Designing information systems for people CII2345

Assignment 2

Deadline – Friday March 22 23.59 hrs 2019

Maximum 2000 words (appendices do not contribute to the word count)

Name: Victor Meriacri

Student number: u1768775

1. Introduction

In this assignment I developed Lifeline application prototype. I used the pre-defined user requirements, task flow diagrams and wireframes to produce a high-fidelity prototype, which has been repeatedly tested by users I selected for this task. By iterating the design and develop phase I managed to fix many usability problems, as well as implementing a better design that meets the defined user requirements. User testing helped me not only to improve the navigation system, but also to implement a new design feature, as well as to make sure all of the user requirements are met in the prototype design.

2. Conceptual Model

Lifeline application is intended to help people with managing their time, money, activities and life style. The app creates an impression of a reliable friend, that can help you anywhere, at any time. It can share information, give advice, help with planning activities and keep its user healthy. Lifeline doesn't dictate, but it makes users want to follow it. To create a friendly atmosphere within the application, I have used vector images rather than raster images, in this way users can feel more relaxed and detached from real world while using the application. It creates an atmosphere of a cartoon, where everything is simple and doesn't require any deep intellectual work to understand the meaning and actions flow. Lifeline's design is aimed to be understood by people of different age categories, I did my best to keep the design simple and user-friendly. What is more, I focused a lot on navigation system, I've added friendly tips that intend to pop-up every specific amount of time, helping users to get used to application faster.

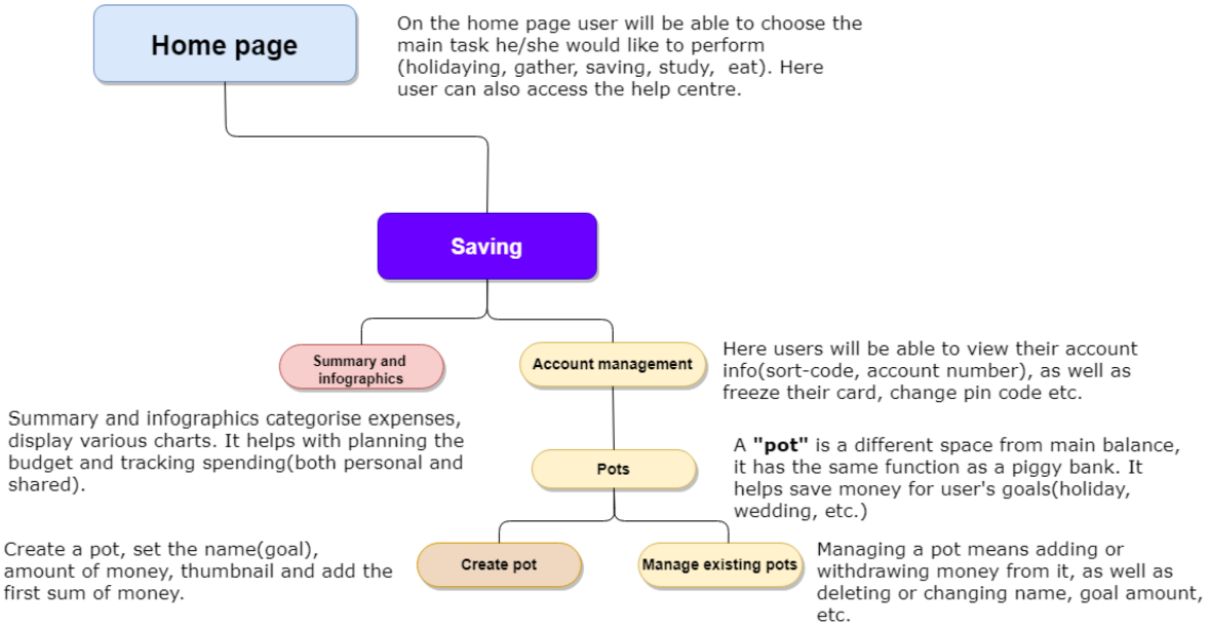
As a true friend, Lifeline makes users feel comforted while using it, Lifeline provides support not only in carrying out users' personal needs, but help users to "get along" with the application itself (navigation tips & friendly help center).

3. Paper prototyping

Before starting the actual Lifeline app prototyping, I did a deep analysis of the sitemap, task flow diagrams and the wireframes I've designed before. It helped me to understand that one of the best option is the **high-fidelity** prototyping, which I firmly chose. This type of prototyping has several big advantages when it comes to user testing, as the high-fidelity prototype looks more like the final product than a low fidelity version, users can carry out their tests more effectively. Most of the users that test my application are using their phones on daily basis, it became a common thing for them to download and run new applications. When providing them with a high-fidelity prototype they were thinking of it as a real application, which sometimes may be dangerous, but not in my case.

Using Marvelapp, I have developed the prototypes based on user requirements, wireframes and the task flow diagrams. I chose the "**vertical**" prototyping compromise and developed prototypes for three task flows (creating and managing pots, ordering food), providing a good amount of details.

First task flow prototype is related to users that are interested in saving money for their further goals, based on user requirements the app should be able to create separate spaces(pots) for users' finances, providing them with ability of naming the pot, adding description, setting the goal amount.



On the home page user will be able to choose the main task he/she would like to perform (holidaying, gather, saving, study, eat). Here user can also access the help centre.

Here users will be able to view their account info(sort-code, account number), as well as freeze their card, change pin code etc.

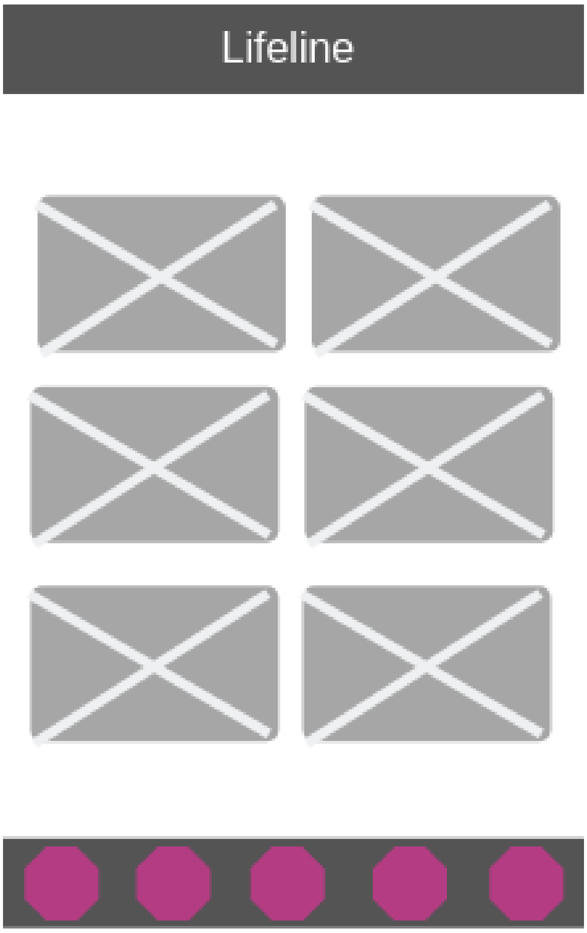
Summary and infographics categorise expenses, display various charts. It helps with planning the budget and tracking spending(both personal and shared).

A **"pot"** is a different space from main balance, it has the same function as a piggy bank. It helps save money for user's goals(holiday, wedding, etc.)

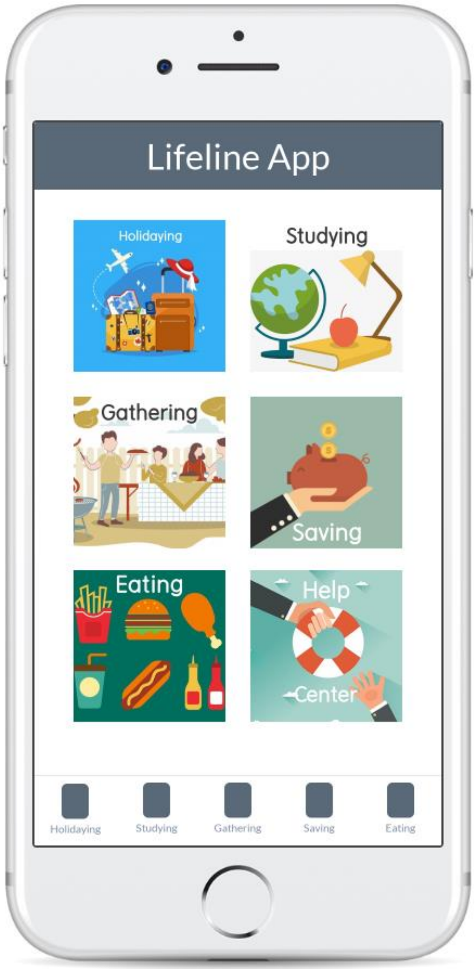
Create a pot, set the name(goal), amount of money, thumbnail and add the first sum of money.

Managing a pot means adding or withdrawing money from it, as well as deleting or changing name, goal amount, etc.

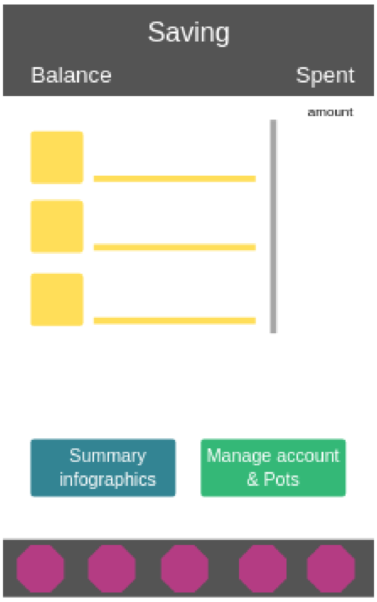
For this task flow diagram in particular, I used predesigned wireframes and user requirements to help me developing the prototypes. The provided bellow prototypes screen shots show the **transformation** from **wireframes** to Lifeline **prototype** pages.



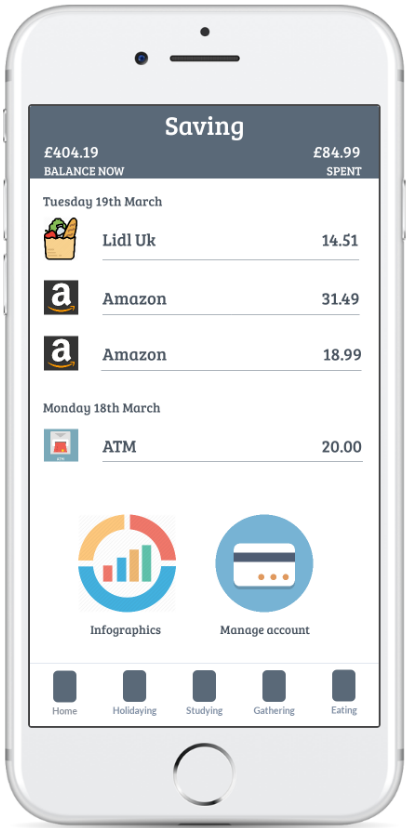
Wireframe1 – Homepage



Prototype Homepage



Wireframe 2 – Saving



£404.19 BALANCE NOW
£84.99 SPENT

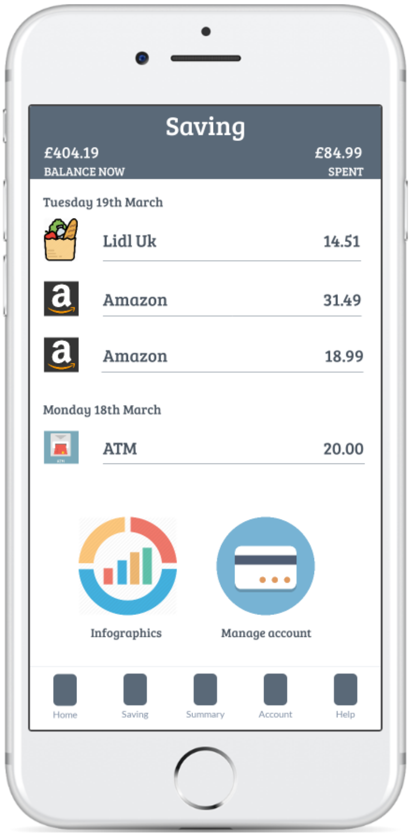
Tuesday 19th March

Lidl Uk	14.51
Amazon	31.49
Amazon	18.99

Monday 18th March

ATM	20.00

Prototype “Saving” v1



£404.19 BALANCE NOW
£84.99 SPENT

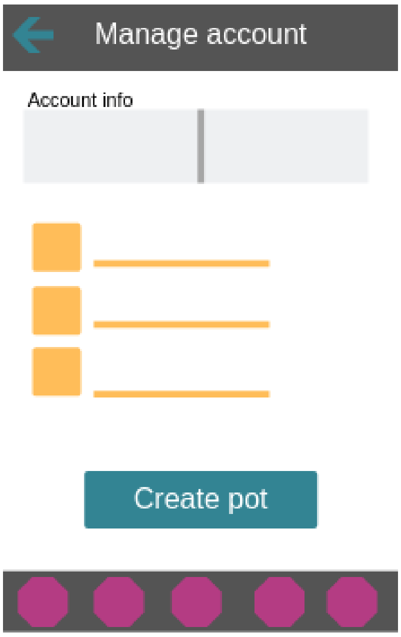
Tuesday 19th March

Lidl Uk	14.51
Amazon	31.49
Amazon	18.99

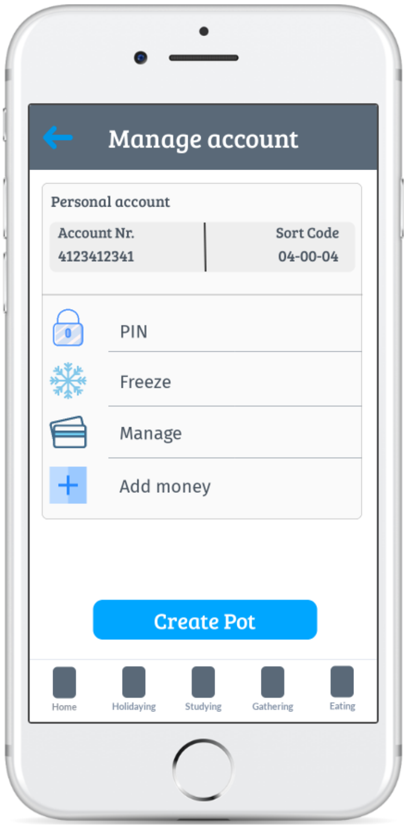
Monday 18th March

ATM	20.00

Prototype “Saving” v2



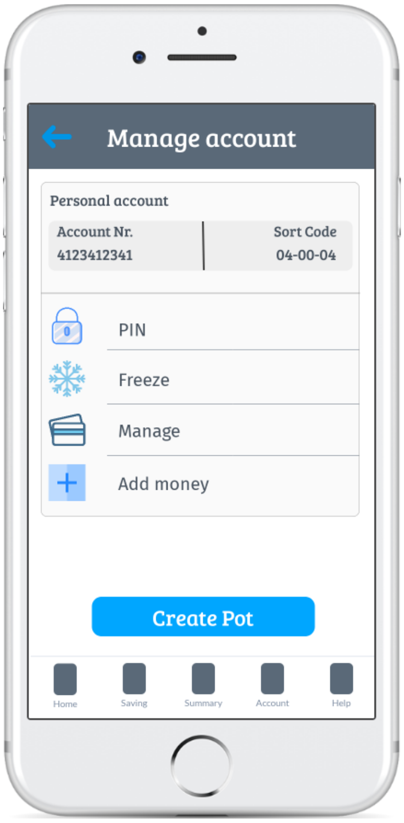
WF 3 – Manage account



Personal account

Account Nr.	Sort Code
4123412341	04-00-04

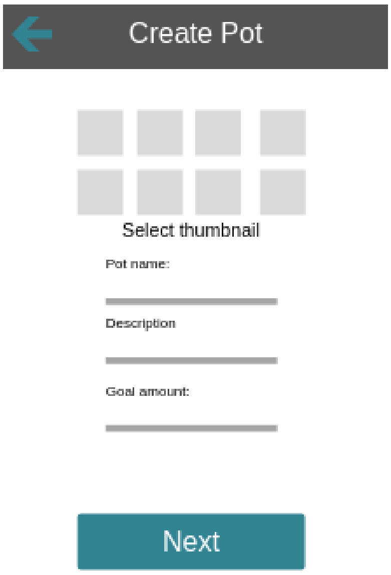
Prototype “Manage account” v1



Personal account

Account Nr.	Sort Code
4123412341	04-00-04

Prototype “Manage account” v2



Create Pot

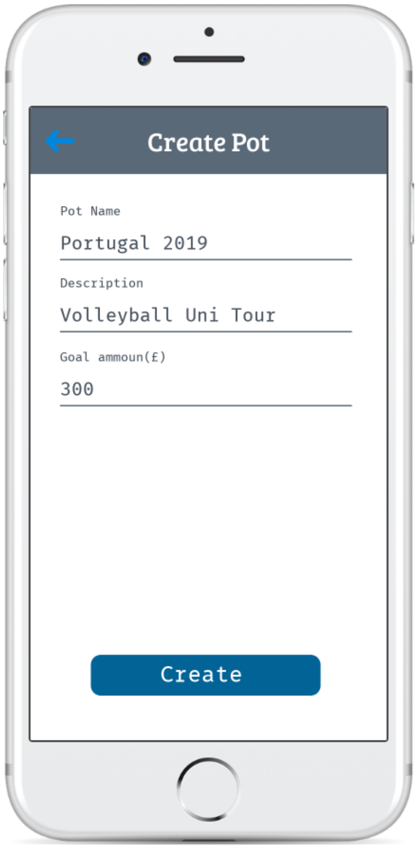
Select thumbnail

Pot name:

Description

Goal amount:

Wireframe 4 – Create Pot



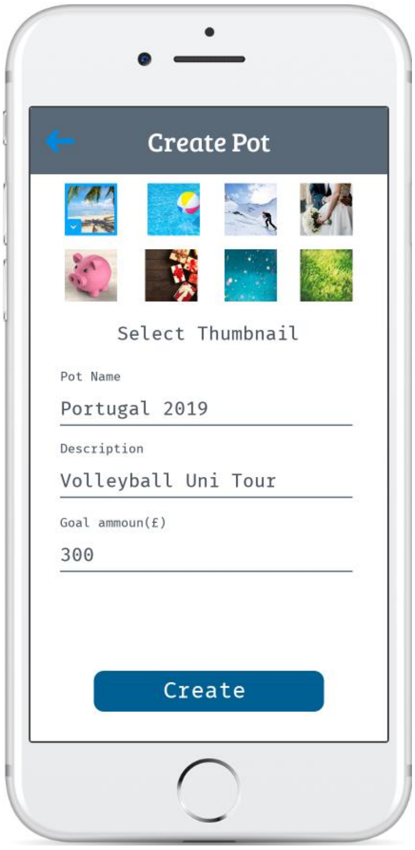
Create Pot

Pot Name
Portugal 2019

Description
Volleyball Uni Tour

Goal ammoun(£)
300

Prototype "Create Pot" v1



Create Pot

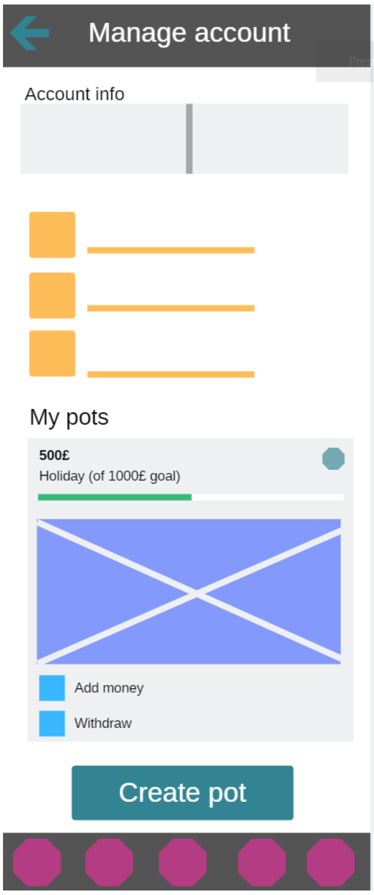
Select Thumbnail

Pot Name
Portugal 2019

Description
Volleyball Uni Tour

Goal ammoun(£)
300

Prototype "Create Pot" v2



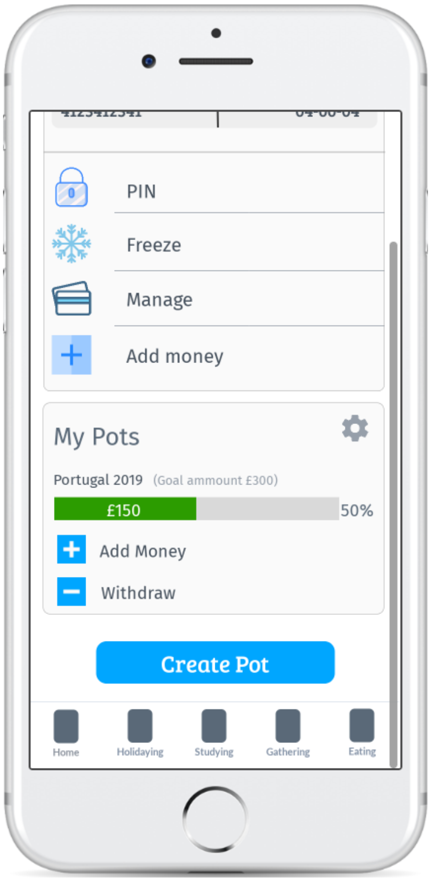
Manage account

Account info

My pots

500£
Holiday (of 1000£ goal)

Wireframe4 – View & manage pots

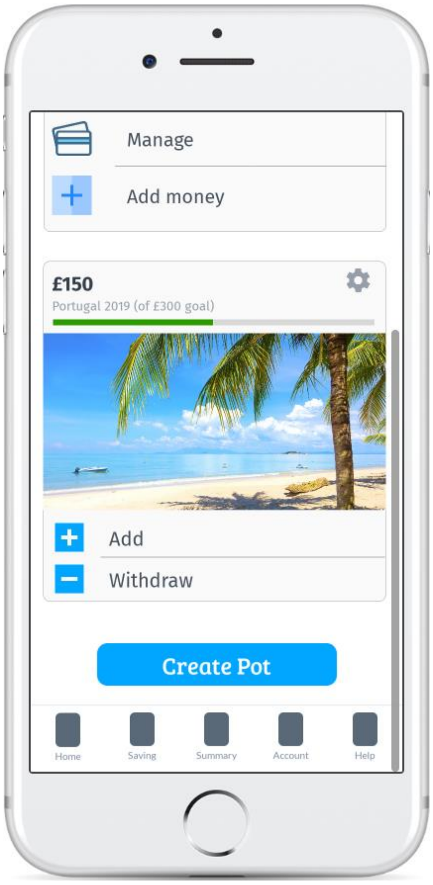


My Pots

Portugal 2019 (Goal ammount £300)

£150 50%

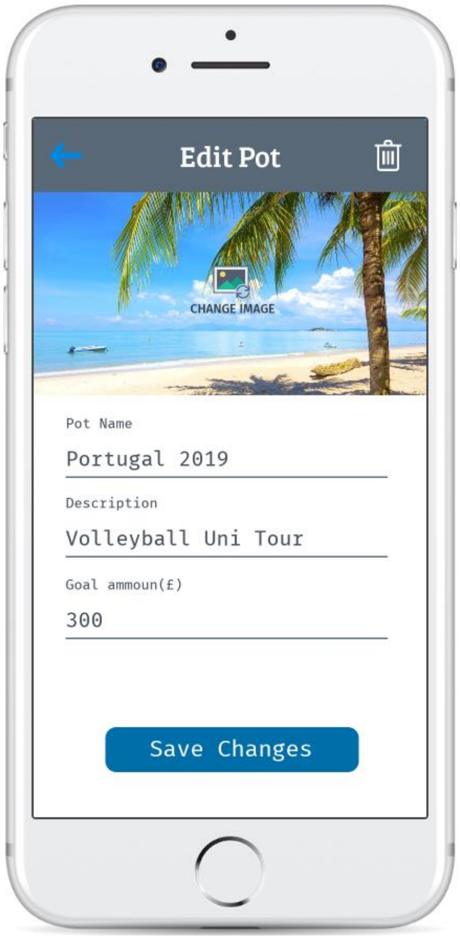
Prototype "View & manage pots" v1



£150
Portugal 2019 (of £300 goal)

Prototype "View & manage pots" v2

Second task flow is editing the pot, according to user requirements, Lifeline should allow users to edit their pots details. Prototype provided:



Pot Name
Portugal 2019

Description
Volleyball Uni Tour

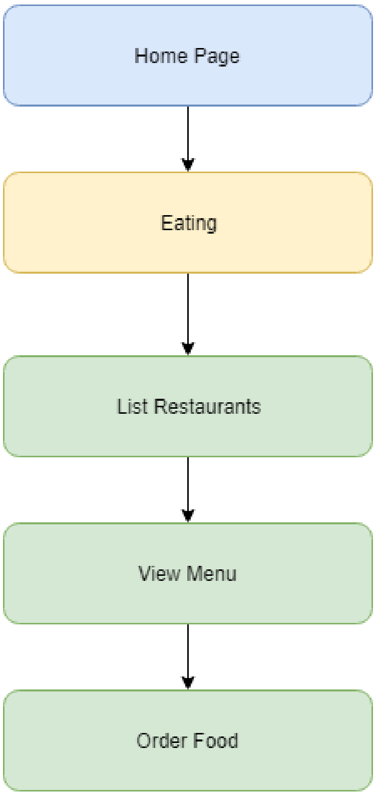
Goal ammoun(£)
300

Lifeline prototype “Edit Pot” final version

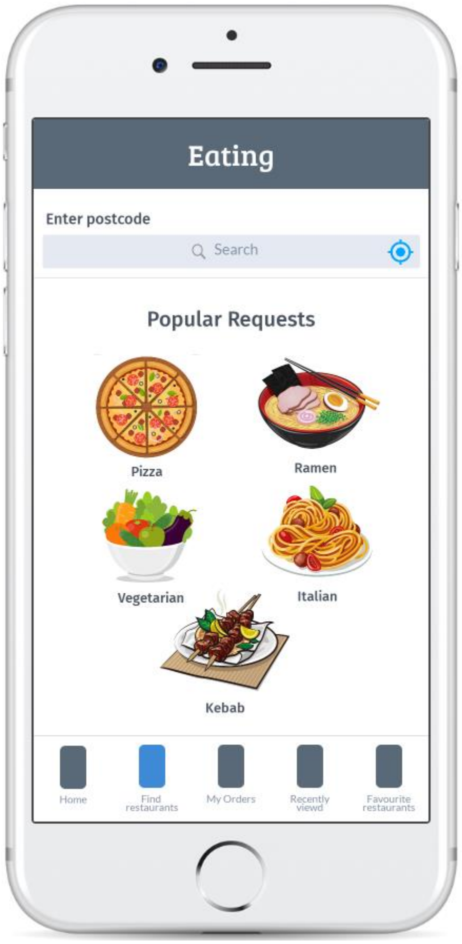
Third task flow is ordering the food, here we have the following user requirements:

- The main searching screen should display categories of food (burgers, wraps, pizza etc.)
- Each restaurant menu should categorize their meals
- System should display the number of calories of each product and calculate the total amount of calories for user’s order
- Every meal should display the ingredients it’s made of.

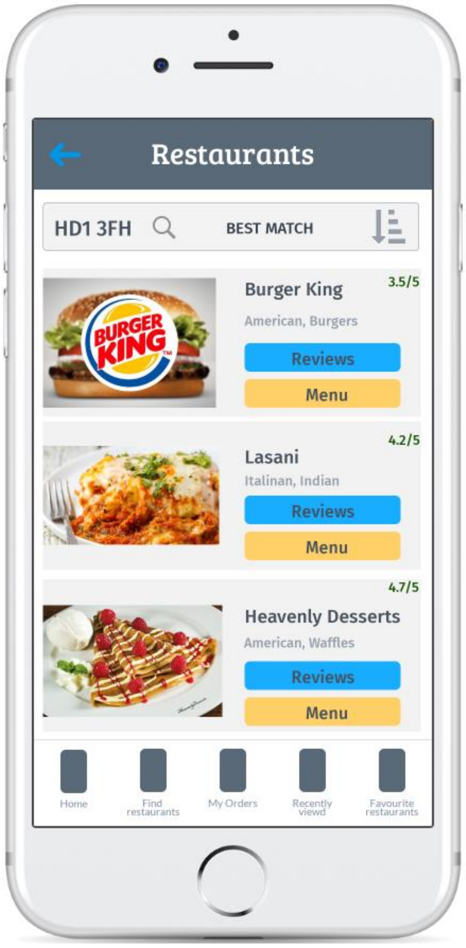
When prototyping Lifeline application, I’ve tried to implement every user requirement, because this decides rather the application is going to be used or not. User requirements represent the audience for whom I am developing the application. Users are the most important part in every development process.



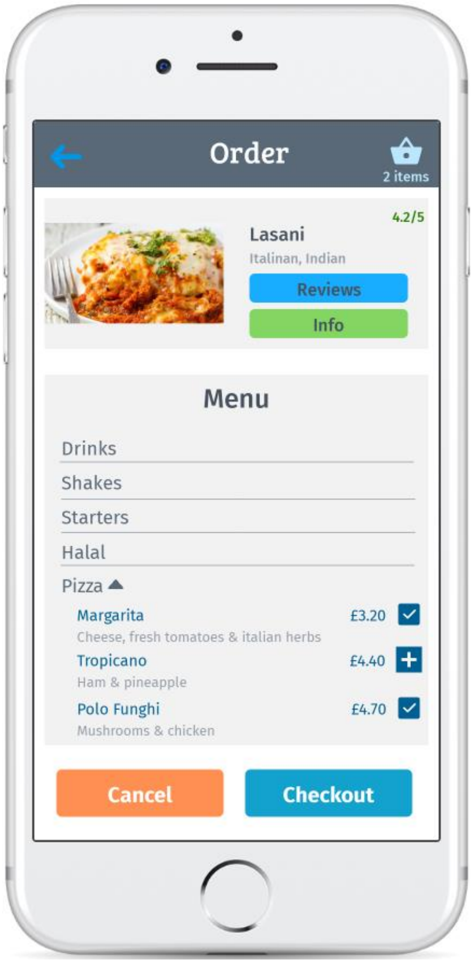
Ordering food task flow diagram



Lifeline Prototype “Eating”



Lifeline Prototype “Restaurants”



Order

2 items

Lasani

4.2/5

Italinan, Indian

Reviews

Info

Menu

Drinks

Shakes

Starters

Halal

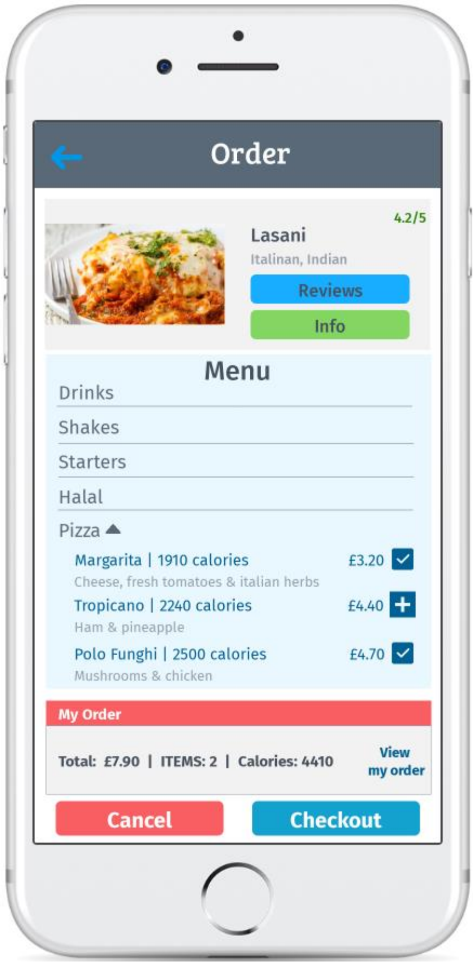
Pizza ▲

Margarita Cheese, fresh tomatoes & italian herbs	£3.20	☑
Tropicano Ham & pineapple	£4.40	+
Polo Funghi Mushrooms & chicken	£4.70	☑

Cancel

Checkout

Lifeline Prototype “Order Food” v1



Order

Lasani

4.2/5

Italinan, Indian

Reviews

Info

Menu

Drinks

Shakes

Starters

Halal

Pizza ▲

Margarita | 1910 calories Cheese, fresh tomatoes & italian herbs	£3.20	☑
Tropicano | 2240 calories Ham & pineapple	£4.40	+
Polo Funghi | 2500 calories Mushrooms & chicken	£4.70	☑

My Order

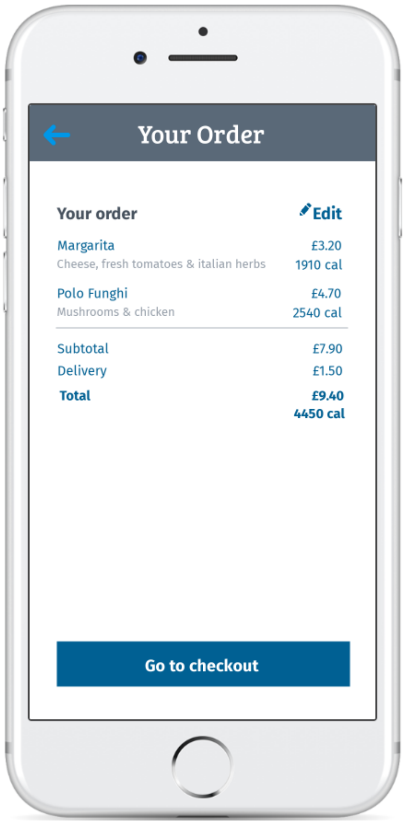
Total: £7.90 | ITEMS: 2 | Calories: 4410

View my order

Cancel

Checkout

Lifeline Prototype “Order Food” v2



Your Order

Your order

Edit

Margarita Cheese, fresh tomatoes & italian herbs	£3.20 1910 cal
Polo Funghi Mushrooms & chicken	£4.70 2540 cal
Subtotal	£7.90
Delivery	£1.50
Total	**£9.40** **4450 cal**

Go to checkout

Lifeline Prototype “Your Order”

The above presented prototypes are both first versions and final versions, developed after user testing phase. Find out more about how I did come up to these solutions in sections 5 and 7.

4. User Testing Plan

My user testing phase was based on both qualitative and quantitative research, as I have developed a high-fidelity app prototype and I wanted the users to participate and observe directly the prototypes in a natural way. I needed to investigate in deep the data collection, and make very detailed specification for my product development. I used both usability and walkthrough testing methods to figure out the problems with the design and receive feedback. Using my laptop and Marvelapp, I asked users to complete specific tasks and go through the application, observing at the same time where do they encounter problems and then check and discuss different solutions to problems and different suggested alternatives. The main aim of this evaluation was to ensure any potential issues are highlighted and fixed in the final product prototype.

I've selected audience from different backgrounds and of different age, in this way the youngest selected user was my sister, who is 15 years old and studies in a middle school, and oldest user was my volleyball coach, who is 32 years old. The rest 4 users were students doing different courses. The diversity in users' interests is a huge advantage, as it provides a better feedback of the app viewed from different angles. See more in appendix**[1].**

While doing the user testing, I was trying to listen and ask, rather then answer questions. At the beginning I would always open the prototype in marvelapp and ask the subject to perform a task(e.g. order food), and observe and analyse attentively their first moves, without answering any questions. In my opinion this first use had the higher value, as it provided an insightful feedback on my navigation system. The second step was asking users to do a free "fly" through the whole application and share their thoughts, the given feedback helped with improving the usability. Lastly, I showed the list of user requirements to the subjects and ask them to evaluate Lifeline once again, focusing their attention on the user requirements satisfaction. I am intending to implement all of my key findings and make a better prototype according to the results from user testing phase and then repeat those three steps with the updated prototype. In this way I can do a better analysis over my results and see how close I am to the final product.

5. Key findings from data gathering

Study 1

Data gathered
While performing user testing I collected data responsible for effectiveness, efficiency and satisfaction. I applied both quantitative and qualitative research methods, putting down the most relevant observations on paper. I counted the tasks completed successfully and the errors committed by the user during task performance. I measured the time spent on completing a task. I then asked user to rate several aspects related to application usability, such as, how well the app solves the intended job, how efficient they think the product is, and their general satisfaction using the app. Later I gathered more detailed data, I asked users to share their thoughts and give comments related to completing a given task and related to satisfaction with prototype. I collected my own observations about the sequence of steps performed by user.

Results and analysis

Both quantitative and qualitative research methods showed that users are experiencing problems with navigation. From my own observations I figured out that 30% of users experienced dead ends while performing the “create pot” task, and about 80% of users experienced the “I lost the page” problem, in which users were jumping to irrelevant(for them) pages not being able to go back. Users were not satisfied with navigation system, as it scored only 3/10 points average. From users’ comments I figured out that the main problem with navigation system was “jumping to global section” issue with the footer navigation tabs. Based on this, I decided to fix the navigation system in the prototypes by changing the footer links to local hyperlinks inside a specific section.

Second problem that I encountered was that about 50% of users were thinking of the prototype as an actual product, that is why these users were giving me a lot of remarks about the parts of prototype in which I was not interested. Moreover, about 15% of users complained about the testing process (walkthrough, usability testing, rating, comments) being too time consuming. According to them, they had too many things to focus on. That meant for me to change the testing method, to make the testing process shorted by setting user focus on relevant things.

Review for next study

I changed two main things for the following study. First, I developed a new navigation system, now the links at the bottom of the screen are connected to pages inside the section, see appendix**[2].** Second, I changed the testing method by focusing on specific user data, such as rating of navigation system, rating of general satisfaction, user comments about the process of completing a giving task, recommendations. As some of the users complained about having too many things to focus on, I decided on providing users with user requirements, so that they can focus on testing and checking rather the application is meeting UR or not.

Study 2

Data gathered

I needed data about the new navigation system, so I asked users to rate the navigation system, and to rate their general level of satisfaction with using the application. I collected insightful data from user comments about the process of completing a giving task and recommendations.

Results and analysis

After running the first cycle of user testing where users were not provided with pre-developed user requirements, I asked them to rate and comment on navigation system. The new navigation links scored 8/10 points in average, which was a great result. 15% of users were still struggling with the navigation tabs, and recommended a system of tips designed for new users. I found this to be a great idea, as a system of tips can make the new users get familiar with the application much faster. In the second cycle, users were provided with pre-developed user requirements. From my own observation, I can tell that 80% of users became more serious and focused on testing the app than they were in the first cycle. 90% of users paid a lot of attention to details related to “Order food” and “Create pot” tasks. 70% of users pointed out that the prototype don’t meet the user requirement nr.7, see appendix**[3]**. They recommended implementing the calculating calories system in the “Order” page. Almost 100% of the users were not happy with “shopping bag” feature(displayed in the top-right corner of “Order” page), as it only displayed the number of selected items. They suggested to add the total price and the total amount of calories based on the selected items.

Finally, 20% of users founded the displaying of pots too simple, they told me that this feature is something special in Lifeline application and needs to attract people.

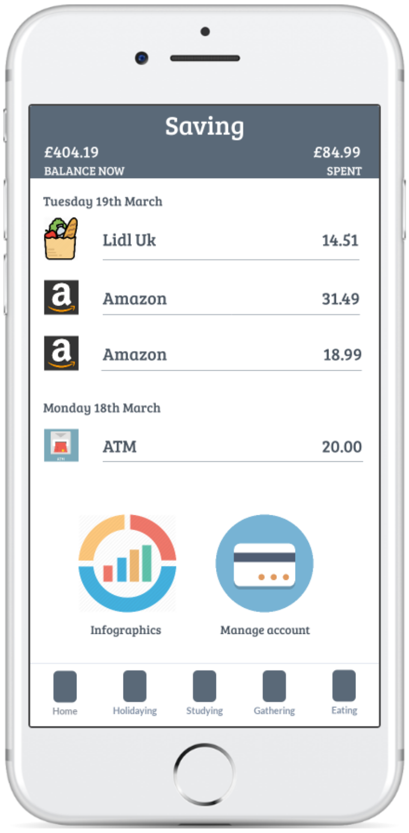
Considering all the recommendations, I changed the prototypes based on users' comments and testing results. See how did the prototypes change in section 7.

7. Conclusions from studies

Doing the iterative design and evaluation helped a lot with fixing problems related to navigation system, focusing user's attention, meeting user requirements. I obtained useful feedback that helped me to design a better product by iterating define, design and testing phases. In this section I am going to present how did the prototypes change while using this iterative developing method.

- **Navigation system**

  The bottom tabs changed their links from global to local section pages. See appendix**[2].** This change helped with fixing the dead ends and "I lost the page" issues, described in section 5, survey 1. The navigation system rate was increased from 3/10 to 8/10 according to survey 1 and 2



Saving

£404.19 BALANCE NOW | £84.99 SPENT

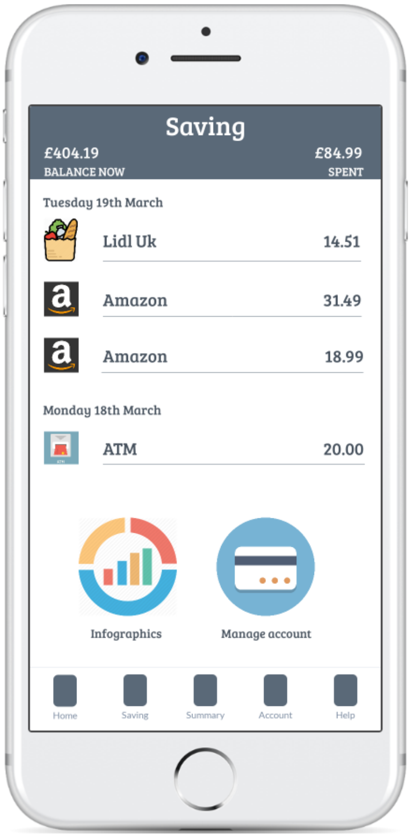
Tuesday 19th March

Lidl Uk	14.51
Amazon	31.49
Amazon	18.99

Monday 18th March

ATM	20.00

Prototype Saving section, design 1



Saving

£404.19 BALANCE NOW | £84.99 SPENT

Tuesday 19th March

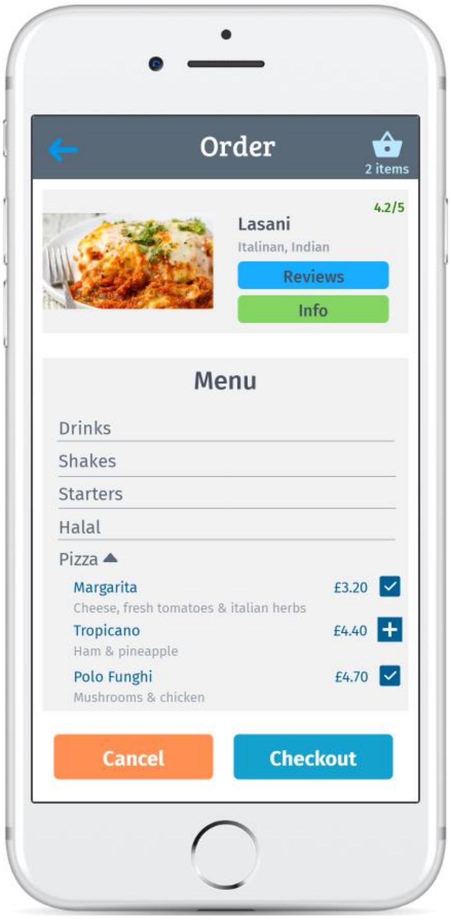
Lidl Uk	14.51
Amazon	31.49
Amazon	18.99

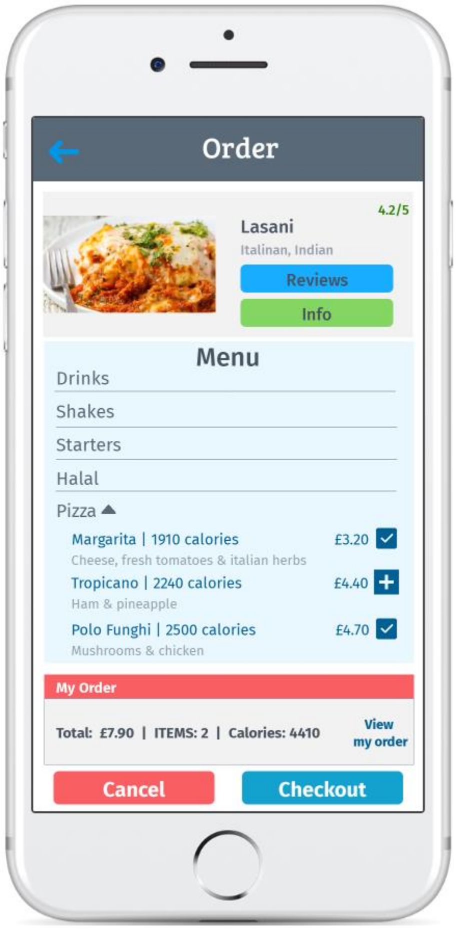
Monday 18th March

ATM	20.00

Prototype Saving section, design 2

- **Shopping bag and showing calories system**
  According to survey 2, users were unhappy with first version of shopping bag, they recommended to add total price and total amount of calories in the order preview. By doing this, I not only increased the overall satisfaction of users, but also implemented the UR nr7 **[3].** Now users can see the number of calories of each meal as well as, total price, total selected items and the total amount of calories in their order.

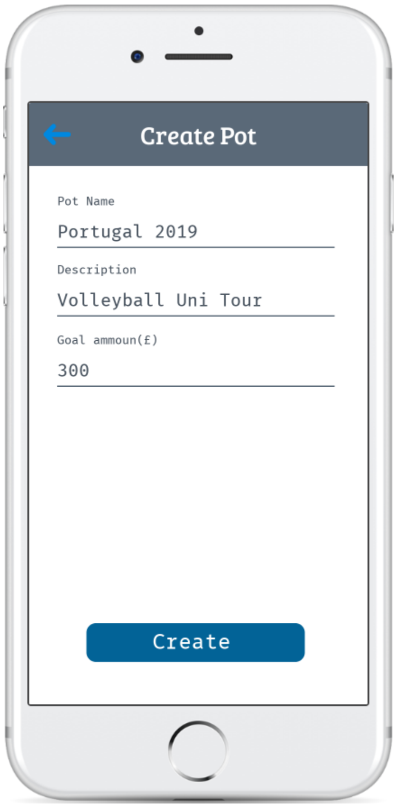




Prototype Eating section, Order page design 1

Prototype Eating section, Order page design 2

- **View, Create and Manage Pot**
  According to 20% of the users, the “pots” system is something special in Lifeline application. Their recommendations were to make it more attractive to users, so that more of them can try this unic system. Firstly, the design was not that sophisticated, therefore less users were interested in it. Now the users can add photos/thumbnails to customize their pots and watch in real time their progress (progress bar).



Create Pot

Pot Name

Portugal 2019

Description

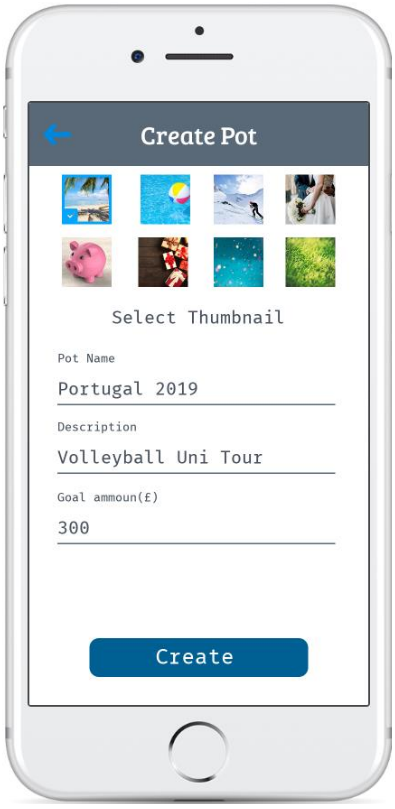
Volleyball Uni Tour

Goal ammoun(£)

300

Create

Create Pot, design 1



Create Pot

Select Thumbnail

Pot Name

Portugal 2019

Description

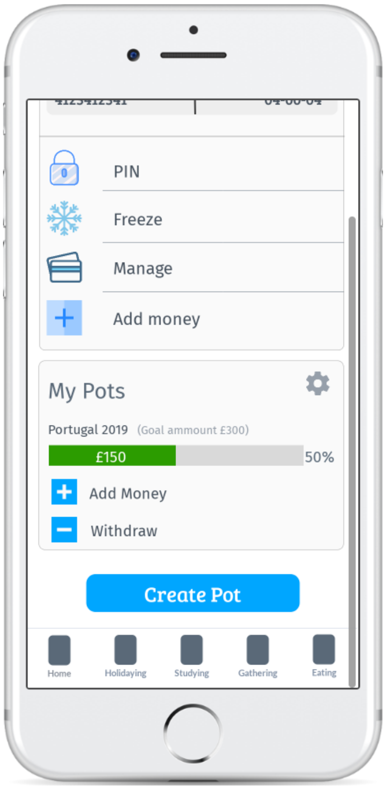
Volleyball Uni Tour

Goal ammoun(£)

300

Create

Create Pot, design 2



PIN

Freeze

Manage

Add money

My Pots

Portugal 2019 (Goal ammount £300)

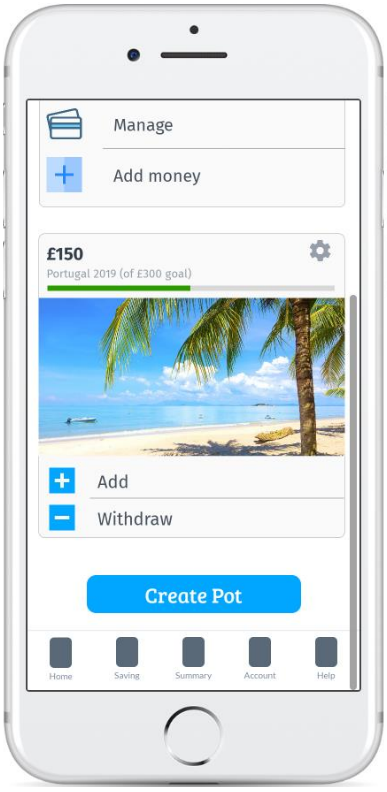
£150 50%

Add Money

Withdraw

Create Pot

View Pot, design 1



Manage

Add money

£150

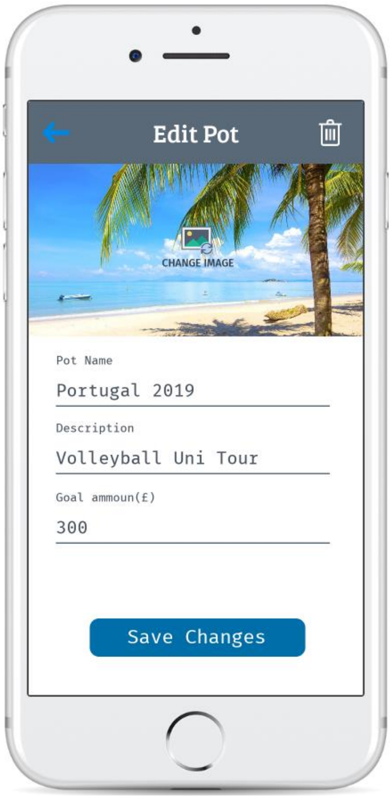
Portugal 2019 (of £300 goal)

Add

Withdraw

Create Pot

View Pot, design 1



Edit Pot

CHANGE IMAGE

Pot Name

Portugal 2019

Description

Volleyball Uni Tour

Goal ammoun(£)

300

Save Changes

Edit Pot, final design

6. Reflections

- **I know how to develop user requirements based on personas**
  By doing a deep analysis over the person's motivators, behaviours and needs, you can successfully define user requirements.

- **I know how to develop sitemaps and task flow diagrams**
  When developing the sitemap and the task flow diagrams, it is important to consider the defined user requirements. The successfulness of the application depends directly on sitemap design, as it represents the basement for further application design and development. Make sure every user requirement fit into your task flow design, make assumptions, and try to imagine the final result when designing the sitemap.

- **I know how to develop high-fidelity prototypes using Marvelapp**
  It's important to have pre-designed wireframes and ready-to-use user requirements when starting to design the prototypes. Use your imagination and designing skills to develop a nice-looking, working prototype. Link your prototypes pages between each other, create anchors if needed, and the app prototype is done.

- **I know how to carry out user testing**
  It's important to have a good user testing plan before trying to carry out the actual testing. Choose your approach, prepare testing materials, think about the methods and testing techniques, carefully select your users, make the users give you as much feedback as possible. Finally, analyse the results, recommendations and make further plans.

- **I know how to improve prototypes based on user testing results**
  The key thing is analysing in details the results from user testing phase, figure out the main problems and think of solutions. Create several alternatives, and figure out which one is the best. Iterate, iterate, iterate, that's the real key to success.

Appendix

1. As I am part of university volleyball club, it wasn't hard for me to find subjects for testing my prototype. The plan was to select students that do different courses, and that was relatively easy to do, I have selected 5 of them, including the coach. They kindly accepted my offer to help me out with testing the application before or after the training sessions, that allowed me to carry the user testing face to face. As for my sister, she is living in Moldova, that is why I had to use skype to video chat with her.

2. Before in Saving section we had the following links on the bottom: Home, Holidaying, Studying, Gathering, Eating.
Now in Saving section we have: Home, Saving, Summary, Account, Help.

3. User Requirement nr. 7 – "System should display the number of calories of each product and calculate the total amount of calories for user's order".

References

Conceptual Models – What Are They and How Can You Use them? Retrieved from: https://airbrake.io/blog/sdlc/conceptual-model

Definition of 'Walkthrough'. Retrieved from: https://economictimes.indiatimes.com/definition/walkthrough

What is usability testing?. Retrieved from: https://www.experienceux.co.uk/faqs/what-is-usability-testing/
usability testing

7 Essential Tips for User Testing Prototypes. Retrieved from: https://www.userlytics.com/blog/essential-tips-for-user-testing-prototypes

Data collection for usability research. Retrieved from: https://www.userfocus.co.uk/articles/dataloggingtools.html