongoDB database has been used for testing and development.

4.1.2 New Tables

5 tables have been created for this project. They are:

- User – User table is related to all the other tables.
- Profile – Profile table is related to the history and user table.
- History – History table is connected to the user, profile diet table.
- Diet – Diet table is connected to the user, history and profile table.
- Food – Food table is connected to the user and diet table.

4.1.3 New Fields(s)



4.1.4 All Other Changes

No changes are needed.

4.2 Data Migration

No data migration is needed.

5 High Level Design

Not applicable.

6 Low Level Design

Not applicable.

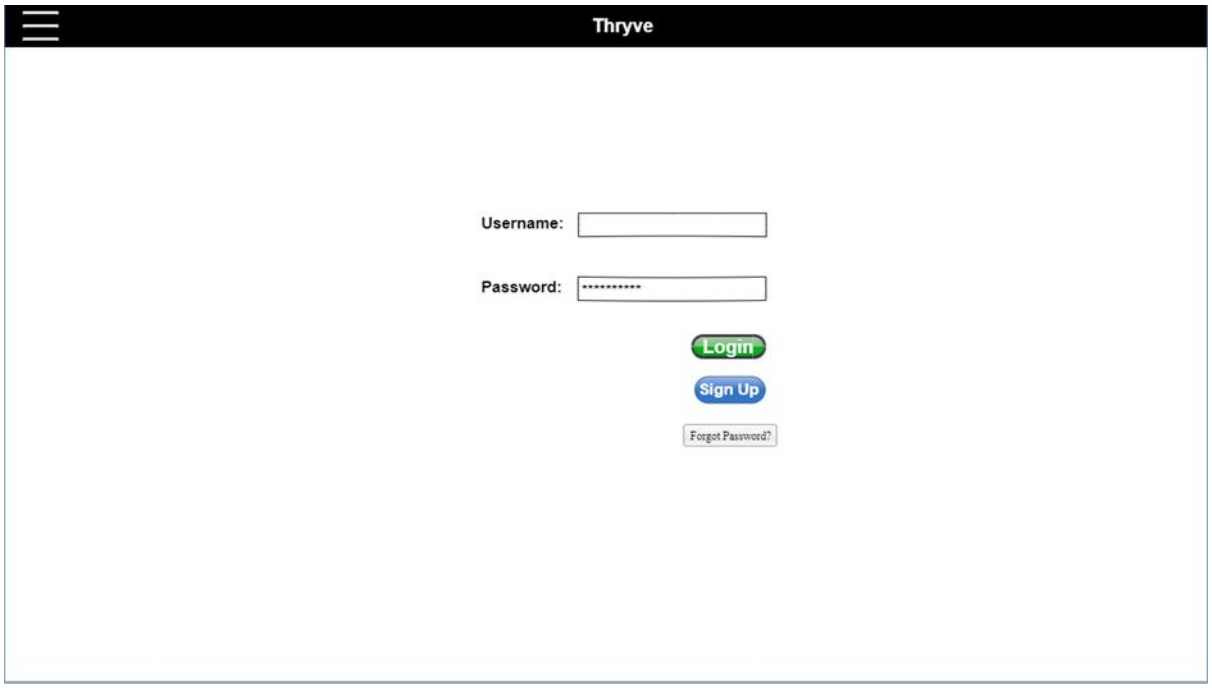
7 User Interface Design

7.1Application Controls

All the pages on the websites shall have the navbar to navigate to any link on the website. Once logged in, the user can also see their profile on the navbar.

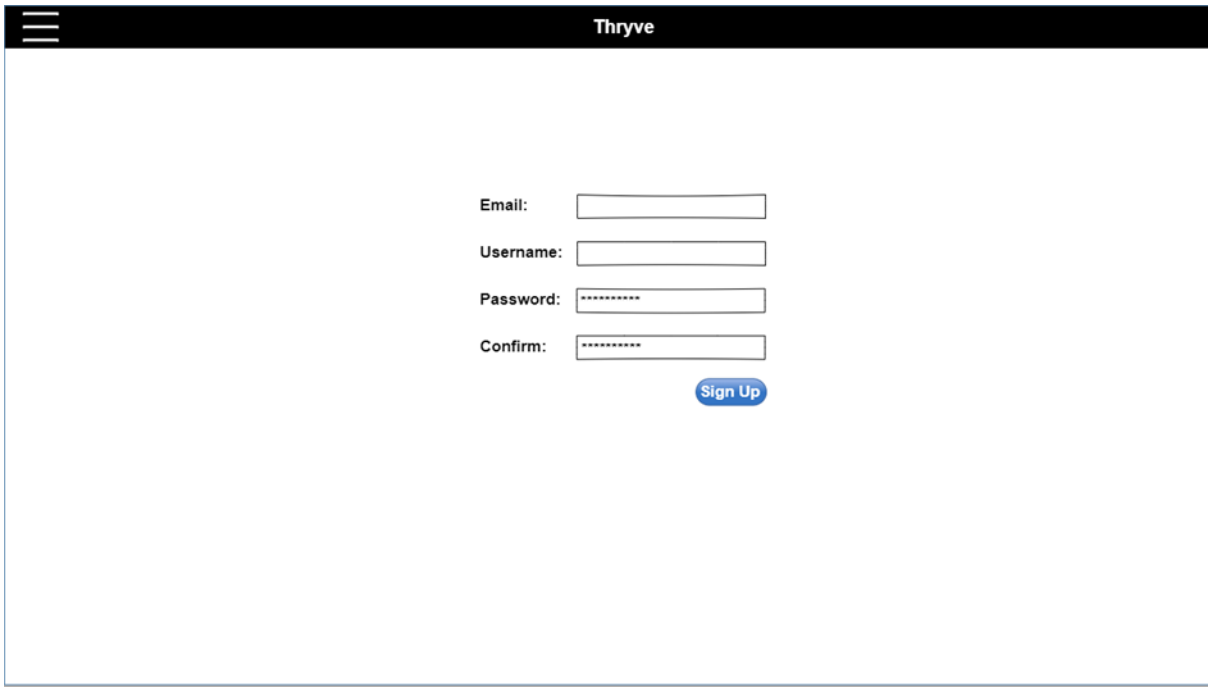
7.2 Screen 1… N

7.2.1 Login Page



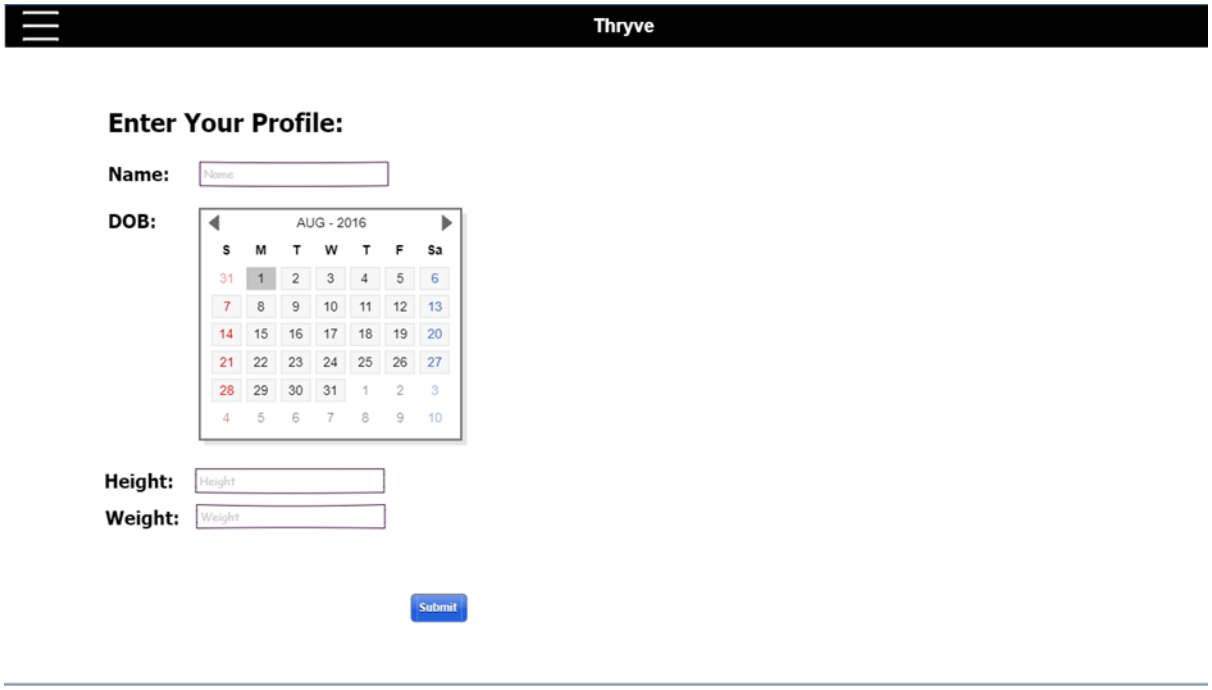
Login page is the page to enter into the site. A registered user can enter his/her username and password to login. For first-time users, *Sign Up* button redirects to register page where user can register him/herself to the site. An Email OTP based system is used for those users who forgot their password.

7.2.2 Register Page



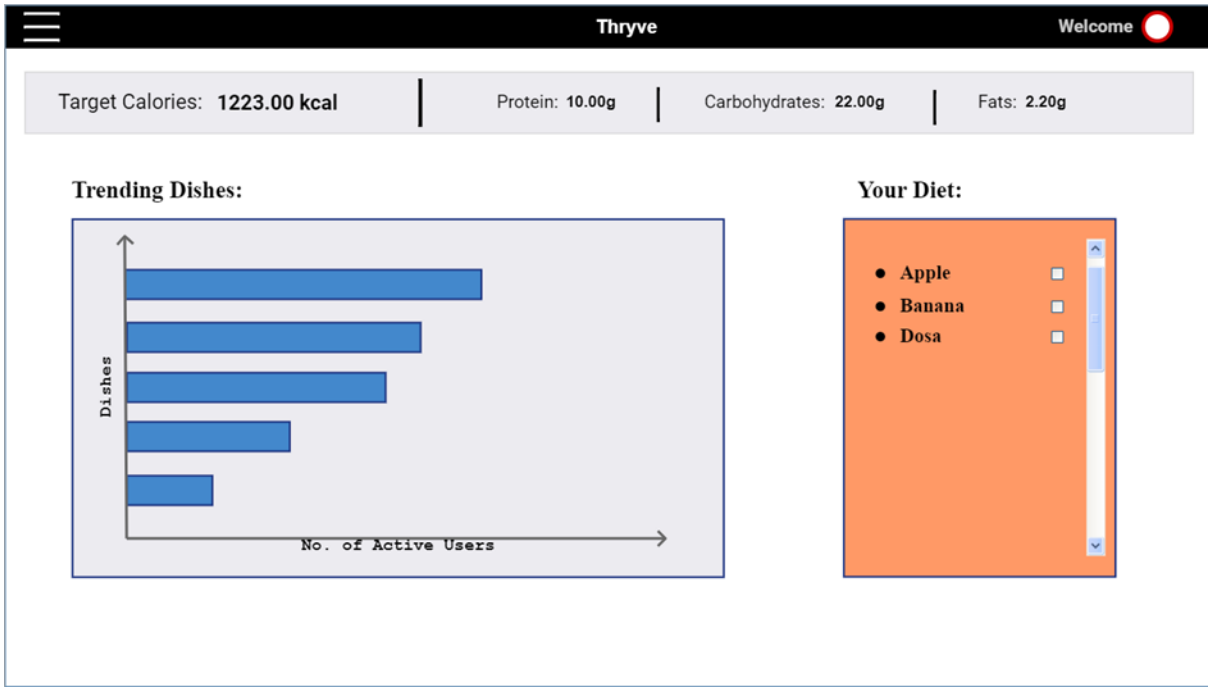
A total of 4 fields are required to be filled by the first-time users i.e. Email, Username, Password, and Password Confirmation to register to the site. An Email verification sent to registered email for confirming successful registration.

7.2.3 Profile Form Page



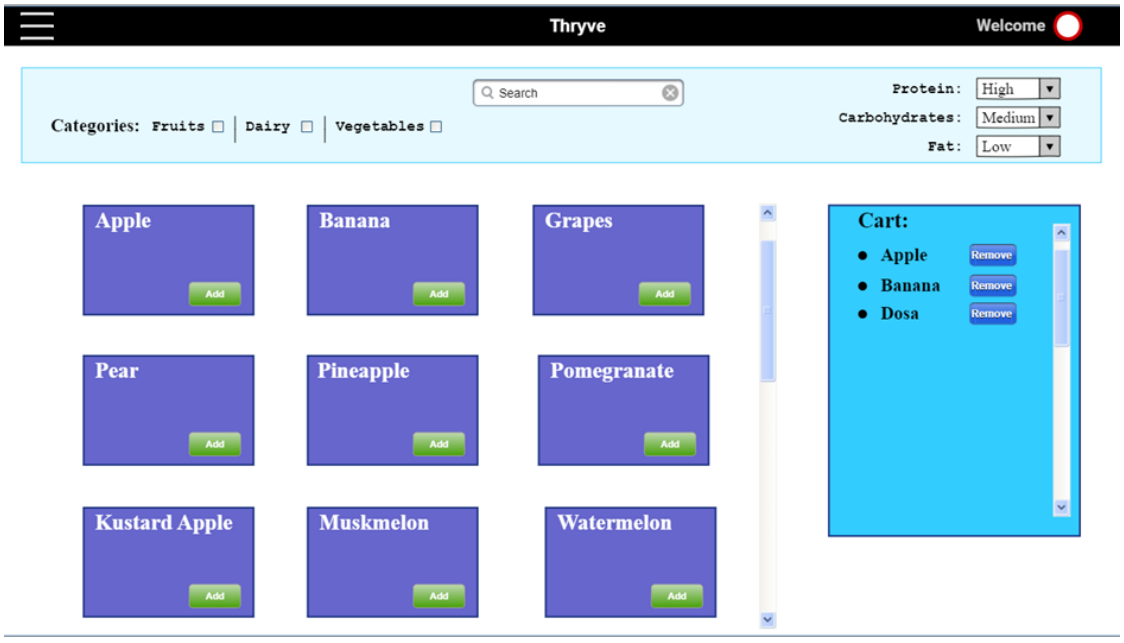
A first-time user is redirected to the Profile form page after successful registration to fill the basic details like Name, DOB, Height, and Weight.

7.2.4 Dashboard Page



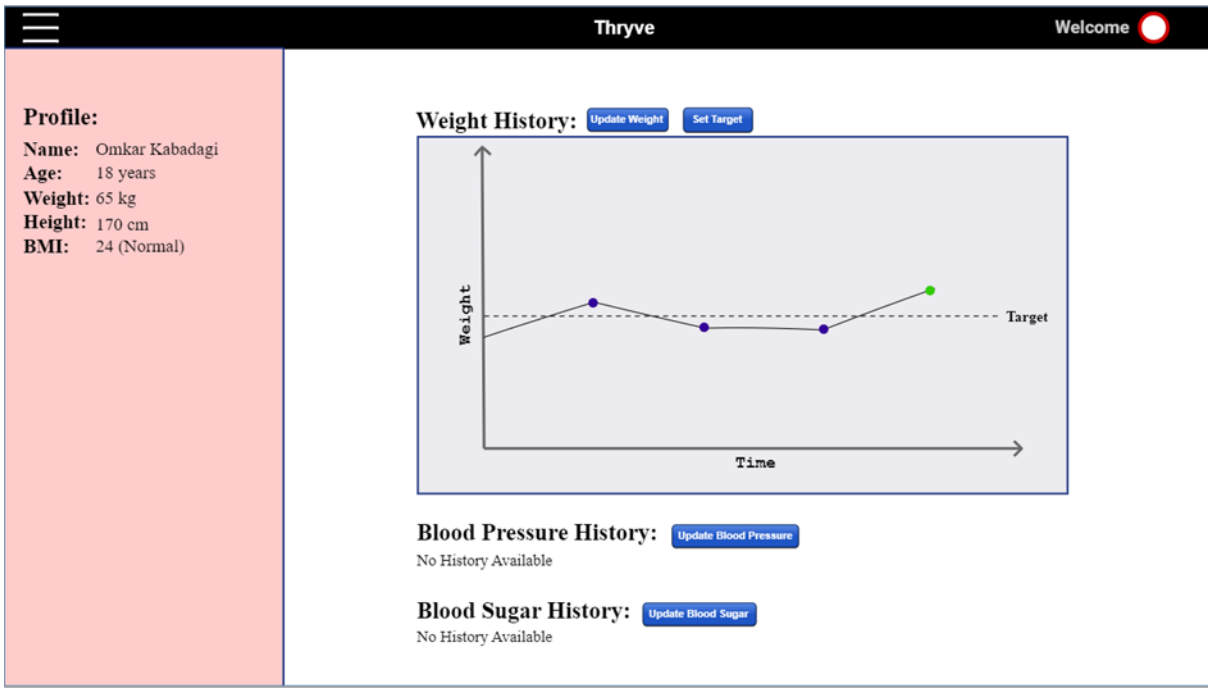
This the main page of the site called the Dashboard page. It gives an overview of your target along with some global trends among users like trending dishes or recommendations, etc. *Your Diet* represent the current items in your diet. A check box is given for user to check he/she has finished eating that dish.

7.2.5 Diet Page



Diet Page is the page where the user can set his custom diet for the day. The user can choose from an entire database of dishes and add them to his/her cart. The auto-complete search function and the various different filters help user to filter the database to their requirement.

7.2.6 Tracker Page



The Tracker Page is the page that tracks all the metrics like your diet, weight, blood pressure and blood sugar. All the history generated by the user is summarized on this page. Update buttons add new data points to the history. The user can set target for a particular attribute using the *set target* button. This can help the user track themselves with reference to their targets

Appendix A: Project Timeline

Refer SRS V2.