Subject code : ITC539

Name : Kaluthara Koralalage Sandakelum Tharindu Adikaram

Student Id : 11684318

Email : mr.stadikaram@gmail.com

Lecturer : Buvanesvari Selvaraj

About Me

My name is Kaluthara Koralalage Sandakelum Tharindu Adikaram. I have completed my bachelor BSc in Software Engineering at Curtin University Australia which is a partner university in SLIIT at Sri Lanka. And currently, I am following Master of Information Technology at Charles Sturt University. Also I have two years of working experience as a Software Engineer.

Introduction

MealLog is an android application which is mainly developed to record the daily food intake of a person. This app is an alternative to the applications such as Calorie Counter & Food Diary, Food Intolerance, MyPlate Calories Tracker, and Carbs Control etc... Which are currently available in the Android play store.

The common problems of existing applications are that most they are paid applications. Some applications provides only limited functionalities free. But MealLog application is a totally free application which provides all the functionalities fast & conveniently.

Among those MealLog is exclusive since it is user friendly and provide eye catching user interfaces. As well as MealLog is easy to use by any person. This project proposal will outline the exclusiveness of the MealLog application and what functionalities it will provides to the users.

Success Criteria's of MealLog above other available applications

Easy usage

The application is easy to use and easy to understand. Any new user can use the application quickly without a user guidance.

Eye catching look and feel

The application is looking good because of the eye catching colors and the structure of the interface.

Guidance for decision making

The application allows user to take actions as they wish.

Speed of the application

MealLog is lightweight application. So it is fast and provide response accurately.

Store habits

The application store the data of past food habits of the user and allow them to access anytime when they needed.

Functionalities

The application starts form a login page. The login page contains login options which login using Google account. Once the user log in to the using one of the options the page will display the logout button and user details as well as a continue button.

When the user press the continue button, the user will be redirected to the Home page which is the main page of the system. In the main page user will see a list of items. The items are the records which contains the details about the past food consumption of the user. Other than the list the page has two buttons. One button is used to add a new record and the other button is used to clear the list.

The application has a drawer which contains the links for all the pages in the application. The main pages of the application can be considered as Home, Scan, Chart and Profile. Each page has a button to go the settings of the application.

The scan page is capable of accessing the camera of the mobile phone. After capture the image it is scanned by the system to detect whether any text is available in the image. If there are any text it will be extracted and display separately by the system.

The profile page has the details of the logged in user. Such as name, email address and image. This page is basically is use only to identify the logged in user.

The Chart page contains the charts to keep track and visually display the calories that user intake per day. And how it varies.

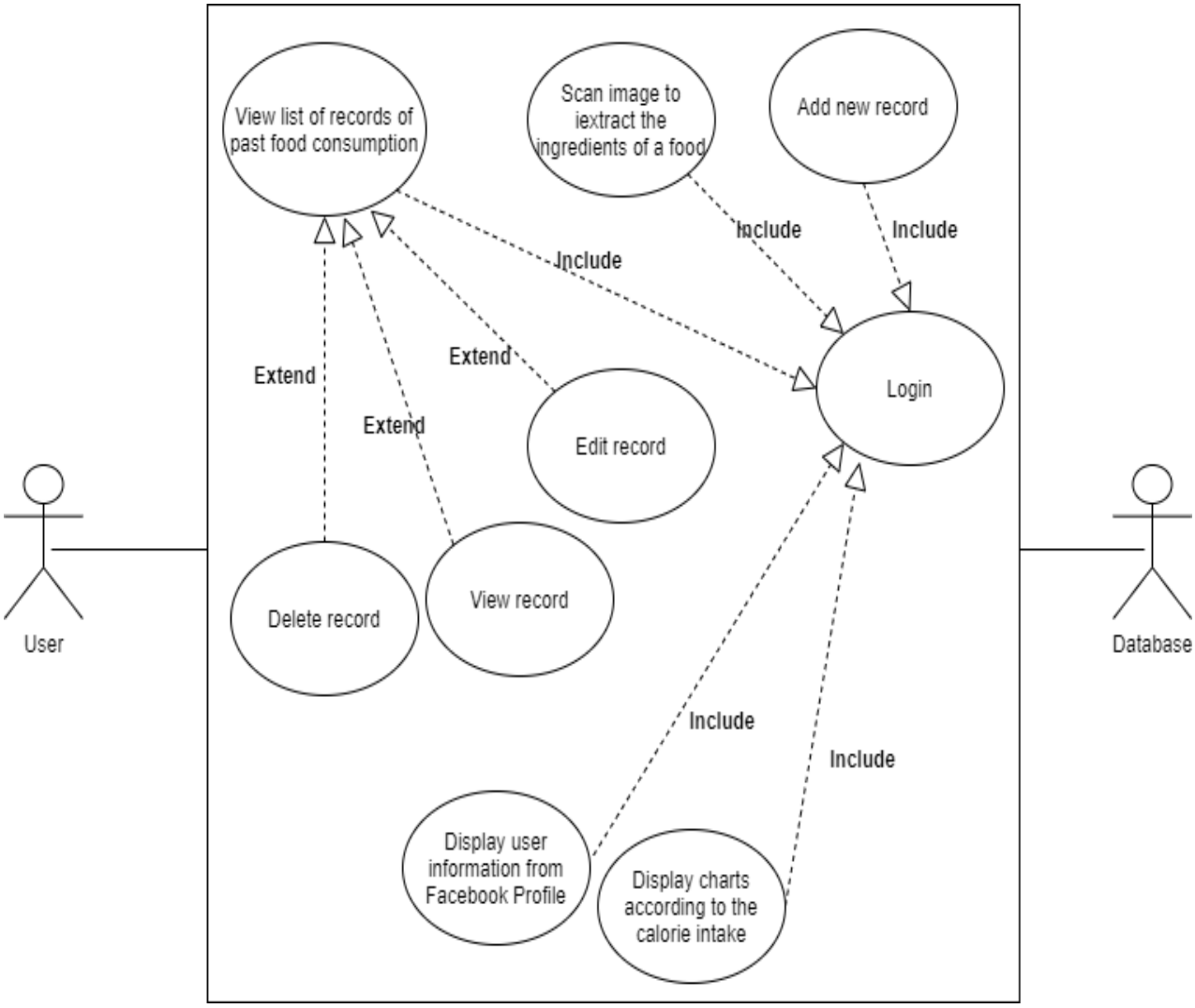
The list of the Home page is clickable and sweep able. Once the list is clicked the data will be displayed in a form and the data can be edited from there. And when the list item is sweep the delete icon will appear and the item can be deleted from there.

Device capability requirements

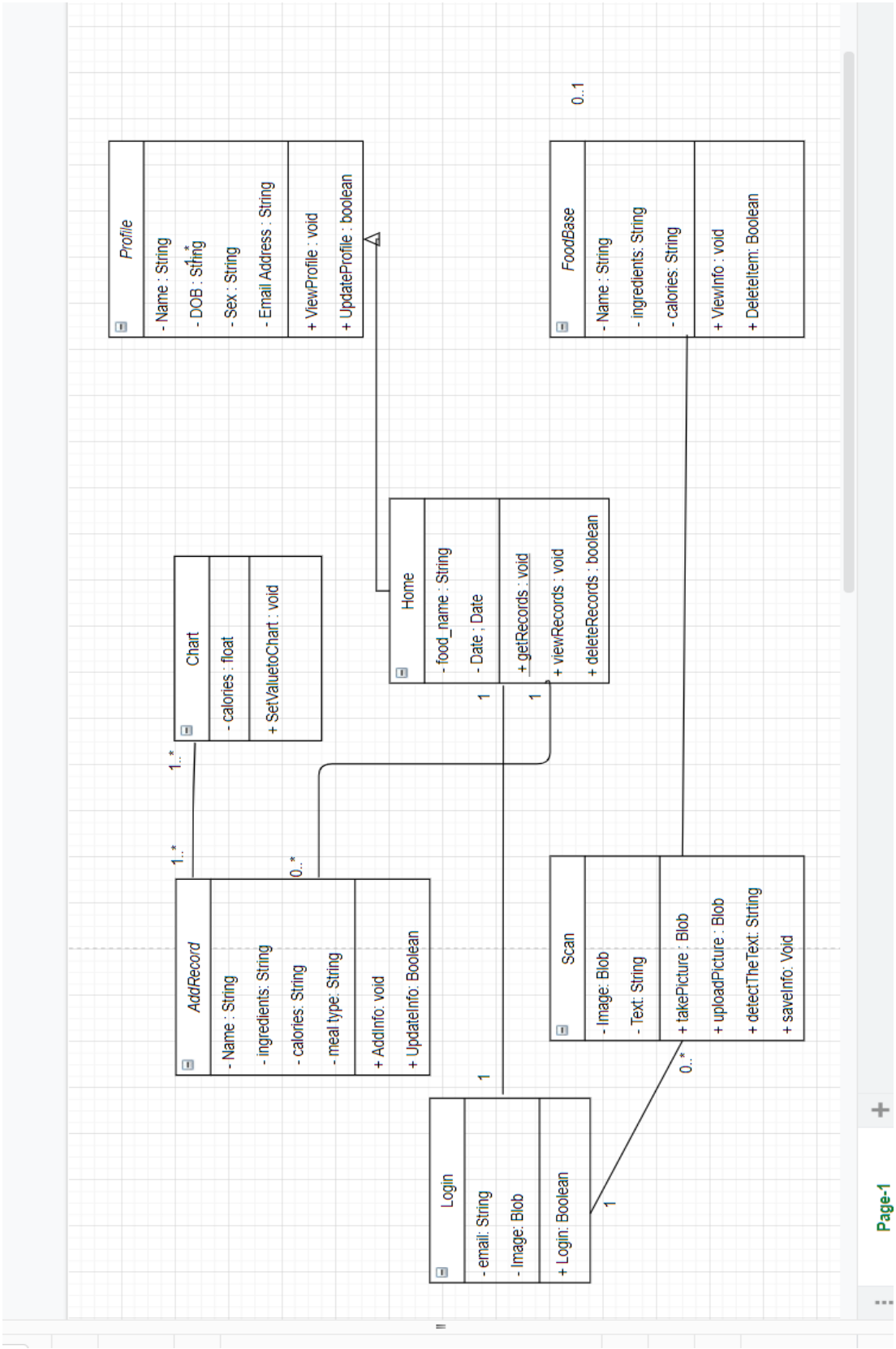
MealLog is a light weight application which provides services free of charge. Therefor the application is designed with low specification maximise customer reach. Minimum smart phone requirements are outline below and MealLog can run just as easily on tablet devices. Users are prompted to manually enter food items, and therefore a physical or on-screen keyboard is required. Also the users has the capability of taking the images of the food and images which has ingredients. Therefore camera access permission is required.

- Android 4.1 Jellybean (API version 16)
- CPU/RAM; Budget handset (2.26 GHz quad core processor, 2GB RAM)
- Screen resolution; 1080 x 1920 pixels minimum
- Screen size; 5.0 inches minimum
- App Size; 15mb
- SQLite Database
- Physical or on-screen keyboard
- Firebase API
- Facebook API

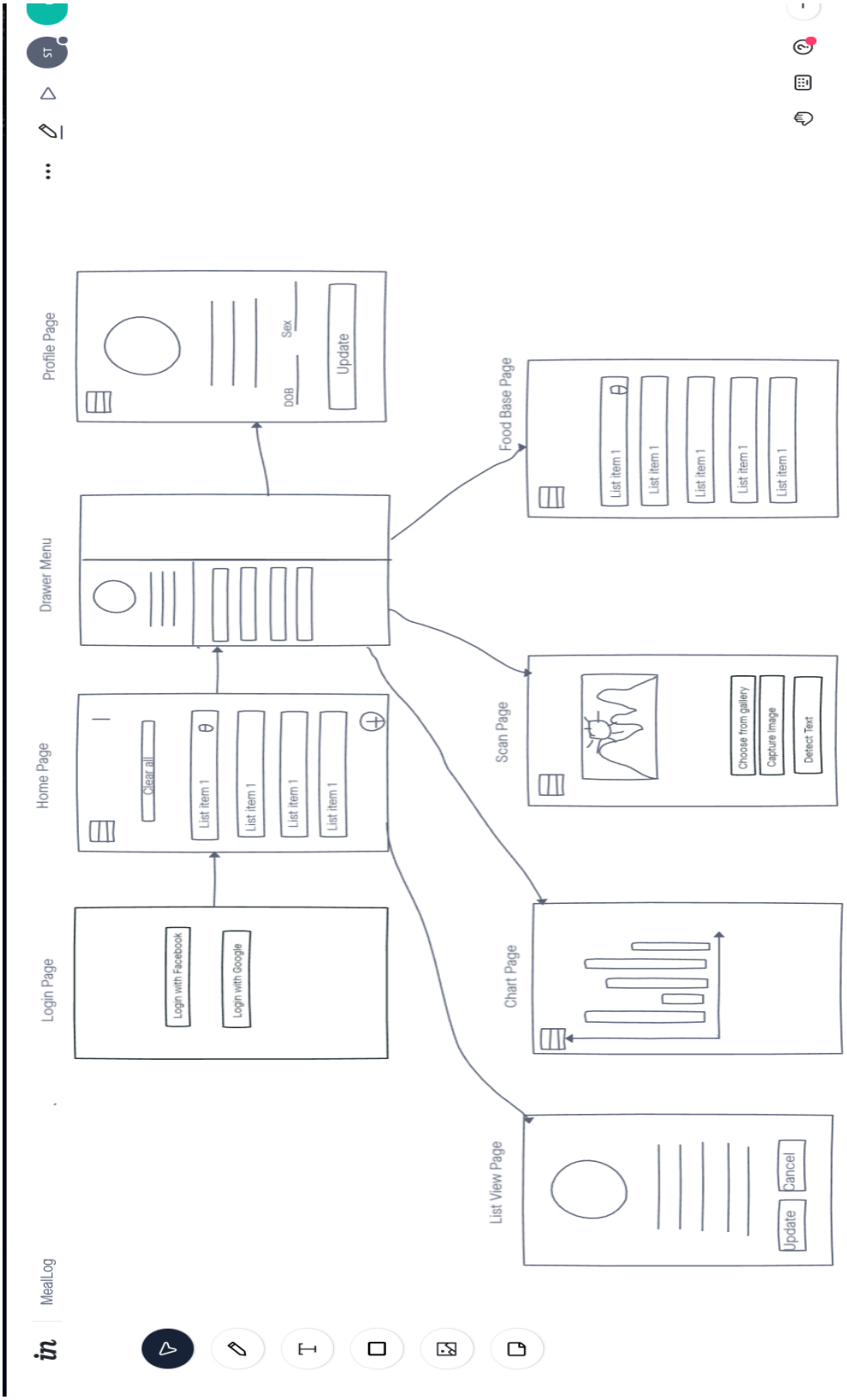
UML Use Case Diagram



Class Diagram



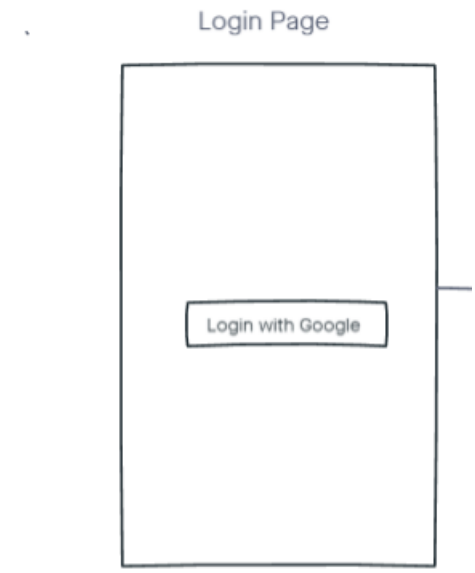
Mockups for the application



User interaction and navigation

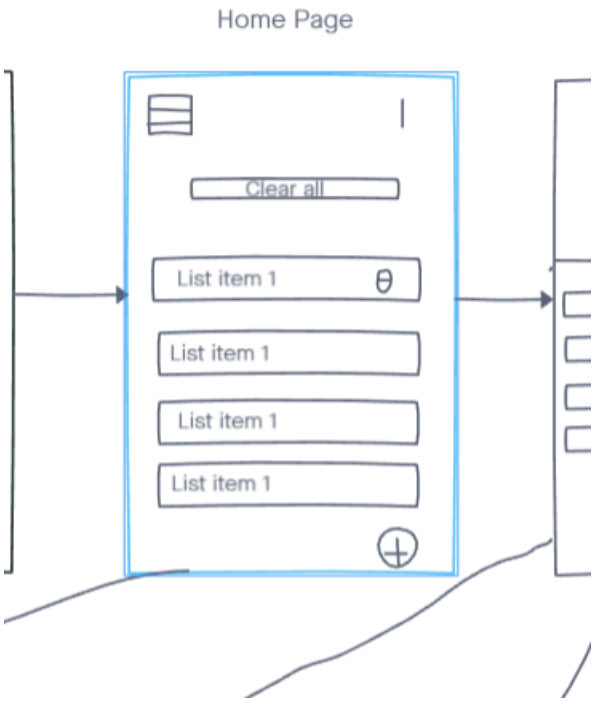
Step 1

User can login to the system using login with Google button.



Step 2

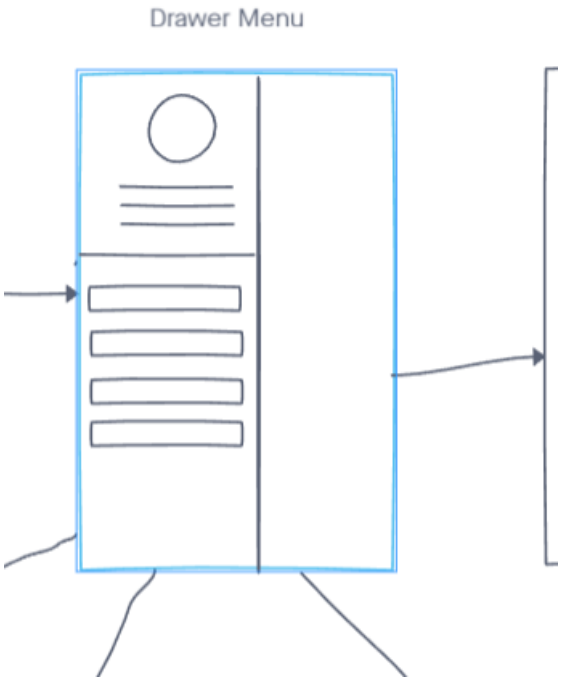
Once user login to the system he/she will redirect to the home page where the list view will display to the user. The list will display the items that the user has inserted as past food consumption.



Step 3

And when he click the menu button (The top left corner button which can be seen in all the main pages) the user will be redirect to the navigation panel where the navigation panes will be displayed. The navigation pane contains links to the following pages

Home, Scan, Profile and Chart page. By clicking on each link user can be redirected to the relevant page.

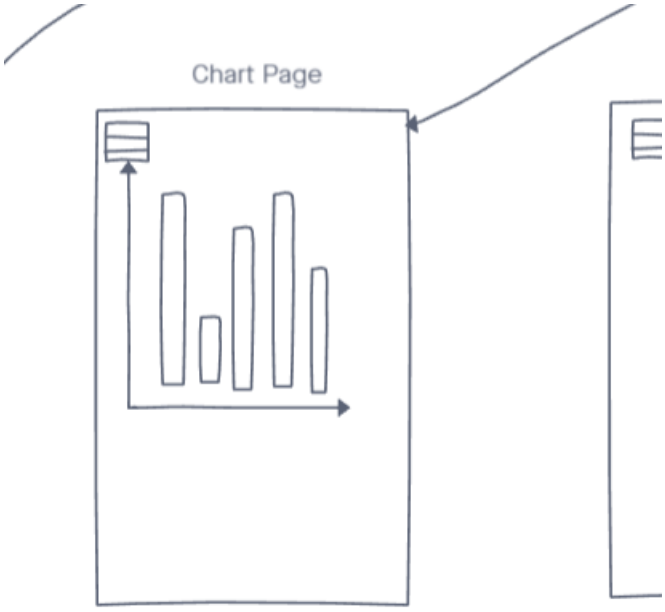


Step 4

The profile page contains the details of the logged in user. Details are retrieved from the Google account of the user. As well as some details are editable by the user. E.g.: Date of birth, Sex

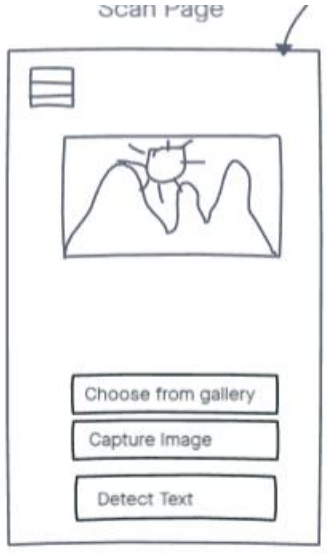
Step 5

The chart page contains the graphs which have been built according to the Kilo Jules consumption of the user.



Step 6

Scan page will have the functionalities to scan a image and detect the text in the picture. This function is used to take an image of the details and add to the database without entering the details manually.

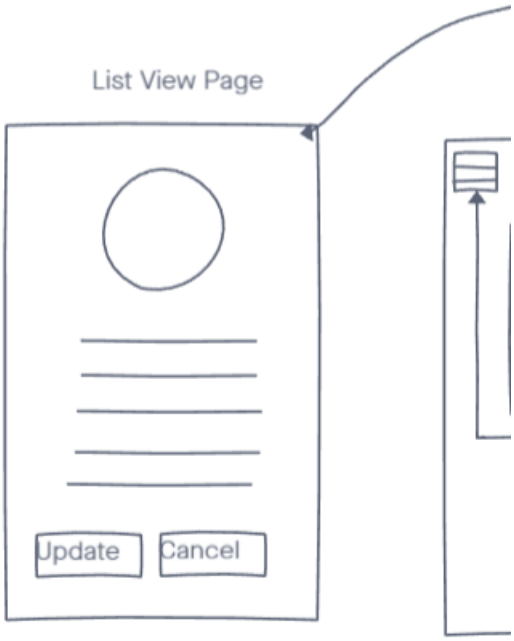


Step 7

Food base page is a list view page which has the records of newly added food items. The list is sweep able. By swiping the items can be deleted.

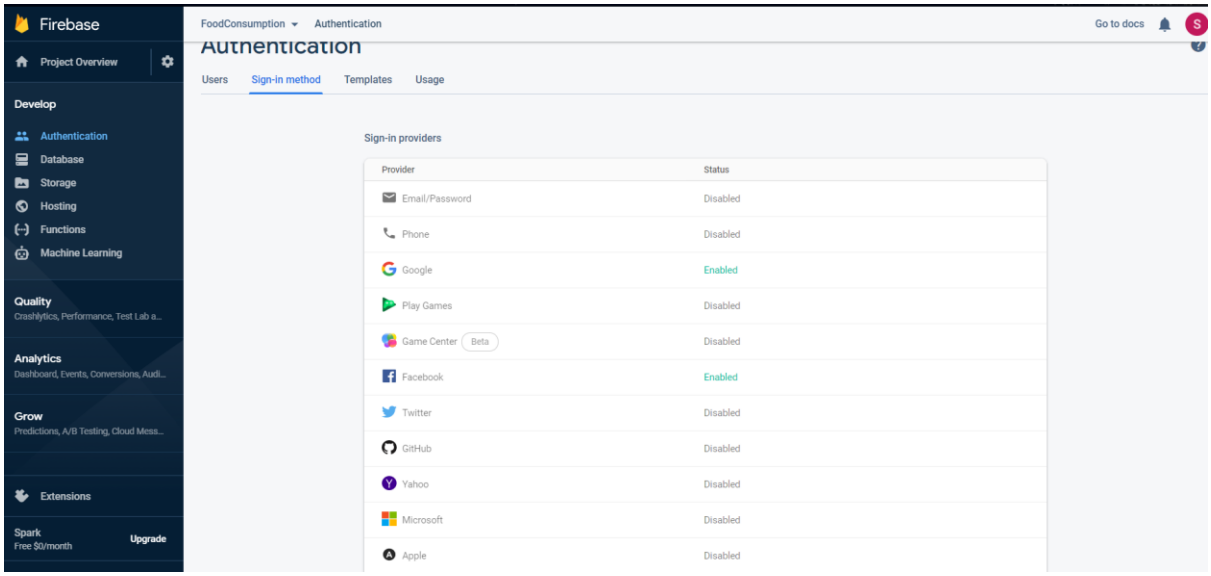
Step 8

List view page is popup which can be used to view the details of the list items in the home page. And same popup can be used to edit the details and add new items.

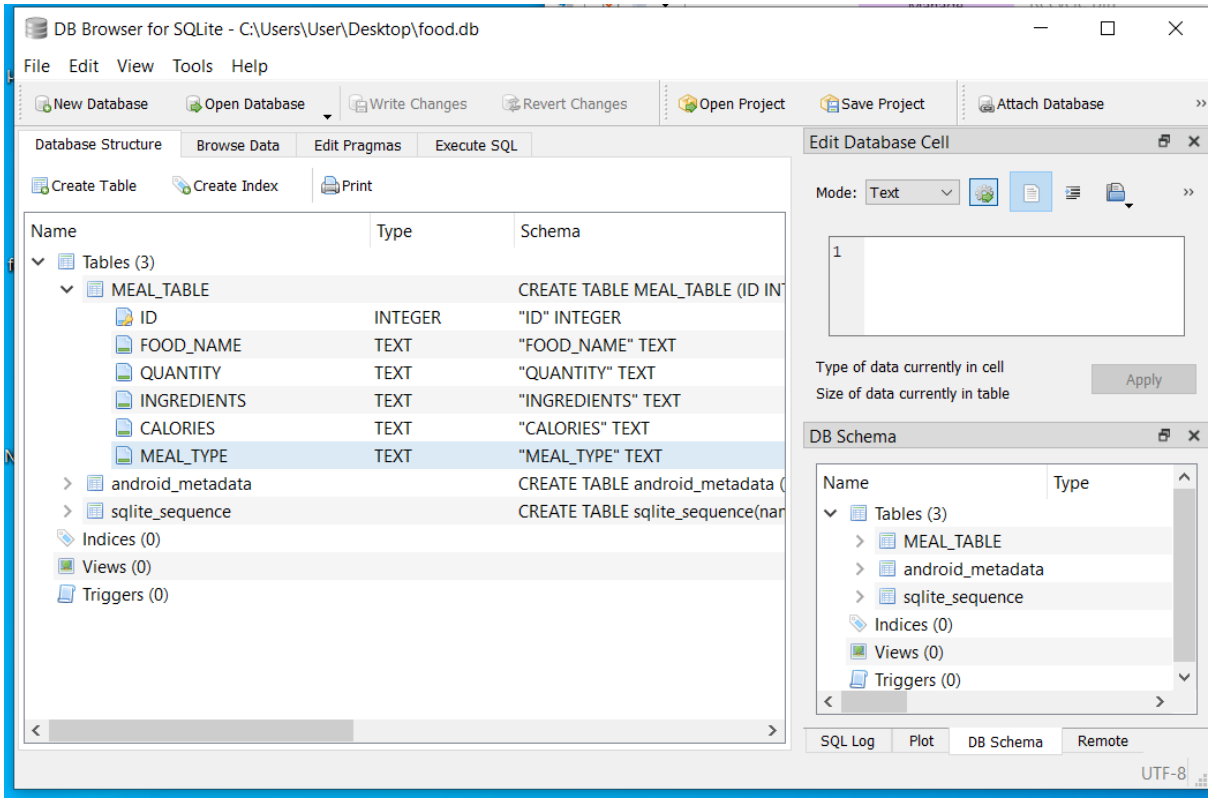


External API and Libraries

As explained above the application is used Google API to login to the system. For that the application is registered in the Firebase. In firebase login with Google function is enabled under the authentication in order to provide permission for the users to login with their Google accounts.



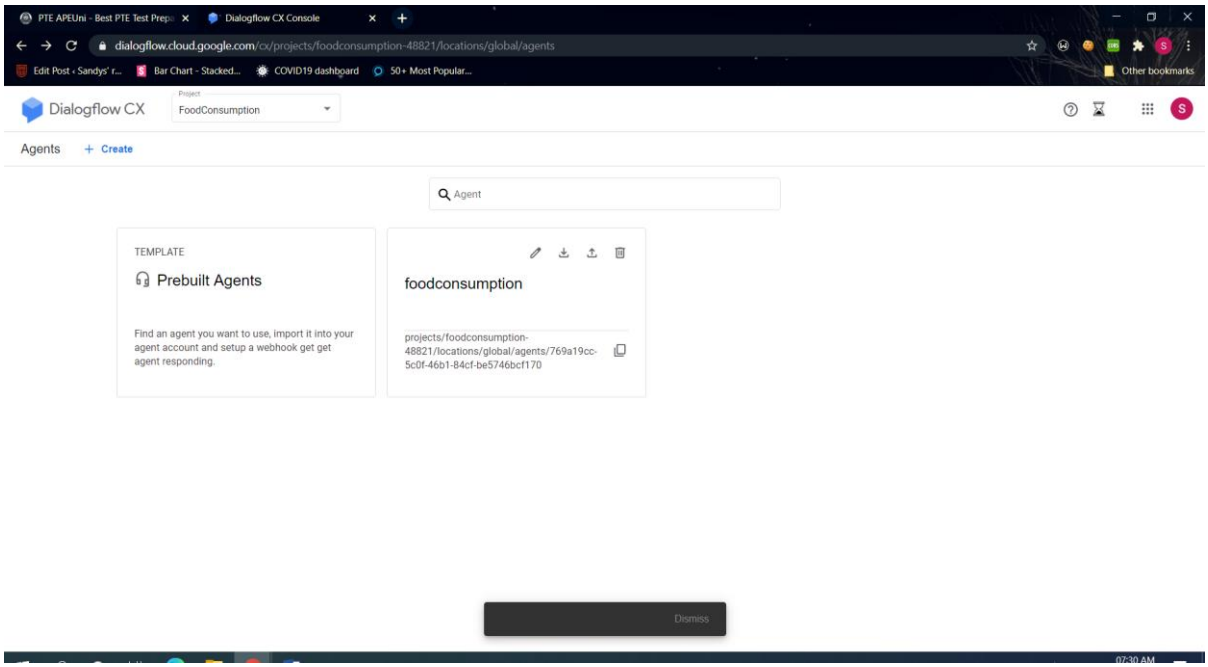
And also as the database SQLite is used. The database is used to store all the user data as well as food related data. The charts are generated through the data retrieved from the database.



For displaying chart the application will be used MPAndroidChart library available in github.

https://github.com/PhilJay/MPAndroidChart

To connect the application with AI BOT for message purposes I have use the DialogFlow CX. This provides facility for users to chat with an online bot and ask questions.



Challenges faced during the development

1. Poorly Defining the Goals And Objectives
2. Finding The Right libraries and frameworks
3. Scope Creep is Insidious
4. Insufficient Skills
5. Risk Management
6. Lack of Accountability

Future additions that can be done to the application

1. Add foreground process to track daily calorie burn.
2. Provide suggestions of foods y learning the past food consumptions.
3. Improve the image processing capabilities using openCV.