

College of Science and Technology

School of Science and Technology

**Mobile App Proposal – Personal Chef and nutritional management**

**ITEC31041: Mobile application development**

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Table of Contents

[1. Executive summary 3](#_Toc87672357)

[2. Usability, Requirements, and guidelines 4](#_Toc87672358)

[3. Constraints & considerations of wider system 6](#_Toc87672359)

[4. Proposed Idea & Impact 7](#_Toc87672360)

[5. App Features 9](#_Toc87672361)

[6. Evaluation of paper prototype (2 user testing) 10](#_Toc87672362)

[7. Appendices: 11](#_Toc87672363)

[8. References 20](#_Toc87672364)

## Executive summary

We present the app proposal, personal chef, and nutritional manager that will support consumers who are struggling to keep track or maintain a consistent nutritional diet. This opens the opportunity for consumers to have a more efficient and effective management of their diets with additional benefits that will be further discussed in the following document along with the necessary information as to why the app has potential in the market.

With the large number of nutritional apps being available to the public, they all will share the same features and characteristics. This makes them generic and makes it difficult for consumers to continue using the app for longer periods of time. Due to this, it opens the opportunity for developing an app that will be able to focus the individual consumer group. Furthermore, it is noted that, “Diet and PA apps of the future can be further strengthened by being tailored to meet personal needs” (Qing, 2016) because the consumers, the younger age range in particular, felt that the apps were “sometimes time consuming” (Qing, 2016).

We plan to address this issue by designing the apps that will be adaptable to the user so that the apps do not feel time consuming and are entertaining enough to be used for longer periods of time. This means that the app will allow the user to explore the app options by changing the colour, the amount of information displayed and specify the dashboards they want to use before the app starts its main sequence of activities. In addition to this, the application will have a set of features for a smaller range of user, that being the dietitians and athletes that take their diets very seriously. This concept of allowing different type of users utilise the application to their needs makes it more flexible.

As a student, the costs and time management of the project will be limited, meaning that the app will have limitations. The time management may have conflicts with external deadlines, therefore, there will be strict deadlines that will have to be met.

## Usability, Requirements, and guidelines

Usability:

The project intends to make the application accessible for everyone regardless of how they interact with the device. This means that the application will be accessible to common disabilities such as hearing impairments, motor impairments, cognitive disabilities, and visual impairment. WHO states, “there are over 1 billion people who have or experience a disability” (WHO, 2021), suggesting that 1 in 7 users will have a disability, therefore, to ensure that application will uphold the accessibility requirements, it will implement accessibility features corresponding to each disability.

The accessibility features will be addressing the disabilities with the following features:

Disability: hearing impairment

Feature: The application will display text and can include a feature for text to sound. If the user has hearing problems, it should not affect them since they would not be missing out on information through sound as all the information will be shown as text anyway.

Disability: Motor impairments (temporary or permanent)

Solution: Implementing a feature that will allow directional controllers such as D-pads or trackball as well as a gesture navigation will allow for easier navigation through the app.

Disability: Cognitive disabilities

Solution: The application UI will be designed to be easily understood such that navigation should be obvious to the eye.

Disability: visual impairment + colour blindness

Solution: The application will have a google feature “talkback” that will use sound to communicate with the user. The user will press down on the device and the application will convert the text to sound that the user has pressed down on. This also brings the need for hierarchy structures to ensure that the user does not have to deal with further inconveniences. This will be discussed shortly in the document. Furthermore, colour-blindness will be addressed by a colour-blind mode that will adjust the colours and saturation to the user’s disability.

Visual hierarchy:

To further accommodate the user needs, a visual hierarchy will be critical. This is because if a user has a visual impairment and used a “talkback” feature, the user is likely to hold top-down on their mobile device to listen to the text, meaning that if the hierarchy is not in a top-down structure, the user will be confused. Additionally having an appropriate hierarchy makes it easier for everyday users too.

Furthermore, the target audience will vary from each user, so it will be necessary to adhere to a design that will not impede on the mature target audience experience while also not overwhelming the younger target audience. For this to be possible, the design must be both informative and simple at the same time with an additional button or activity for mature users to be able to navigate to, such as a “advanced view”. This would allow both users to control the information displayed to whatever they need.

Overall, the application will apply many more accessibility features such as typography structure and layout designs for easy and fluid navigation and understanding of the UI. In addition to this, all the accessibility features targeting the disabilities will be prioritised as it is a moral imperative.

Guidelines:

BCs Code of conduct:

The application will be aiming to adhere to all the BCs code of conducts where possible to ensure an ethical and legal uncertainties are cleared up as well as maintaining the integrity of the project.

Android Best practises:

In addition to the previous point, the development of the app will be adhering to the practises that are exercised by android developers. These are ensuring that the application will provide a compelling, smooth, and safe experience, ensuring that the app is built for larger screen such as tablets and finally that the app can be used by most users, meaning that the app will try to preserve battery life where possible and many more features like such.

Requirements:

The application will:

* Address some user disabilities with a corresponding accessibility feature
* Obey the BSc Code of Conduct
* Ease of Use of the application
* Exercise android developer best practises
* Allow the user to control the information displayed using a button or menu setting
* Allow the user to input information about the meals
* Use aggregated information from user to produce dashboards for user convenience and analysis
* Allow to set up customizable notifications and alarms for users
* Display daily new information on the main screen when a user uses the application

Also, it should:

* Address ALL user disabilities with a corresponding accessibility feature
* Store and save all the history of user inputs

Finally, it could:

* Use an API based source of information to source user of new information about meals and nutrition
* Have a user authentication and authorisation for a hierarchy structure to control information that a user has from the admin (refer to persona 5 in appendices)
* Have a recommendation feature based on the past inputs of information, i.e., food recommendation from previous meal inputs.

## Constraints & considerations of wider system

Due to the author being a full-time student, there will inevitable limitations to the development and design of the application. The limitations and constraints will be discussed in this section.

Limitations:

Both the user and author will be limited during the development and deployment of the application. The limitations will consist of, limited features, maintenance limitations, user support service limitation, OS specific and growth of application.

While the main features of the app will be developed and deployed, there will be some that may not be possible to develop within the timeframe given. This will impede the users experience as it may be that the user desires such features. The features that are likely to be included and those that will not are lists in the requirements section above.

Since the author will have to attend to other deadlines, it will not be possible to maintain a consistent maintenance of the application from the launch date, meaning that there will be little to no support on the application unless there will be more team members on the application life cycle.

The users will be impacted greatly with the lack of support service for the application as the application will not have several life cycles, meaning that once its deployed there is a low chance of updates occurring. This will affect the effectiveness of the application as updates will not be performed from user feedback as well as no real-time service to help user with the app. Fundamentally, this is due to the lack of resources and people on the project.

Furthermore, from the previous point, the lack of resources and time will be limiting the application to only one OS, android, and as such, this will limit the number of users that could have access to the application. This would also reduce the effectiveness of exercising the best practises for android developers.

The final limitation would be the growth of the application. Over time, the application will be more known and used, but with no people maintaining and updating the app, the growth will inevitably stop after some time.

Constraints:

The obvious constraints that are mentioned before, are the following: time, resources and the number of people working on the application.

In addition to theses constraints, there are others that need to be addressed for the growth and life of the application.

One of the constraints are monetization of the application. There are many apps that utilise monetization for funding the growth of the apps as well as getting offers to promote other apps or products. The revenue from the monetization allows for further development of the application, however, due to the app being relatively new, the user activity will be low in numbers and as such, the revenue will be lower. This can be overcome by a larger number of user activity but that will be dependent on the success and growth of the app. Additionally, if the app does use monetisation, some users will be against it and not use the app at all since most apps monetise and can be aggravating if they just want to use the application advert-free. Furthermore, there can be a solution to this, by having a premium account for users to avoid the adverts, however, this would bring the issue of the users’ complaints on having to pay to not see adverts. This issue can be resolved by having additional features that will make up for paying the premium fee and make it feel as if it is worth the user’s money.

## Proposed Idea & Impact

The proposed application will have a variety of features that are designed to address the issue with current personal diet applications. To reiterate the issue, the current personal diet apps are too generic and are not tailored for the appropriate target audience, making it tedious for users to use the app over a longer period. The balance between the target audiences is too great for generic personal diet applications.

As such, the proposed application will have features that are more appropriate to specific target audiences, such as students and people in the fitness industry. This will be achieved by receiving user data from a series of questions and determine what category they fall in for the application. The features are only visible to the specific user when they choose the category that they fall in before the main sequence of the application begins. To determine the category that a user may fall in, simple questions, without impeding on the user’s personal information too much, will be prompted to the user. Once the user has completed the questions, the application will display data accordingly to the user category.

The number of target audiences will be limited and are generalised as further development and research will be required to have a feature developed for all categories.

The general target audiences will be of the following, student (hight school and university), athletes (fitness industry and performance based) and hospital based (patient-client relationship). The target audience features for the hospital-based users are within the wider scope of the application as it is not publicly available and a rather niche area in the market due to the rarity of it.

Furthermore, the application will have its typical features as the name of the application suggests:

* Keeping track of the food that the user has input
* Displaying a table for the user to review the food
* Information displayed to user to help with diets and guides for nutrition etc.
* Customizable notifications and notes to plan your own diet/meals
* Suggested meal plans displayed

The typical features are a standard but are not what the application that the author is proposing. The application will deviate from the typical features such that the features are more tailored to the target audience, meaning that the features will be different and will vary in complexity depending on the user.

To further explain, the typical user of a diet application would simply log their meals every day and would be able to keep track without much else to do. Whereas the application that is proposed intents to allows more flexibility for the user by first categorising the user type and then displaying the category specific features for that user. An example of this feature can be a feature for a category type user “student”. The feature will have notifications about simple and prospectively interesting information, such as “how many litres of water does a human have?”. Another example would target a category type “Athlete” where the features would be more complex.

Overall, the general purpose of the application will be to maintain the generic features and usage of a personal diet application while also adapting and implement additional features that would create a more immersive experience to allow for more beneficial gains.

## App Features

General features:

The general features will be the features that most users will use and the typical features you would expect from a personal diet application.

|  |  |
| --- | --- |
| **feature** | **Outcome** |
| Prompt user input and allocate the input data to the corresponding place holder | From the input of the user, the application will put the data into a table or list, making is available for display for the user with the corresponding time and data for easier tracking |
| Customizable notifications and alarm | Option for user to create their own alarm or notification with the contents they need to be reminded. The alarm and notification will be different as alarms will have higher priority than the other. |

Target audience:

Students (University or older):

|  |  |
| --- | --- |
| **feature** | **Outcome** |
| API based information retrieval for users to explore about diets and food | Application displays information from a reliable source via an API like, such as the NHS API. The information will be displayed in a small section with the option to get more details. |

Athletes (Fitness industry):

|  |  |
| --- | --- |
| **feature** | **Outcome** |
| Aggregation of information from input diets and planned diets to form an informative dashboard | Dashboard displays information from user input. Pie charts and progression bars can be included. This allows the user to view the information more easily as it will be displayed in a visual representation |

Athletes (Performance based):

|  |  |
| --- | --- |
| **feature** | **Outcome** |
| Aggregation of information from input diets and planned diets to form an informative dashboard | Dashboard displays information from user input. Pie charts and progression bars can be included. This allows the user to view the information more easily as it will be displayed in a visual representation |
| Backtrack history of meals and plans | User can view the history of meals that have been logged, allowing for sort by date and other attributes. |

Hospital (monitoring patients):

|  |  |
| --- | --- |
| **feature** | **Outcome** |
| Authorisation of admin and client | Application has a login for doctor and patient, where doctor controls and monitors the patient’s meal input. |
| Dashboard of client % intakes | Easy to understand visual representations are displayed like pie charts for user to view. |

## Evaluation of paper prototype (2 user testing)

Peter Lampard N0862625

Likes:

* Visual hierarchy
* Font ratio
* Navigation

Improvements:

* More usability features for users, although it was stated that it will be limited and constrained
* More authentic UI design for the alarm and notification sequence

Rating (out of 10): 8

Aras butrimanskas N0844425

Likes:

* Introductory sequence
* Interactive
* icons

Improvements:

* Better UI for Alarms and notifications

Rating (out of 10): 7

## Appendices:

#### Personas

|  |  |
| --- | --- |
| Sketch & Name  Name: Julia  Age: 16  \*sketch\* | Behavioural Demographic information   * high school student * likes K-pop music and animals * dislikes bullies and coffee * Located in Nottingham |
| Requirements:   * Simple reminders for getting enough nutrients and vitamins for healthy growth * No burdensome responsibilities and reminders from apps. * Fun interaction with device and apps for entertainment | Potential solutions   * Setting fun and interactive notifications to remind user of food intake. * Making sure that the app doesn’t notify more than twice a day * Fun pop ups and small informative games are prompted (i.e., how much water is in a human body) |

|  |  |
| --- | --- |
| Sketch & Name  Name: David  Age: 20  \*sketch\* | Behavioural Demographic information   * University student and part time worker * Likes exercising and music * Dislikes greasy food * Located in East Midlands |
| Requirements (needs)   * Adjustable alarms/notifications for when a meal is required or when to take vitamins and supplements * Reminders for drinking water and making sure to eat healthy * More in depth details of meals and vitamin importance * Freedom to adjust app to their needs like information and alarms | Potential solutions   * Creating an alarm and notification feature that can be customized by user to input their reminder and the time to be reminded. * Setting up automatic reminders for the user at time intervals they can choose * More detailed and in-depth detail for the user to explore and research |

|  |  |
| --- | --- |
| Sketch & Name  Name: Dave  Age: 23  \*sketch\* | Behavioural Demographic information   * Fitness model * Likes to go on stage and have cheat meals * Dislikes when he is not in shape * Located in Birmingham |
| Requirements (needs)   * Notifications and reminders on when the user must eat as well include the meals that they need to eat to maintain weight etc. * Each meal plan visible to user on the application to manage and adjust | Potential solutions   * Alarm and notification feature that is customizable by the user. * Include informative diagrams and tables of the foods that the users eat. * Potentially include a diagram of the nutrients and vitamins that are consumed according to the meal to inform the user. |

|  |  |
| --- | --- |
| Sketch & Name  Name: John  Age: 28  \*sketch\* | Behavioural Demographic information   * Sprinter on the Olympic team * Likes to run and eat chocolate * Dislikes fish and tea * Located in London |
| Requirements (needs)   * Detailed table of the foods that the user intakes and a % of nutrients that are being consumed from the meals * Track the foods consumed so that it can be reviewed by trainer etc. | Potential solutions   * Produce a detailed dashboard with the aggregated inputs * Implement a feature that allows the user to look back 1 year or more in the history to get an analysed table of the consumed foods. |

|  |  |
| --- | --- |
| Sketch & Name  Name: Mia  Age: 41  \*sketch\* | Behavioural Demographic information   * Dermatologist * Likes peaceful times and cats * Dislikes dogs and rain * Located in London |
| Requirements (needs)   * App to track the foods a patient consumes * An app that can set limits to the foods a patient can consume * Dashboard of the nutrients a patient has consumed to determine the cause of patient issues. | Potential solutions   * Implement a feature where there is an admin user and a normal user. Allow the admin to set limits to variables such as food intake and suggest meals to normal user * Creating a dashboard to show the % a patient should consume |

#### Paper prototype before user testing

Graphical user interface, table

Description automatically generatedLaunch sequence

Graphical user interface

Description automatically generated with medium confidence

Student Sequence

Graphical user interface

Description automatically generated

Graphical user interface, application

Description automatically generated

Chart

Description automatically generated with medium confidenceAthlete Sequence

#### Paper prototype after (MVP) user testing

Graphical user interface, table

Description automatically generatedGraphical user interface

Description automatically generated with medium confidence

Launch Sequence

Student sequenceGraphical user interface

Description automatically generated

Graphical user interface, application

Description automatically generated

Athlete sequence

Chart

Description automatically generated with medium confidence

## References

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