Project Report

GROUP 4

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Application Overview

For our project we created a recipe sharing app (Fridge chef), the app has two types of users: standard and pro. A standard account allows users to manage their virtual fridge add and remove items, add items to their shopping list, browse recipes and follow other users.

A pro account is for chefs and home cooks, who can do everything standard users can, and add new recipes.

On the home page users can find the most popular users and recipes.

The app is intended for people who cook, want to share recipes, or find new recipes.

We wanted to include a social aspect to our app along the inventory management to make it more appealing to users, as mentioned above users can discover other users. Unfortunately, due to time constraints we did not implement comments under recipes, which was one of the features that would have made it more interactive.

Future Developments

Some of the future developments we would like to make to the app include:

- Improving the UI of the app, by giving it a consistent colour scheme.
- Fixing any bugs encountered during testing, for example the navigation problem when adding a new item to the virtual fridge and making the keyboard hide when something has been entered.
- Implement the functionality to add comments under user's recipes.
- We would like to add a map which shows users there nearest grocery shops.
- Optimise the search engine so users can get recipes based on their dietary requirements.
- Allow users to create a shared virtual fridge, this feature will be aimed at families, so everyone can add view and remove items.
- Change the home page so popular recipes and people are changed every week by possibly using an online AI system.
- Adding a ranking system for pro users based on how many likes and followers they have.

Requirements Fulfilment

Requirement 1

User should be able to log into or sign into the system clicking the designated button for such action which would lead to page where user should input the designated data for the authentication.

Fulfilled?

Yes - fully

How?

This requirement was fulfilled as the app has a login/registration screen on start where the user can enter their details. Once the user attempts to login the entered information is validated against the database.

Requirement 2 + 3

Users should access settings through a designated button that leads to separate page where they can change their username, password, email, profile picture, as well as set up privacy settings of their account. The user can also delete their account here.

Fulfilled?

Yes - partially

How?

This requirement was fulfilled as the app has a settings page that facilitates these features. However, the privacy settings have not been implemented and the user cannot currently delete their account.

Requirements 5, 6, 11

User should be able to update its virtual fridge by adding the ingredients to it. User shall use virtual fridge to find suitable recipes for the ingredients included in there. AI admin should be able to update the Top recipes list on the homepage as well as to check the recipes for the sensitive context.

Fulfilled?

Yes - partially

How?

These requirements were fulfilled partially as the user can update the virtual fridge by adding ingredients and removing them. However, the user is unable to find recipes based on the ingredients due to limited search functionality currently.

Also, the main page currently displays top recipes ordered on the number of likes. However, an AI was not implemented which constantly reviews recipes based on time elapsed and updates the list.

Requirements 4, 7-10

- User should be able to add or remove recipes from its list of favourite recipes on its user-page
- User should be able to access other users' user-pages.
- User should be able to view, comment on, and like recipes or professional chefs.
- System's browser should search for recipes based on the food's name, ingredients included in the dish, or the professional chef's name.
- Search through the system's browser should display chefs and recipes connected to key.

Fulfilled?

No

How?

From these requirements, the user is only able to add/remove recipes from the user page. The rest of the functionality of looking at user pages, commenting and searching via ingredients cannot be done. Furthermore, the search functionality is limited to searching by recipe. The user is only able to view and like top recipes, and they can perform a search of recipes by recipe name only.

Non-functional Requirements (Simplified)

- Password Validation + CAPTCHA. Simplified login process of email/password combo.
- Registration and agreement to TOS (terms of service)
- Java programmed – made for Android Oreo. Database developed in MySQL.
- 2 different user types and AI Implementation.

Fulfilled?

Yes - mostly

How?

From these requirements, the user can login with an email/password combination which is validated accordingly in the database. However, there is no CAPTCHA authentication which could leave it vulnerable to attack by malicious bots.

There is no AI implementation currently in the system which means that the database could lose structure and consistency as an increasing number of users use the platform.

In the registration section, all the appropriate information is asked for from the user however, again there is no CAPTCHA leaving this section vulnerable to 'spam' users and attacks. Furthermore, there is no section asking the user to accept the TOS, which may go against certain legislations such as GDPR.

The system was programmed in Java, made for Android Oreo, and allowed for 2 different types of user. The database we used was implemented using NoSQL, which differed slightly from our original requirements but is very similar and we believe that it offered a better solution for maintaining and creation.

People and Roles

The Fridge Chef group (Group 4) consisted of 6 members: Tom, Sami, Adam, Saqab, Vlad and Aman.

For the requirements stage we spent a lot of time working together and talking through the system as group to make sure everyone had a good understanding of what our proposed system was, we then split the requirements documentation into equal sections and everyone went away and completed by themselves were possible.

From here on all the task withing the group were split into sections and given to individuals to complete with slightly bigger tasks given to multiple people to try and keep and even workload across the group. Everyone was advised to keep referring to the requirements as a guide for what to do, to keep all our work consistent. Additionally, when tasks were split, we spent a good deal of time in the meetings discussing what we all thought each section should look like, so everyone had a good idea what to do.

Throughout the process we kept constantly in touch via our meetings and a WhatsApp group chat so that if anyone got stuck they could very easily get help, it also allowed us to constantly monitor each other's progress and give each other feedback on work.

Group Member	Major Tasks	Additional Contributions
Thomas Bestwick	- Definition of project Objectives and functionality. - Project Risk Assessment. - Evaluation Design. - Add new recipes implementation.	Meeting Minutes.
Sami Idreesi	- Gantt Chart. - Data Dictionary. - SQL Queries. - Class Diagrams. - Database Work. - Follow Diagrams. - Login and registration.	- Sent everyone and android studio guide and helped get everyone started. - Compiling all the sections of the app together and with the database.
Adam Mazur	- System Boundary Diagram, User views. - Use-Case Diagrams. - Pseudo Code. - Search for recipes Implementation.	
Saqab Mohammad	- System Boundary Diagram, User views. - Interaction Chart. - Interface Design. - Pseudo Code. - Virtual Fridge Implementation.	Compilation of Design Report.

Vlad Septelici	• Initial App Design. • Interface Design. • Navigation Structure. • Initial Android Studio Implementation. • Settings Implementation.	
Aman Tukhar	• Research and bibliography. • Summary of Proposal. • Objects to be used. • Class Diagrams. • Transaction Matrix. • Use Case Diagrams. • Shopping List Implementation. • App Walkthrough video.	• Compilation of everyone's Requirements work.

Project Evaluation

During the process of writing the requirements and design we have introduced to our system several concepts which to some extend have been implemented in the presented version of our app.

However, as one can expect either implementation of those functions or lack of it led to crystal clear depiction of strengths and weaknesses of this app.

Project Evaluation – Strengths

Firstly, app represents few key strengths in form of implemented concepts. For example, things such as recipe search, virtual fridge, or clear and easy navigation allow people to easily manage their meals as well as food. Moreover, users can search for a recipe or a personality by easily just inputting their name into the search box. Thus, allowing users to easily look up for a recipe and to indirectly diversify their diet through learning new recipes.

Furthermore, implementation of the virtual fridge, which is easily accessible, allows users to keep track of their food items as well as of their shopping list. Both of those concepts could not be presented as strengths without clear and easy navigation which is a key component in many of today's apps. In consequence, those features can be portrayed as strengths due to their ability of improving the service of managing people's meals and food items.

Secondly, app possesses a lot of social features which are one of the main aspects of the system. Things such as top recipes and top users allow for the customers to be engaged with the app while ability of a user to "like" is another widely used form of social interaction in other social media platforms. Moreover, we consider those social aspect of the app as a key strength due to increased engagement of the user due to possible interactions with other people.

Project Evaluation – Weaknesses

On the other hand, there are still lacking concepts which has not been implemented and relate to the previously mentioned features. For the recipe search there is not available search by ingredients which together with virtual fridge's function of looking for recipes based on items stored in the fridge makes it a huge inconvenience.

Furthermore, selecting the item from the list of searched items is not possible as well as list that suggests the name of the search items. In consequence, we consider such faults to be the weaknesses of both recipe search and virtual fridge

Also, there are some problems which weakens the social interaction in the app. Firstly, users cannot create and share their recipes. This has been present in the requirements together with the division of the users to normal and pro ones. Both are not implemented in the system.

In addition, the "like" button functionality does not work properly by not saving the liked recipes. In addition, the feature of displaying your liked recipes is also non-existent. Thus, one can easily see that the social aspect is not fully implemented into the app, making it a substantial weakness of the system.

Project Evaluation – Overall

Overall, the system presented has its own fair share of strengths and weaknesses which portray app's good and bad functionalities or even lack of them.

In our opinion all the presented weaknesses should be eradicated in the future by implementing the lacking functionalities or further debugging the existing problems. The strengths present should display the way we should implement features in the future.

Project Relation to BCS Code of Practice and Conduct

1. **Public interest**

The app is mode for everyone who is interested in cooking and searching online for recipes. The app was designed to make sure that everyone can become a standard user without discrimination on the grounds of sex, sexual orientation, marital status, nationality, colour, race, ethnic origin, religion, age or disability, or of any other condition or requirement.

The users can become a pro user, allowing them to post their own recipes. User's privacy is protected into accounts by not showing their email address visible and, for security reasons, the user needs to login with a unique username and a chosen password.

2. **Professional Competence and Integrity**

The app was developed by a group of 6 computer Science students. Each member of the group used the skills that he is good at to contribute to the development of the project. During the development, each member had to learn new skills to develop the app, for instance using Android Studio. As a group, each member discussed what they are good at and not claiming any level of competence that they do not possess.

The requirements of the app development have been assigned to each member having the relevant skills for the tasks with the respect of the other members, who would occasionally give honest criticism of work. Each member also valued and respected the other members who would have a different opinion or alternative viewport of the work.

3. **Duty to Relevant Authority**

Each member of the group took responsibility to finish all tasks that they have been assigned to. Each task has been carried while maintaining discretion and ethical standards. The app is designed such that personal data of all users will not be used to gain personal or to benefit a third-party software.

The information about the product or the performance of the product have not been misrepresented in any way that may take advantage of the lack of relevant knowledge or inexperience of the other members of the group or any user.

4. **Duty to the Profession**

Each member of the group accepted personal duty into carrying the work for the project and did not take any action that may cause the project to become corrupted or have malicious software installed.

Each member sought to improve his personal standards by participating into the development of the project and respected the professional relationships and work of all other members of the group. Each member of the group encouraged all other members in their professional development during the work for the project.

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