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WePay Product Report

Introduction

ALSX is an independent design consultancy firm based in Brisbane, Queensland. We deal primarily in UX design and development, and have experience with a variety of firms in different industries. Our consultancy deals with web and mobile based applications, specialising in human interaction and cognitive psychology based interactions. As such, through some independently carried out research, we are attempting to develop a payment splitting application with prime user experience as its cornerstone.

In today's world, transactions are a very dominant part of an individual's life. They occur on a daily basis and are often part of a subconscious routine, ranging from basic financial transactions to the transference of data on the internet. With such a large role in an individual's life, User Experience and Interaction Design play key roles in differentiating between the masses of products which offer similar functionality.

WEPay is a payment splitting application that aims to make exceptional User Experience a priority by making the tedious task of splitting bills between people quick and efficient, allowing these tasks to be done in just a few clicks, and saving these individuals a lot of time and energy.

WEPay is designed to allow users to integrate their preferred method of payment (*banking applications, NFC payments like ApplePay/SamsungPay, PayPal etc.*), to collect and combine payments from multiple users to pay for a bill or item of their choice. Payment to and through the application will be instant, eliminating any transaction approval/processing time. It will also allow for itemization, scheduling of future payments and group payment pools.

Currently, the application exists as a hi-fidelity prototype, created on prototyping software, with its design aiming to depict the ideal representation of our conceptual model. Design features are influenced by our analysis of user feedback to the previous iterations of our application, as well as implementation of features we deem essential to the ideal representation of our conceptual design.

Establishing requirements through inquiry and analysis

Overview

The previous iterations of the WEPay application were loosely based on minimal inquiry into user requirements, representative user populations and minimal analysis of what little data we obtained. Our conceptual design aimed to provide an ideal, user friendly experience for users who wished to use an application to split payments. Hence, our conceptual design included facets such as speed, efficiency, security to guide our design process. We derived these facets from our initial inquiries, where we sent over 60 individuals online surveys having questions

pertaining to their experiences with splitting payments, their usage of current payment applications and potential requirements for a payment splitting application. These individuals were other students within our course at university, friends and family, in general, people we knew who were familiar with currently available technology. These were also individuals we considered to be a large percentage of the population our application would be targeting.

The first iteration of our application, which existed as a paper prototype, depicted the fundamental functionality of our system. Survey data from the inquiry guided our conceptual design and hence design choices, as we tried to incorporate aspects of the CD into our implementation. This prototype then presented to a few volunteers to evaluate its usability. These volunteers were then taken through crude cognitive walkthroughs, their actions and responses were observed and recorded, and some questions were asked post walkthrough. While the data from these evaluations was quite bare and inadequately analysed, certain points for improvement were raised that guided us to our second iteration. The second iteration of our application existed as a medium fidelity prototype on prototyping software. This iteration focused mostly on improving our user interface and fixing our mistakes from the paper prototype from the feedback our volunteers gave us. We did not initiate another inquiry into user requirements and target population qualities, rather choosing to analyse user feedback from the paper prototype and use the analysis to guide our design process. While the med-fi prototype addressed issues raised from the previous prototype, it failed to address the user-experience aspects of app design, which was evident from the sets of evaluations carried out for the former. Participants participating in the evaluations were not fully sold on the application, and were left feeling lacking.

Evaluation Analysis

Visual Design

The med-fi prototype was a bare, minimal interface with actionable buttons, menus and options. We utilised minimal colours and an uncluttered layout for all pages of the application. There were no transition animations or any graphical features included. We did this to ensure that participants evaluating the app would focus on the core functionality being featured, and to some extent confirm our attempt at realising aspects of our conceptual design such as simplicity, ease of access and efficient operation (reference). While participants stated that they would prefer to see more colour used to make it more visually appealing, they did appreciate the simplicity and ease with which they could understand and operate the app. Commendations were given to the consistent colour scheme, the coherent interface layout within pages, and the fluid flow of pages into others (reference). It is essential for first time users to not be overwhelmed by a system, so that they keep returning, learning and exploring and eventually assimilating into their routines. By allowing this to take place with a clean visual design, we left the exploration up to participants, who felt free to explore the app without having to worry about being overwhelmed by visual features alone.

User Interface

The user interface of the med-fi prototype also aimed to embody the important aspects of speed, simplicity and ease of access. Buttons and menu options were laid out in such a way that screen space was utilised effectively whilst having an uncluttered appearance (Bruggemann S, Turnbull L, Menon A and Jin X. 2019). Effective utilisation of space was evident as participants immediately picked up on features that we intended to be emphasised, and then utilised intuition to understand their functions. They noted how the logical flow of pages aided in achieving their desired outcome, stating that the application, in a way, guided them to their destination. This is an important observation for us as designers to note, as technology becomes increasingly intuitive, users expect applications to also follow suit, in order to provide a more satisfying user experience. Intuitive applications take away the cognitive load of dealing with tedious or routines that are second nature, which is a boon when dealing with hectic day to day lives.

The lack of contextual information provided for certain buttons and actions did stump some participants, as intuition can only get one so far dealing with an unfamiliar system. Participants desired more context to be available with buttons and actions, to eliminate any uncertainty in their choice of action. Uncertainty paired with an unfamiliar system make for strange bedfellows, and is bound to deter any user from returning to use our system, for such feelings are certainly undesirable when dealing with financial situations in social settings.

Assessed requirements for the prototype

From the feedback we received regarding the visual design and user interface aspects, we concluded that some key points raised by the evaluators must be addressed. These key points are:

- Lack of much visual appeal due to the simplicity of the UI, minimal use of colour and appealing visual design concepts (*such as optimal layout, appealing buttons and menus*).
- Lack of contextual and usage information regarding buttons, menus and features in the UI, leading to uncertainty and possible gulfs of evaluation.
- Lack of improved and intuitive functionality offered by the application, making for sub-optimal user experience and inability to implement our conceptual design effectively

Fixing, refining and improving these issues raised with us will be the main focus of the final iteration of our prototype, in order to effectively depict and implement our conceptual design, as well as to provide our perspective of an ideal User Experience to the end user.

Design Alternatives

Prior to outlining our design choices and rationales, context regarding users and usage of our system must be established. Based on inquiries we performed in our previous reports, we had established a general description of our target population for our app (Bruggemann S, Turnbull L, Menon A and Jin X. 2019). The description was general in the sense that it is based on a potential age range of 15-30 years, shared values of being technologically informed & proficient, shared interests/situations of going out often and having to split bills in most social events. We

narrowed our generalised description further in the second report, when we asked participants questions about their intentions to use our applications and their anticipated extent of usage. These participants were chosen due to their close representativeness to our ideal users based on previous iterations of our conceptual model. For this report, we have chosen to include personas of real individuals whom we have shadowed and interviewed, in order to provide close to real life representations of our users. The personas are listed below.

Naz Samin



Intelligent Busy Social Fun

"I am a very busy women and rely on some technology for my everyday life"

Age: 52 **Work:** FT Senior Manager BHP **Status:** Married **Location:** Brisbane, QLD

Personality

Introvert	Extrovert
Thinking	Feeling
Sensing	Intuition
Judging	Perceiving

Income + Banking

- Naz has a lot of different banks she is with. Some of her banks are Westpac, American Express, CBA and HSBC.
- Naz earns 200k a year.

Technical Ability

- Naz relies heavily on her children and husband helping her to learn how to navigate new technology and apps. She is aware of the constant change and is always up to challenge herself to see if she can make it work.
- She uses a few main apps to help her along each day.
- She prefers apps that have more interaction and are simple

Bio

Naz lives in a house that herself and her husband bought. She has two young adults and they all hang out very regularly as a family. Naz and her husband like to go out nearly every weekend doing fun social activities with friends and family. They regularly send their children money through their banking apps and vice versa with their children. Naz also travels up north Queensland for work. Her family like to travel a lot. She currently has an iPhone 6 and the 2nd generation iPad. She is looking to upgrade. Safety is very important to Naz in all aspects of her life. She is very aware of fraud.

Preferred Technology Qualities

Speed	
Technical Difficulties	
Updates Regularly	
Interaction	

Important App Qualities

Authentication	
QR Code Payments	
Alerts & Notifications	
Simple	
Tracking	

Banks + Split Apps



Image 1- The first persona.

Craig Burton



Creative Busy Patient Intellect

"I love to test out all the new technology and apps before everyone else buys it"

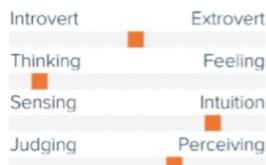
Age: 38

Work: PT Eftpos technician
casual photographer and
casual workshop instructor

Status: Married

Location: Gold coast, QLD

Personality



Income + Banking

- Craig uses Suncorp bank as his primary bank. He also has a combined bank account with his wife at ANZ
- His income provides him with 60k a year

Technical Ability

- Craig has an advanced technology skills for his age.
- He likes to use apps such as Lightroom to edit his photos.
- He is really interested in the newest technology and always likes to test the products and apps before the majority of consumers buy it.

Bio

Craig lives in a house with his wife and 3 children (out of 4). He really enjoys his photography and likes capturing the best image possible. He likes to show his students what he has learnt about shooting in different lighting and which settings are best to use for different situations.

Craig and his wife are pretty good with their bills and use their banking apps to track all the payments. Craig is very aware of authentication and safety with money on the internet. The family likes to go on holidays with family and friends. Normally they find that there can be a few arguments when paying for eating out with family members. Most of the time only one or two members will pay for everyone.

Preferred Technology Qualities



Important App Qualities



Banks + Split Apps



Image 2- The second persona.

Sam Jones



"I really enjoy using the newest technology products and apps"

Age: 19
Work: PT mobile repair assistant
Status: Single
Location: Brisbane, QLD
Occupation: FT University Student - Bachelor of Science + Information Technology

Personality

Introvert	Extrovert
Thinking	Feeling
Sensing	Intuition
Judging	Perceiving

Preferred Technology Qualities

Speed	High
Technical Difficulties	Low
Updates Regularly	High
Interaction	High

Important App Qualities

Authentication	Medium
QR Code Payments	High
Alerts & Notifications	Medium
Simple	Medium
Tracking	High

Banks + Split Apps



Income + Banking

- Sam uses ANZ as his main bank but also has an account with NAB.
- He uses the app Splitwise to split bills with friends but isn't completely satisfied
- Earns 15k a year.

Technical Ability

- Sam is tech savvy and loves a good challenge. He understands bugs can occur and likes to update as soon as it's available.
- He always buys the newest tech products.

Bio

Sam is still living at home with his family and plans to stay there as long as possible so as to continue living rent free.

Image 3- The third persona.

Sydney McPherson



"I rely heavily on technology to get me through every day life"

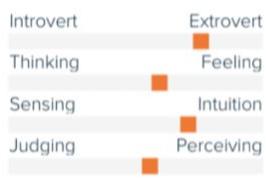
Age: 24

Work: FT Accountant

Status: Single

Location: Brisbane, QLD

Personality



Bubbly Outgoing Responsible
Alertness

Income

- Sydney is with Commonwealth Bank of Australia
- Likes to ensure that her transactions are all secure thus uses Paypal for all transfers to her friends when they split payments/bills.
- Earns 52k a year.

Technical Ability

- Uses fast programs that are up to date on her phone
- Dislikes difficulties and bugs but can handle them well

Bio

Sydney has a busy life with her FT job but makes sure she relaxes by hanging out with her friends from both work and home. She has 3 housemates that she shares bills with. Her rent is paid monthly but she says the group struggles to make payments monthly due to disorganisation. Sydney enjoys to go out on the weekend and likes to participate in a range of different activities. Such as drinks, eating out, bowling, wine tours and dinner parties.

Important App Qualities

Authentication

QR Code Payments

Alerts & Notifications

Simple

Tracking

Banks + Split Apps



Preferred Technology Qualities

Speed

Technical Difficulties

Updates Regularly

Interaction

Image 4- The fourth persona.

Gabby Lopez

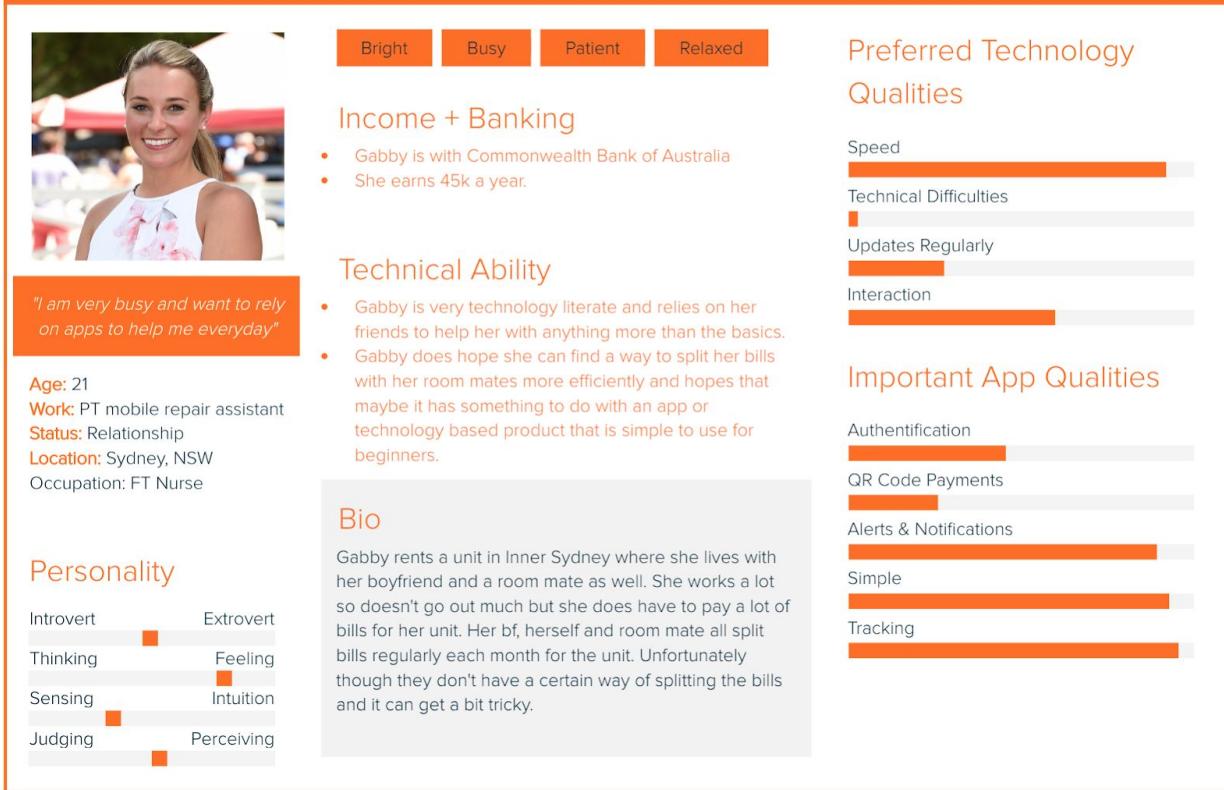


Image 5- The fifth persona.

We identified these individuals through mutual friends and relationships we already have with them. We chose their personas to be the ideal representations of our target users because of their various backgrounds, needs, qualities, values and also because of how closely they match the features we established to be the basis of our conceptual model from the initial inquiries. These individuals are from a broad age range, ranging from 19 to 52 with varied backgrounds, from managers to mobile repair technicians, and have varied technological expertise. The variations between these individuals is a defining characteristic of this sample, making them the closest representation we can get to a target population of users.

In our interviews with these individuals, we discussed the premise of our app and issues plaguing the interactions linked with conventional methods of splitting bills/payments. The individuals also voiced some of their issues and concerns when it came to splitting payments, and due to their representation of our target audience, we chose important snippets of their responses to create UX (User Experience) goals to address these issues. A table containing their responses, the corresponding UX goals, measures and system requirements are given below.

Source	UX goal	Measures	Requirements
"Whenever I'm out with mates and we have to split a single bill, deciding who will pay becomes time consuming and awkward, and there's always confusion about who pays whom. Cash splitting is neither easy nor accessible for everybody, so having something to do it for you would be fantastic."	I would like to have an easy and accessible method to set up a group bill and add other recipients to this bill.	Survey questions: <ul style="list-style-type: none"> Were you able to create a group bill with all the necessary details with ease? Was adding members to a group bill (via the application) to collect individual payment more accessible than conventional methods of group bill payment? 	<ol style="list-style-type: none"> Functionality to allow easy setup of a group bill with required bill information Functionality to allow adding other members to a group bill.
"Figuring out who owes how much based on the bill is hard when we have to pay immediately or if everybody in the group is not immediately present to figure out their shares, and informing people of how much they owe and getting that money right away is quite	I would like to be able to itemize a group bill for each individual and inform them of the amount they owe immediately.	Number of clicks recorded for <ul style="list-style-type: none"> Bill itemization options Split options Button for sharing owed payments 	<ol style="list-style-type: none"> Allow for itemization of group bills by the main bill creator/payer Provide different methods of calculating individual shares Functionality to allow sending members of a group bill the amount they owe and keep a record of money owed/received

time consuming."			
"My current means of transferring money is online bank transfers, which usually takes a couple days. I would much prefer to pay back the friends who paid the bill right then and there instead of having to make them wait, which makes me feel like a bad friend"	I would like to be able to send my share of money for a group bill immediately.	<p>Survey questions:</p> <ul style="list-style-type: none"> • Were you able to send your owed share to the main bill payer immediately so that they were not short of money to complete the payment? • As the main bill payer, were the funds paid into the group pool for a corresponding payment released to you immediately so that you could complete payment? 	<ol style="list-style-type: none"> 1. Allow for immediate payments from individuals into a group bill pool 2. Allow funds in the group pool to be released to the main bill payer when they desire to pay

<p>"I am not great at figuring out and planning payment for group bills with housemates for stuff like utilities, internet and rent. If I could have all of this in one spot, we'd be able to pay off all our expenses on time"</p>	<p>I would like to be able to schedule future payments and payment dates for shared bills.</p>	<p>Number of clicks recorded:</p> <ul style="list-style-type: none"> • Schedule future payment button <p>Survey Questions:</p> <ul style="list-style-type: none"> • Were you able to successfully create and schedule a future bill, with amounts owed and payment dates specified? • Were other members in your future bill informed in advance of their scheduled payment dates? 	<ul style="list-style-type: none"> • Allow for setting up individual shares and future payment dates for group bills
<p>" If you go out often or if you often have multiple bills to pay that you're sharing payment for, it becomes extremely confusing and time consuming to remember who owes whom, how much is owed and how much is due. If I try to keep a record of this in my notes,</p>	<p>I would like to be able to track currently owed payments, future payments and have a record of completed payments.</p>	<p>Number of clicks recorded:</p> <ul style="list-style-type: none"> • Track payments button <p>Survey questions:</p> <ul style="list-style-type: none"> • Were you able to successfully track any payments owed to you immediately or scheduled for the future? • Were you able to keep a record of 	<ol style="list-style-type: none"> 1. Allow for tracking and record keeping of owed payments, and payee details. 2. Allow for record keeping of completed payments, either to the payee or by the payee.

“it’s often flipping many pages and filtering for the right one”		completed payments?	
“ I am always a bit cautious of new banking and payment apps because I’ve seen family members have their account details get stolen or have small amounts of money stolen by apps attempting to help them track spending. I always look for apps that include security measures as a core feature before I begin to use them”	I would like to make secure and verified transactions within the application.	<p>Number of clicks recorded:</p> <ul style="list-style-type: none"> Authenticate to continue button <p>Survey questions:</p> <ul style="list-style-type: none"> Did the app attempt to verify your identity before allowing you to log in securely and use the app’s features? 	<ol style="list-style-type: none"> Provide security verification measures for user logins each time the application is opened Integrate device based security features (<i>fingerprint sensors, face-recognition</i>) into the user verification process Verify bank cards when added to the app.

Table 1- UX goals for WEpay and further details into each UX goal.

The UX goals with more elaborate descriptions of system requirements and measures are given below.

UX Goal 1

“I would like to have an easy and accessible method to set up a group bill and add other recipients to this bill.”

System Requirement

The system must allow for a simple method to set up a group bill with required bill information (*such as bill description, gross amount owed, date and time etc.*) that is intended to be split amongst many individuals. The system should also provide an easy and accessible method to add these individuals as members of the group bill in order to collect each individual's payment.

Measures

Survey questions:

- Were you able to create a group bill with all the necessary details with ease?
- Was adding members to a group bill (via the application) to collect individual payment more accessible than conventional methods of group bill payment?

UX Goal 2

"I would like to be able to itemize a group bill for each individual and inform them of the amount they owe immediately"

System Requirement

The system must allow for the itemization of group bills per individual in the group by the main bill creator. The system must also provide a variety of methods of calculating individual split (*e.g. equal amounts, percentages, shares*). The system must also allow the main bill creator to send individuals in the group the amount they owe immediately for reimbursement, as well as keep track of payments received/payments still owed.

Measures

Number of clicks recorded for

- Bill itemization options
- Split options
- Button for sharing owed payments

UX Goal 3

"I would like to be able to send my share of money for a group bill immediately"

System Requirement

The system should allow for immediate payments from individuals into a group pool for the corresponding bill, from a bank card of their choice. The system should also allow for the funds to be released to the main bill payer instantly when they decide to complete the payment.

Measures

Survey questions:

- Were you able to send your owed share to the main bill payer immediately so that they were not short of money to complete the payment?
- As the main bill payer, were the funds paid into the group pool for a corresponding payment released to you immediately so that you could complete payment?

UX Goal 4

"I would like to be able to schedule future payments and payment dates for shared bills"

System Requirement

The system should allow a bill creator to schedule a bill and payment dates for upcoming bills in the future, while also allowing for the core functions of itemization/splitting options, sharing owed payments with individuals associated with the scheduled bill.

Measures

Number of clicks recorded:

- Schedule future payment button

Survey Questions:

- Were you able to successfully create and schedule a future bill, with amounts owed and payment dates specified?
- Were other members in your future bill informed in advance of their scheduled payment dates?

UX Goal 5

"I would like to be able to track currently owed payments, future payments and have a record of completed payments."

System Requirement

The system should provide a feature that allows tracking and record keeping of owed payments for each user, as well as details of the payee who still owes money. The system should also maintain and display a record of completed payments, either to or by individual users.

Measures

Number of clicks recorded:

- Track payments button

Survey questions:

- Were you able to successfully track any payments owed to you immediately or scheduled for the future?
- Were you able to keep a record of completed payments?

UX Goal 6

"I would like to make secure and verified transactions within the application."

System Requirement

The system should provide robust security verification measures for user logins, for every single time the application is opened. It is also critical the system verifies a new bank card each time. The system must also allow integration of device based security features (*such as fingerprint sensors, face-recognition*) into the user authentication process.

Measures

Number of clicks recorded:

- Authenticate to continue button

Survey questions:

- Did the app attempt to verify your identity before allowing you to log in securely and use the app's features?

Outlining UX goals allows us to focus on developing specific functionality explicitly desired by users, and describing measures will allow us to track the extent of validity of these goals. Describing these components also serve another purpose of aiding the formulation of our system concept statement and subsequently the design guidelines we will adhere to in the build of the prototype. Our system concept statement for WePay is given below.

System Concept Statement

WEPay is a mobile application that allows for the creation of primarily splitting group bills with other individuals. The system is compatible for every mobile device. It allows for the immediate payment of group bills when funds are received, it allows for advanced scheduling of future bills and payment plans and allows for tracking current and upcoming payments. All of these system functions occur with the highest level of security and privacy for users.

Design Guidelines

- **Simple and Accessible:** WEPay is simple and straightforward. The functions are easy to use and readily accessible from any section in the application.
- **Fast and Efficient:** WEPay aims to be faster than its competition. All transactions and actions within the app are rapid, giving users instant satisfaction. All processes within the app are designed with a purpose in mind and execute only what is necessary. WePay is efficiency at its finest.
- **Finely crafted:** WEPay is purposefully made with the highest quality of user experience in mind. Even though paying up is never a fun feeling, WePay makes using the app intuitive and fun, ensuring the user is satisfied upon completion.
- **Smart and Secure:** WEPay respects users' privacy and security, your data should be yours and yours alone. We strive to keep it this way with state-of-the-art data-encryption and in-app security measures, to really make sure that it is you.

Prototype

The high-fidelity prototype that has been created and will be discussed down below, is a representation of the product in its closest resemblance to the final design, in terms of details and functionality. The prototype is comprehensive and allowed us to examine relevant usability criteria in detail and make conclusions about the user's behaviour through testing. With a complete prototype, we can examine the effect of our design choices for UI elements such as, the transitions, animations and page layouts have on potential users and their User Experience. We will also be able to examine the effect of functional UI elements that cover input controls, navigational components and informational components (Affairs, A 2019).

This section will discuss each available page and function of our app in depth, provide design descriptions and rationales for these choices. It should be noted that any changes or rationales mentioned in this section arise from feedback obtained from participant evaluations from our previous reports and further inquiries conducted by us.

WEPay's first three pages are the pages that set up the atmosphere of the app for our users. The first initial page of the app is a loading page, and is displayed as the startup loading screen for the app. The visual expression of this page is intended to depict our idea of a contemporary visual appeal. Our design team chose to incorporate a minimal gradient into the block colour orange for the background. This was done as it is a vibrant colour and the primary colour used for our products. The contrasting logo feeds our desired visual expression. The loading page can be seen below in image 6:



Image 6 - WEPay's loading page from the app

Shortly after this loading page appears, users are presented with a verification page. This page consists of two different methods, either, a 4 digit passcode or a fingerprint scan. By default, a pop-up overlay will appear asking for the users fingerprint (*if their device supports this feature*). If the user does not want to use their fingerprint or if fingerprint scanning is not supported, they are prompted to enter their 4 digit passcode. They are then directed to the WE Pay homepage (*image 8*). We chose to incorporate two different verification processes. This was necessary as users had stated from previous testing in report one and two that they would like to see their device's security integrated with our protocol. It was made clear that the target users are aware of current technology and wanted our app to be as up to date as possible. Furthermore, our UX goal, number 6 ("*I would like to make secure and verified transactions within the application*") talks about safety and security for the app. This is a major design element that was made to correspond to this UX goal. Our team chose to use a similar background to the loading page, but also felt it was necessary to have a stronger gradient going through the orange colour, for variety in visual stimuli. We also hope it suggested to our users that the user is getting closer to logging in and about to start their journey through WEPay. Additionally, the logo shrunk to a smaller size, but the designers felt it was crucial for the logo to still be present and in a visible place. This meant that users will always know this is a WEPay app. The verification page can be seen below in image 7:

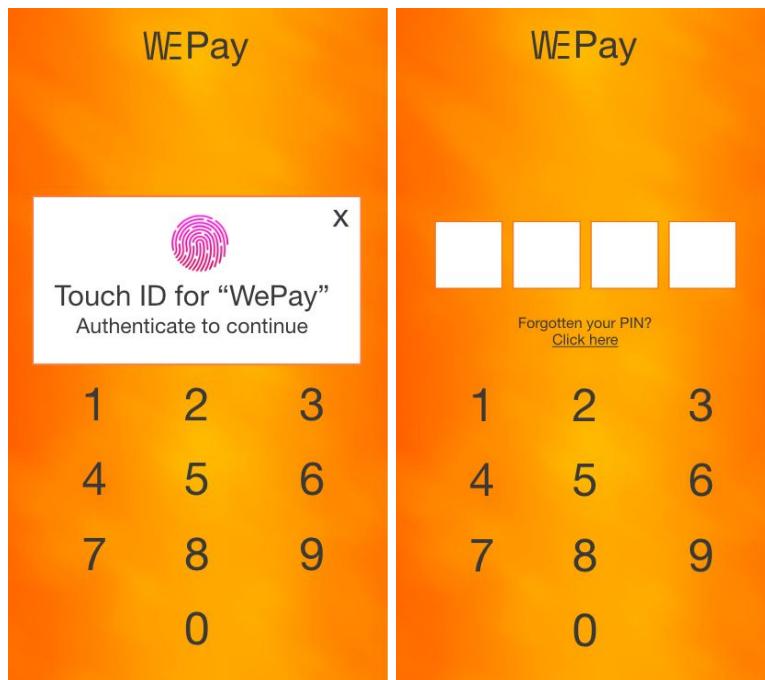


Image 7 - The left hand-side represents the pop-up overlay for the Touch ID verification. While the screenshot on the right hand-side is the prototype for the 4 digit passcode.

The next page users will be presented with after the verification page is the homepage. This homepage can be seen below as image 8, included in image 8 is too the overlay for the homepage.

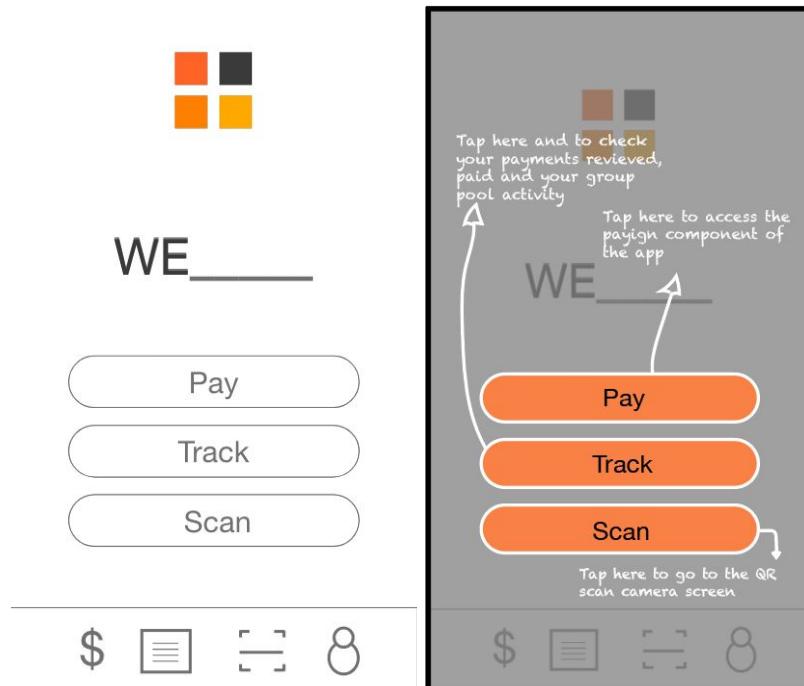


Image 8 - WEPay homepage

The homepage is the page which sets up the whole WEPay app. Users have three buttons to choose from: Pay, Track or Scan. These three options are our app's main features. The designers chose to have a whole new layout for the homepage and rest of the apps pages. This conclusion was made as users declared in the testing from Report 2, that the visual aesthetic was lacking (Bruggemann S, Turnbull L, Menon A and Jin X, 2019). Users will now be able to easily navigate around the app. The buttons chosen are rounded which give the apps design style a softer feeling. In the middle of the home page is the text "WE__". This is a unique design feature for WEPay, that designers put into the final fidelity. The designers wanted users to feel like they are going through a journey with their money. So the idea is, when users tap on the button 'pay', they will be directed to a pay page. And the pay page will say WE Pay. Same goes for the button 'scan'. The users will be directed to a camera scanning page, where WE Scan is the title for the page. This design feature is consistent throughout for the main pages of the app. You will be able to see this feature below carried out in many screenshot images. Another new component apart of the homepage is the menu bar at the bottom.

The app's format has since changed dramatically since the previous low and medium fidelity prototypes. The most important aspect that has changed is the layout. WEPay now has a menu bar which is positioned at the bottom. This can be seen directly below as image 9.



Image 9- New menu bar added to app pages

It has four main icons which allows the user to navigate through the app. The first icon is a dollar sign (\$) and depicts all the paying aspects of the app. This means that if a user clicks on the dollar sign, the user will be directed to the WEPay page. The WEPay page allows users to chose to go into the individuals pay section or the bill payers section. The next component on the menu bar, is the icon second from the left. This icon represents the tracking section of the app. If a user taps on this icon button they will be directed to the WE Track page. The third icon, second from the right, is an icon that represents the QR camera scanning element of the app. Further details of the WE Scan page can be located below. The last icon on the new menu bar is the first on the right, and embodies the account aspect of the app. When a user selects this icon, they will be able to access a range of the personal information which makes up their persona on the app. You too can read up on this account section below.

A UI design element that has been added to this simple menu bar, is the highlighting of an icon in colour. If a user happened to select the dollar symbol icon and were directed to the WE Pay page, the menu bar would highlight the dollar symbol in the company's orange colour. This orange colour will always appear on one of the icons when the app is running. As long as it is not on the home page, which then does not have an icon highlighted. This design element will let our users know where they are at all times throughout the app.

As mentioned above, the app has 3 main features- pay, track and scan. We will first focus on the pay aspect. Once a user selects the pay button from the homepage/the dollar icon from the menu bar, they will be directed to the WE Pay page. A screenshot of the 'We Pay' page can be seen below in image 10, along with the overlay of the page. The overlay describes highlights the main features of the page and what they do when the user uses the.

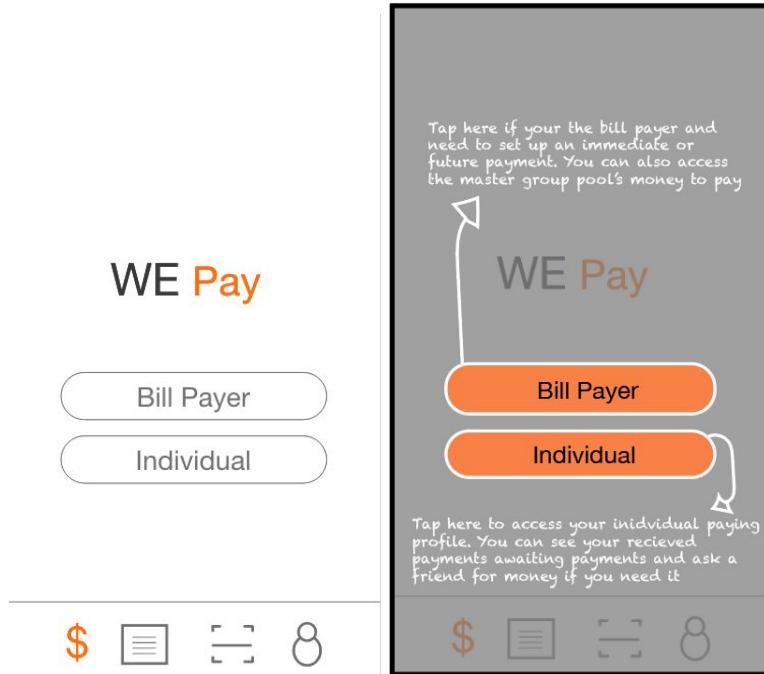


Image 10: WE Pay page (left) and on the right is the overlay of this page

The WE Pay page was created to be very simple. Users have two options to choose from, either 'Bill Payer' or 'Individual'. The 'Bill payer' button allows the user to set up immediate and future payments for 2 or more people (a group). While the 'Individual' button allows the user to access all their payments that are awaiting payment or ask a friend for help. Due to the design team changing the layout, structure and feeling of the app, the page is quite minimalistic. As mentioned above, the page now has an addition of Pay on the 'WE'. Suggesting the user's journey has begun. Furthermore, the user can now see that they are being guided through the app, with the orange coloured dollar icon in the menu bar. Designers hope that their minimalistic design will be more visually aesthetic to our targeted users after taking their feedback into consideration.

If a user is to tap on the "Bill Payer" button in the WE Pay page, they will be directed to the bill payers home page. This homepage again follows a very similar and minimal design as the previous pages. For your reference, you can view this page as image 11 below. Due to this page being another important page in our app, image 11 too includes the overlay of the main features.

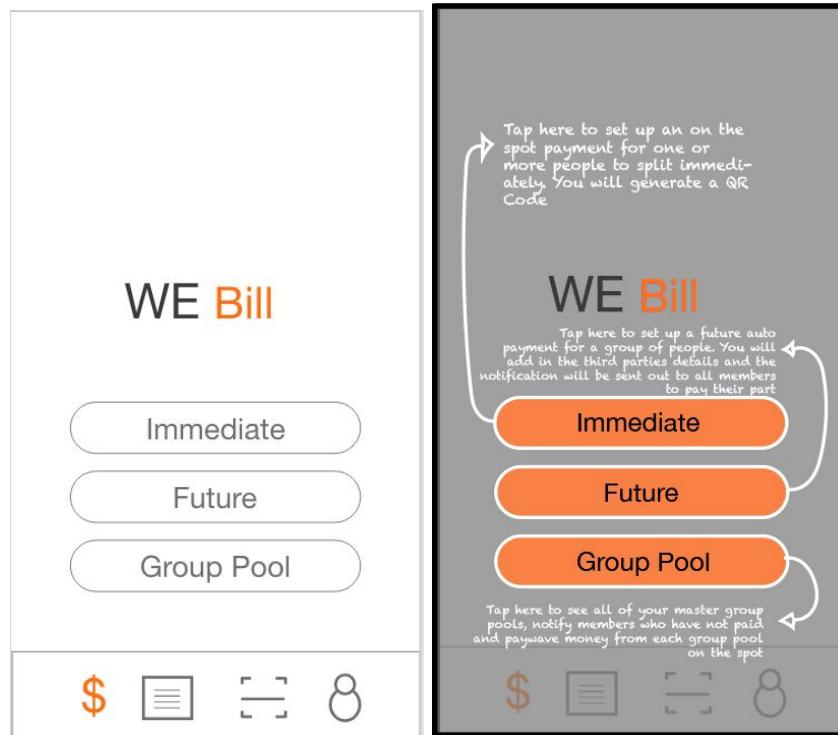


Image 11: WE Bill

The menu bar can again be seen down the bottom of the page and is consistent with previous app pages. The dollar symbol is again highlighted in the orange colour. The 'WE' part of the title has now changed to 'WE Bill', considering the page has changed. There are now three buttons for the user to choose from- immediate, future or group pool. Each button plays an important role to this bill section. If a user was to tap the immediate button, it would mean that they are wanting to generate immediately a QR code for group members to scan or for themselves to share with other group members. It is believed that a user will tap the immediate button if they are currently at an event that needs group members to split the bill and pay within a certain time period close to the time the QR code is made. If a user was to select the future button as a bill payer, they would be wanting to set up an automatic payment for the future which involves at least one other user. Whereas, if a user was to select the 'group pool' button they would be the bill payer who is checking up on all the existing group pools that have been made. The group pool page will allow them to notify members that have not paid and paywave group pools that have been paid.

When a user selects the immediate button they will be directed to the WE Bill generating page. The user will be asked by the app to fill in all the information required for a QR code to be generated. This can be seen below as image 12:

WE Bill

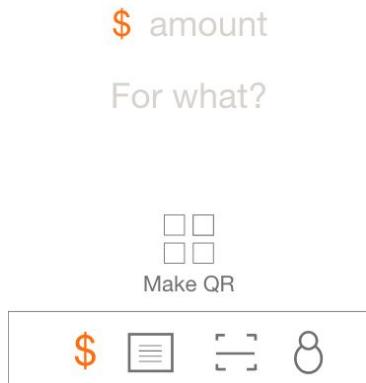


Image 12 - WE Bill page where information for generating QR code is entered by the user.

The design team chose to change the typography for this section, so that app is more interactive for the users. Firstly, the user will enter the amount. Once the amount has been filled in, the amount will turn orange, and they will move to filling out what the code is for. Consequently, once this information is filled out, the description will turn orange too. An example of the interactive typography for this section, can be seen below in image 13:

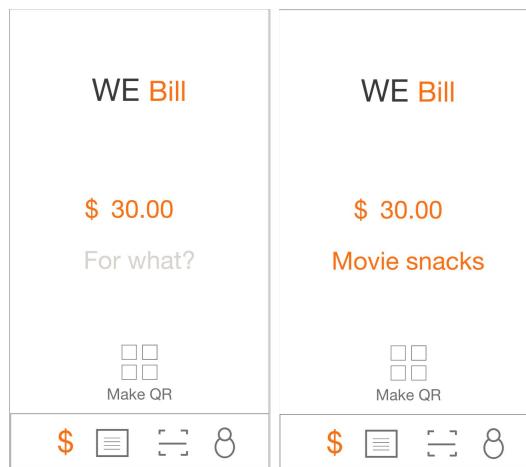


Image 13- process of interactive typography changing colour after information is entered

Users are able to generate the QR code if they select the icon/button at the bottom "Make QR". Once they have tapped this button, the QR code that has been generated for this event will appear on the next page. The QR share page can be seen below as image 14:



Image 14 - QR share page

This page was designed to allow users to have two options. Firstly, if they were with other group members at the time, they could get those individuals to scan the code to pay. Otherwise, the bill payer user has the option to share the newly generated QR code. There is a share icon in the top right hand corner which gives them seven different options for sharing. The options for sharing can be seen below in image 15:

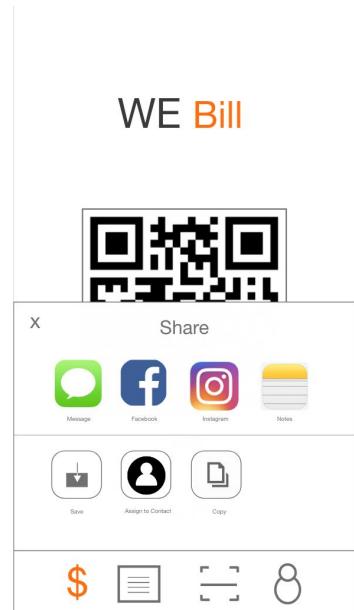


Image 15- WE Bill QR share options

Another component which was spoken about before with the 'Bill Pay', is future payments. The future payments are made by a bill payer user who is setting up an automatic payment for two or more other

users. This future payment process is completed over three pages. These pages can be seen below as image 16:

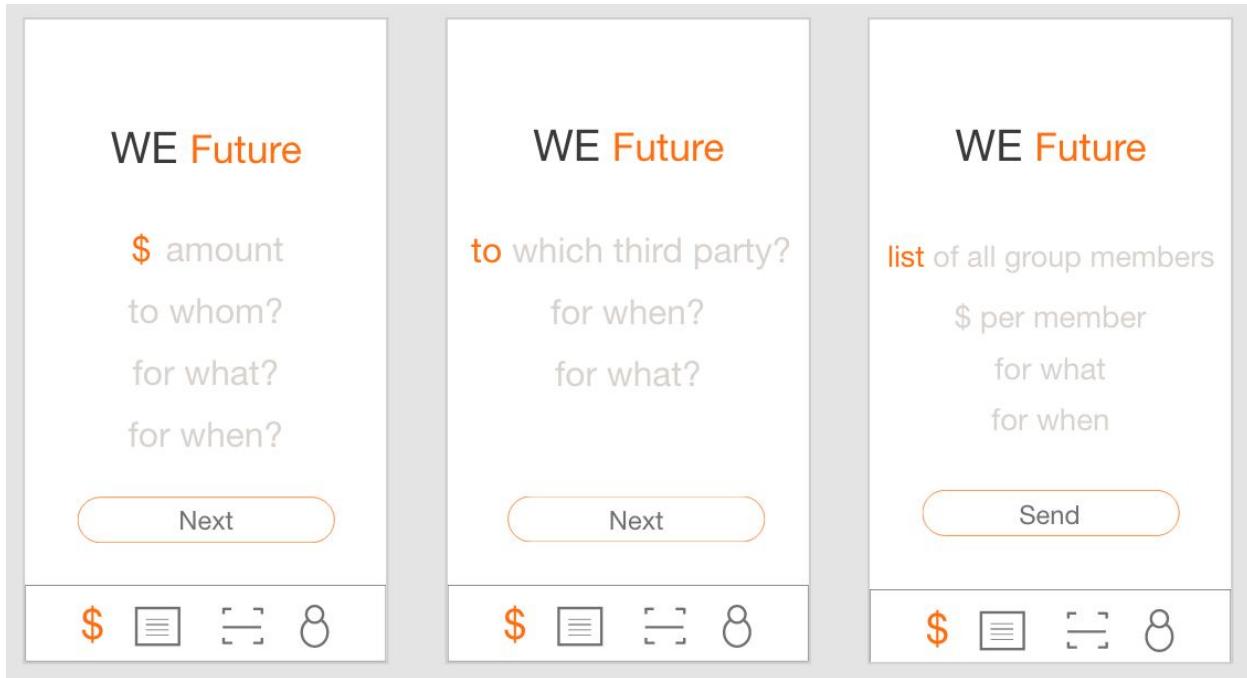


Image 16 - WE Future three pages

A user will be directed to the first page on the left after taping the 'Future' button from 'Bill Pay'. This description fill in is again the same as the 'WE Bill' typography. The designers decided that it was crucial to keep this interactive typography consistent throughout the app to tie everything in together. Thus, the information for all three pages has this component embedded into the app. The title page for this section was changed, so users are able to easily understand their plotting in the app. Due to the future payment still being a paying feature of the app, the dollar icon is coloured orange. Targeted users should be able to navigate more easily through our app now that it has been finalised. Once the bill payer user is ready to send the future payment to their group members, they can tap the send button on the last (right) page in image 16.

WEPay has been set up based upon UX goals which can be located above in table 1. One of our ux goals for WEPay is " I would like to make secure and verified transactions within the application". Consequently, the security of this app was built and designed to a high standard. After the bill payer user hits send, they will be directed to a receipt page (seen in image 17), which clearly states what was set up, the group it is sent to, who the third party is, when it will be automatically paid and the bill payer is also provided with a WE receipt number. The WE receipt number is one level of security that has been established within the company. By providing all users with a receipt number each time a payment is made or set up, it ensures there is a form of acknowledgement provided about the payment that has been given.

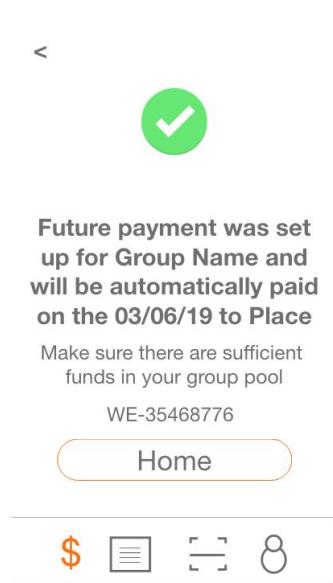


Image 17 - Receipt for future payment set up

The designers believed the best way to set out this page was to inform users of what had just been processed through text. The important information about the details of the payment is displayed in bold. This is done so users are able to clearly see and understand what has been acknowledged by the app. After this is a little message from the company itself, which says "Make sure there are sufficient funds in your group pool". This message implies that if there is not, the payment will be declined on the date it is to be sent out on. Lastly, the WE receipt number is below this. These two last bits of information are just in a regular weight font as it does not make up the critical criteria of the payment. Additionally, designers believed positioning a tick icon at the top visually communicates to the user that the payment was set up successfully. Simple icons like this is what our target users asked for more of, previously in report 2 - "we need more buttons/icons to communicate the functionality" (Bruggemann S, Turnbull L, Menon A and Jin X, 2019).

The last section for 'WE Bill' is 'Group Pool'. Group pool allows bill payers to see the master view of all the group pools that have been set up and where each payment is at. WE Group Pool has been designed to connect up with the immediate payments section of WE Bill. There are two sections to WE Group Pool- payments up to date and payments not complete. This page has been designed to let the bill payer user to view how much money is missing in the 'payment not complete' by a -\$ sign. If a certain group payment is up to date, then the user can tap on the 'pay now' button. But if a group payment is not yet complete, the bill payer has the power to notify the member/s that have not yet paid. This can be seen below in image 18. The overlay of how this page of the app works, can be seen below in image 18 too:

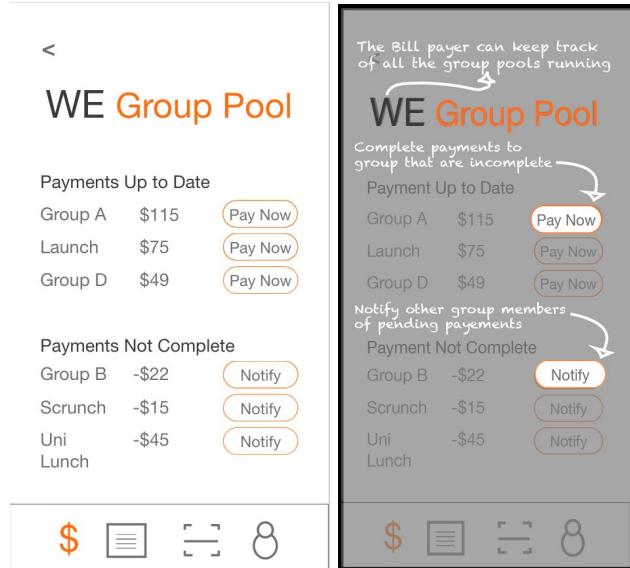


Image 18 - WE Group Pool, master bill payer page (left) with overlay (right)

The designers felt it was necessary to split up the two different types of payments for the groups as it makes it more readable for our users. A user can easily define the difference between the two different sub headings seen in image 18. However, if this was not the case, it would be a lot more confusing for our users. The 'pay now' and 'notify' buttons have an orange board to highlight that these are in fact buttons to the user. The title for the page has again changed to WE Group Pool, based off the fact that the user is now in a different section to what the user was previously in. And as mentioned multiple times above, the menu bar still highlight the dollar sign in orange due to the WE Group Pool being apart of the paying component of the app.

If the user is to focus on a group payment that is up to date, let's say Group A, for instance. They can tap the 'Pay Now' button to go ahead and pay for the group in person. This feature allows the bill payer to pay for their group's payment in person with a temporary group pool debit card that can be paywaved off the bill payers phone. For example, you can see how a bill payer user would pay for Group A's \$115 payment through the app in image 19:

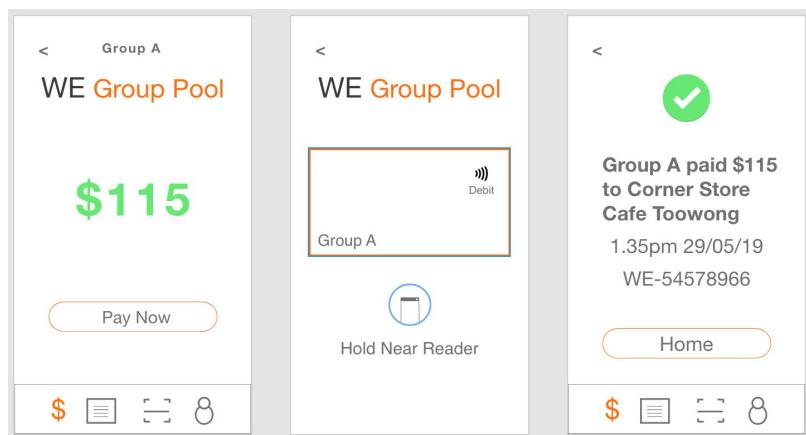


Image 19 - WE Group Pool, immediate payment process

As seen above in image 19, there are two steps to a bill payer user paying off the group pools money. Firstly, there will be a page that shows the group's money. If the money is completed, the amount will be represented in a green colour. This green colour was chosen by the designers as green usually refers to being correct/in this case complete. It is a positive colour in correspondence with money. Once the user selects the 'pay now' button they will be directed to the temporary debit card that can be paywaved on an eftpos machine in real life. The bill payer will need to hold their fingerprint on the reader of their device to pay. Once the touchID has been accepted, the money will be sent from our app WEPay to the third party through the eftpos machine. After this is approved, the users will receive a receipt acknowledging the transaction. The receipt will consist of the group name, amount paid, to whom, time the transaction was approved and date. Again the app will provide the user with a WE receipt number for security purposes.

The designers felt it was necessary to layout the payment aspect of this group pool through three pages as it meant they were keeping with the new minimalist style. The head designer is all about whitespace and believes that if used well it will allow users to comprehend the text and process easier. Moreover, security is reinforced into the paywave page in a few ways to meet the UX goals. The paywave page has been made temporary for each new group payment, so that there is no possibility of hacking or fraud. Additionally, the bill payer must have their touchId enabled in the security settings of the app, so they can pay using paywave. They must also be able to use their fingerprint when paying, otherwise WEPay will not allow the user to pay the groups money. This ensures a high level of protection for the money in the group pool. Lastly, the receipt is there to provide the user with a reference number in case there was to be an issue with the transaction.

The other section of 'Group Pool' is the case where the payments are not complete. If this is the case, the bill payer has the ability to notify the member/s that have not yet paid. The user must tap on the 'notify' button which will take them to the notify page for group pool. Only the bill payer will be able to access this information. This notify page can be seen below in image 20:

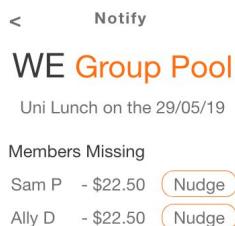


Image 20 - WE Group Pool, notify page

As seen in image 20, the group 'Uni Lunch' is missing \$45 which is made up of two missing payments from two different members. The bill payer is able to tap the 'Nudge' button to send a notification to remind the individual to pay. The page was designed based off all the other pages layout. Again, the designers chose to incorporate a sub-heading to clearly portray which members were missing from the group payment. The 'Nudge' buttons have an orange border to highlight to users that it is in fact a button and can be interacted with. Once the user selects the 'Nudge' button, the user will be directed to the page as seen in image 21 on the left:

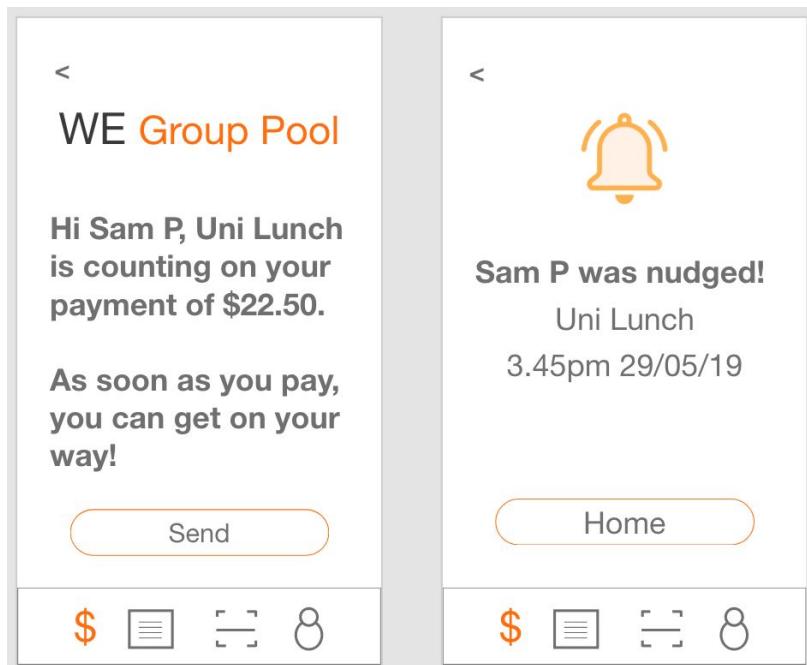


Image 21 - WE Group Pool - notify member of payment

The app then prompts the bill payer user with a message that will be sent to the member who's payment is missing. Once the bill payer presses the 'send' button the notification will be sent off to that individual. The bill payer will be notified on the next page that the notification was sent to that particular member. The designers chose to put an orange border around each button on the pages as it communicates to users that they are buttons. The functionality is also more easily visualised to users. An alarm bell icon was used at the top of the page on the right to visually explain that the notification was sent. The designers chose to incorporate this due to users previously stating they were after more icons to tie in with the functionality of the app (Bruggemann S, Turnbull L, Menon A and Jin X, 2019).

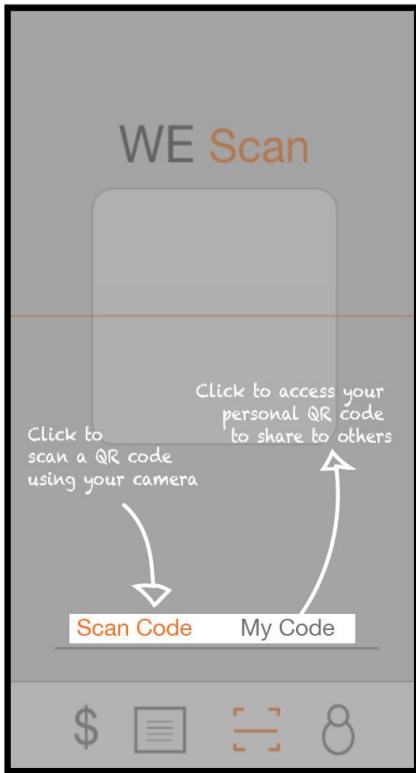


Image 22 - Overlay for WEPay Scan

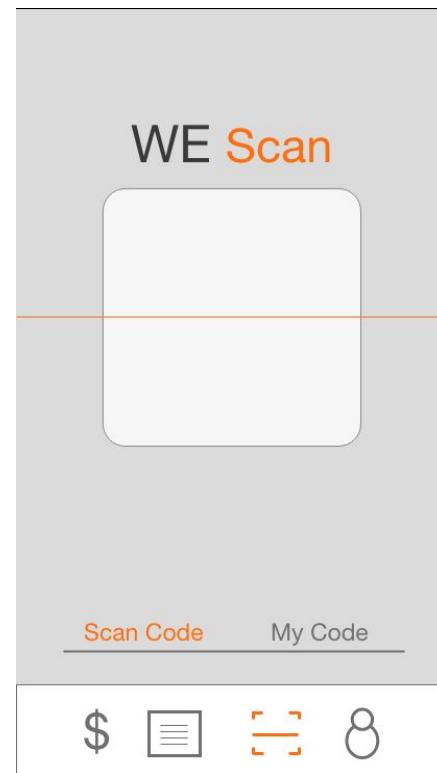


Image 23 - WEPay Scan page

WE Scan is a new section of the app which has not yet been explained. The scan icon can be found second from the right and gives users two options. The user can either tap the 'scan code' or 'my code'. The main functionality of the 'Scan Code' page is to scan a QR code that has either been generated by a bill payer or scan another users personal code to pay them/request for help. This page can be seen above as image 23. Image 22, will show you the main features of the page through an overlay that has been created from the design team. The Scan Code page allows users to scan a QR code through their devices camera. The app will recognise any QR code that is an individual's personal code or has been generated by a bill payer. When a user first opens this page after downloading the app, a pop up overlay (image 24) will ask the user if "WEpay can access their camera". If the user allows this they will be redirected back to the Scan Code page. But if users do not allow this, the app will direct them to a new Scan Code page where the scanner is black, denying them access of scanning any QR code. This can be seen in image 25 below:

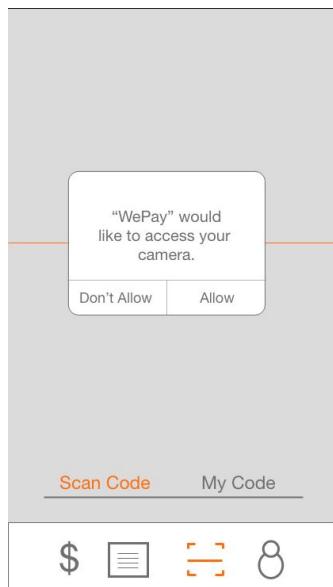


Image 24 - WEPay Access to camera

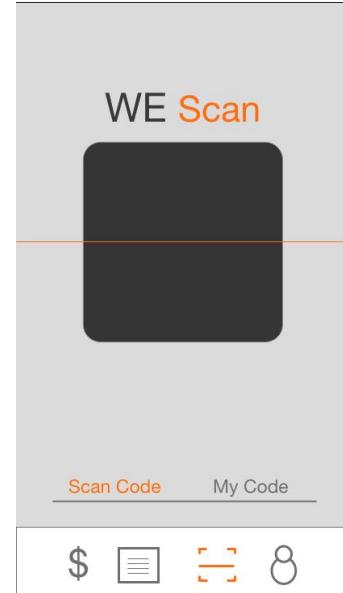


Image 25 - WEPay camera access denied

Once the user has allowed access to the camera they will see the popup overlay (Image 26) instructing them to "Point Camera at a payment code to make a payment". Upon closing this popup the user will be redirected back to the Scan Code page.

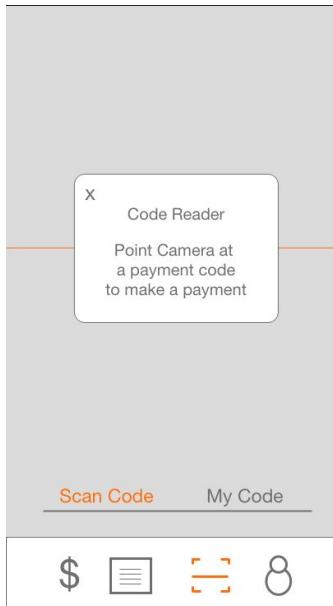


Image 26 - WEPay Point Camera



Image 27 - WEPay My Code

Other features of this page include the sub menu which encapsulates the option to either scan a code or view the users personal code. The "Scan Code" feature will allow the user to scan a QR code which will then take them to a page where they can pay another user. On the other hand the "My Code" section will let the user access their personal code, as seen in image 27. When the user is on their personal QR

code page, other users can scan this code to pay them. The user is also able to share their code as seen below (image 28):



Image 28 - Share personal QR code

The design team at WePay have designed these pages in a simplistic manner so that the users are able to navigate the page with ease. They have also made a range of changes to the WE Scan pages as the medium fidelity was not extensive enough. User testing from the medium fidelity communicated to the team that users were not satisfied with the functionality that the system had to offer (Bruggemann S, Turnbull L, Menon A and Jin X, 2019) Users stated that they were concerned with the “lack of context for buttons and functions” (Bruggemann S, Turnbull L, Menon A and Jin X, 2019). Thus, it was crucial that our team made the WE Scan pages much more interactive with valuable buttons and icons. The design team also decided that it was important to make the WE Scan pages way more visually aesthetic. Consequently, they added in the new theme that has been used throughout the high-fidelity prototype. The sub menu which consists of “Scan Code” and “My Code” is a new navigational component added. The main reason for this new component is due to the target users critical feedback received about the functionality of WEPay in previous reports and testing. The designers believed that the sub menu would allow users to freely move back and forth between each page without having to use a back button. The new design for We Scan has proven to be more functional for users.

The screenshot shows the WE Track app interface. At the top, there is a navigation bar with a house icon, the text 'WE Track', and a search bar. Below the navigation bar is a table of payment transactions. The table has columns for 'Name', 'Amount', 'Status', and 'Date'. The transactions listed are:

- Group C: \$30, -\$15, 29/05/19
- Lucy: \$30, 20/05/19
- AJ: \$9, 12/05/19
- Girls Dinner: \$75, -\$0, 05/05/19
- James B: \$46, 14/04/19

Below the table is a bottom navigation bar with icons for '\$', a list, a grid, and a person.

An annotation overlay is present on the right side of the screen, containing the following text and arrows:

- "Keep track of your transaction history in one spot." (points to the top right of the table)
- "All Paid Recieved Group Pool" (points to the top of the table)
- "You can track your paid payments through the paid button." (points to the 'Paid' button in the table header)
- "Click received to see what payments have been sent to you from others." (points to the 'Received' button in the table header)
- "Group Pool allows you to see what groups are up to date and which are not complete." (points to the 'Group Pool' button in the table header)

Image 29 - WE Track- All payments, overlay on the right

Users are able to monitor all payments that are to be made to them or a group by navigating to the WE Track section of the app. They can get to this section by clicking on the second button from the left on the menu bar at the bottom of the screen. The default screen for this section displays all payments whether they are part of a group pool or whether they have been paid/received or not (image 29). From here the user can filter the payments by clicking on the different options. The first option displays payments that are yet to be paid (image 30), ones that have been received (image 31) or payments to a group pool (image 32).

The screenshot shows the WE Track app interface, specifically the 'Paid' screen. At the top, there is a navigation bar with a house icon, the text 'WE Track', and a search bar. Below the navigation bar is a table of payment transactions. The table has columns for 'Name', 'Amount', and 'Date'. The transactions listed are:

- Lucy: \$30, 20/05/19
- Hugh X: \$10, 20/05/19
- James B: \$46, 14/04/19
- Group A: \$15, 03/04/19
- Jamilia: \$43, 30/03/19

Below the table is a bottom navigation bar with icons for '\$', a list, a grid, and a person.

Image 30 - WE Track- Paid

Listed on these pages is the name of the user who owes money, the amount that is owed and the date by which it is to be paid. The group pool page (image 32) has the same details listed however the number that is shown in grey is the amount that was originally owed and the number shown in red is the amount that is still outstanding.



WE Track

All Paid Received Group Pool

William	\$87	24/05/19
Kane B	\$300	16/05/19
AJ	\$9	12/05/19
Lachlan	\$13	29/04/19
Sophia	\$67	23/04/19



WE Track

All Paid Received Group Pool

Rent	\$300	-\$70	15/06/19
Group C	\$30	-\$15	29/05/19
GYG Dinner	\$60	-\$0	25/05/19
Water Bill	\$450	-\$0	14/05/19
Girls Dinner	\$75	-\$0	05/05/19



Image 31 - WE Track- Received



Image 32 - WE Track- Group Pool

The layout of these pages were designed to fit in with the UX goals above. One of the UX goals focuses on being able to track currently owed payments, future payments and have a record of completed payments. Additionally, some of our user personas believed that tracking is a really important component in a banking app for them. Thus the designers felt it was necessary to add a whole tracking section for the users in the app. This activity section is known as 'WE Track'. The tracking icon can be seen second from the left in the menu bar at the bottom of each page. The tracking icon is highlighted in the orange colour as it is the section in which the user is currently on. Like stated above, the highlighted icons on the menu bar is a great way to let users know where they are in the app. The layout of each sub section of WE Track was created to be minimalistic and easy to read. There is enough space on each page for users to find the content readable and comprehensible. Lastly, users can use the icon in the top right hand corner to navigate back to the home page. It was found from first draft testing of this high fidelity prototype, that users happened to get stuck at this stage in the prototype. Consequently, in the final design stage of the high-fidelity prototype, the designers added a home icon for the users to use.

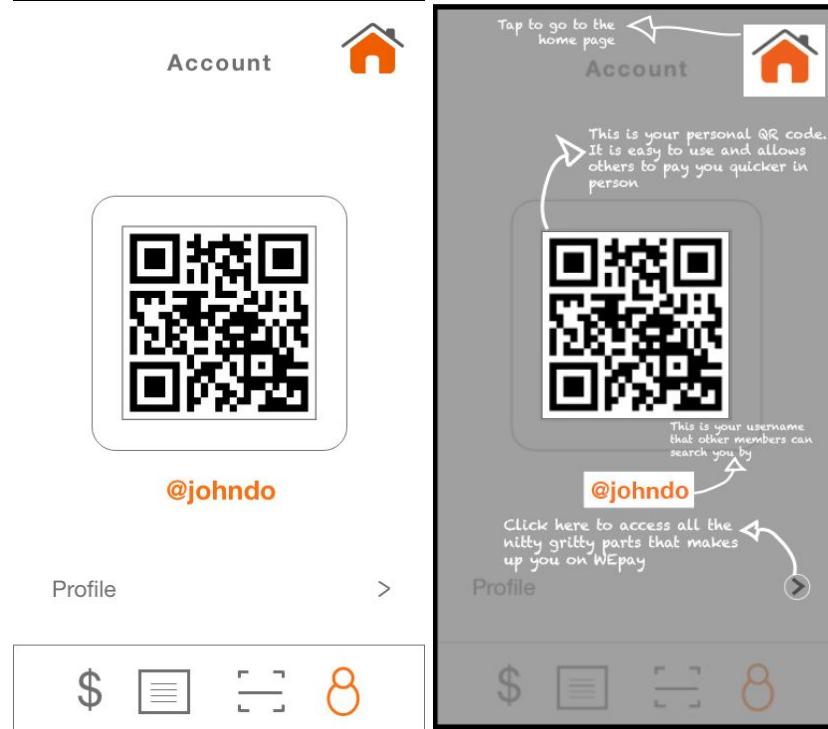


Image 33 - Screenshot of Account page (left) and overlay (right)

When a user clicks on the figure of a person icon on the menu bar, the user is taken to a page that displays their personal QR code. This page is displayed on the left side of image 33. The right side of image 33, has the overlay for the main features.

Other users in the WEPay community can scan their individual code to pay the user/request help. This QR code is unique to the user, for example “@Johndo”. The user using this app with this profile can also click on the profile arrow to further explore features that focus on the nitty gritty aspects that make up the app. Furthermore, there is a home icon in the top right hand corner for the user to tap on if they desire to go back to the homepage.

The design team chose to place the individual QR code in the middle of this page as it is the main focus. It is important that users can easily find their QR code so they do not have to go searching. The designers have put together a smooth sailing journey for the users. And this is one aspect that contributes to the users journey. The username below the QR code has been included here as it allows users to know their username. The QR code and username go hand in hand, so it only made sense to go below. The username has further been highlighted in the companies orange colour so that it purposely stands out against everything else on the page. Furthermore, the profile icon in the menu bar (outer left icon) has been highlighted orange. As known from previous pages above, it was designed to reassure the user that they are in the profile section of the app. Lastly, with the designers's minimalist style, the arrow next to the profile text, acts as a button for users to tap on. It is simple but suggest clearly to users that it has a purpose. The simplistic design has been used to keep consistency throughout the app and ensure that the app is easy to use and navigate.

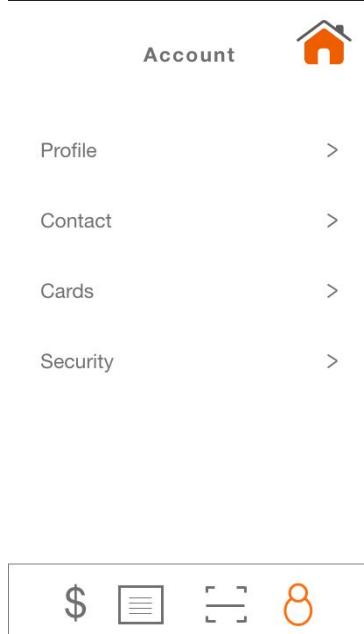


Image 34 - WEPay Account

The account page (image 34) includes a number of different settings that the user can change by simply clicking on the specific topic. In chronological order we have a button that allows the user to go back to their individual QR code, followed by a button that takes the user to a list of their fellow WEPay friends and a method to invite more friends to join WEPay. We have also included a button to show the user a list of their current registered credit/debit cards with the functionality to add a new card. Next on the list we have the security settings where the user can change their 4-digit passcode and enable/disable Touch ID.

Here at WEPay the design team has again decided to go with a simplistic design for consistency reasons. For this reason the designers have listed the buttons down the centre of the page so that attention is drawn to them. The profile icon has again been done in an orange colour so that the user is aware they are in the profile section of the app, and a home button has also been included for easy navigation to the home page.



Image 35 - WEPay Contacts

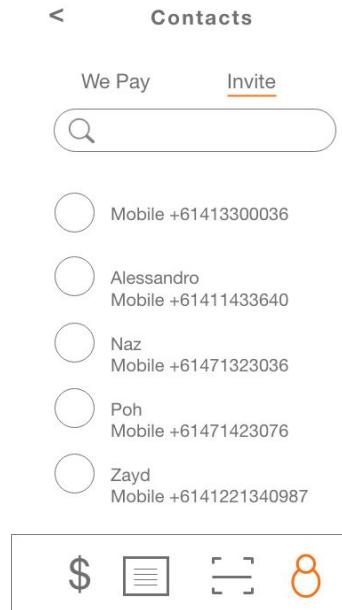


Image 36 - WEPay Invite friends

When the user taps on the “Contact” button on the Account page they are brought to the contacts page. This page shows the user a list of their current friends who also use WEPay (image 35). From here the user can then either go back to the Account page or tap “Invite”. Once they have tapped “Invite” the user is able to invite new friends to join WEPay by typing in their friend’s mobile number as shown in image 36.

The design team has once again gone for a simplistic design and thus created a very simple yet effective sub menu that allows the user to choose between viewing friends that are current WEPay users or inviting new friends to join WEPay. An orange underline has been used to establish which screen the user is currently on. Both the list for current users and inviting new users has been structured such that they are centred and flow down the page, this is to ensure consistency throughout the app. The key difference between the two pages is the search box on the invite friends page that allows the user to search for a mobile number. This search box has been designed with a rounded edge so that there are no harsh square boxes, it also keeps uniformity with other features of the app such as buttons. The team has also kept the orange outlining on the profile icon as the user is still in the profile section of the app. Lastly the back button in the top left corner has been included to allow the user to navigate easily to the previous page. These design choices create a seamless and intuitive interface for the user.

If the user wishes to view or add a new or additional credit/debit cards to their cards wallet they simply have to tap on the “Cards” button in the accounts page (image 34). Once the user has successfully navigated to the cards page they are able to see all of the credit/debit cards that are already linked to their WEPay account. They are also able to add a new credit/debit card by clicking on the “Add Card” button. This is placed down the bottom of the screen. Moreover, they can click on the plus within the

blank card (image 37 left). To show how each main feature of this page works thoroughly, the overlay can be seen on the right hand side of image 37.

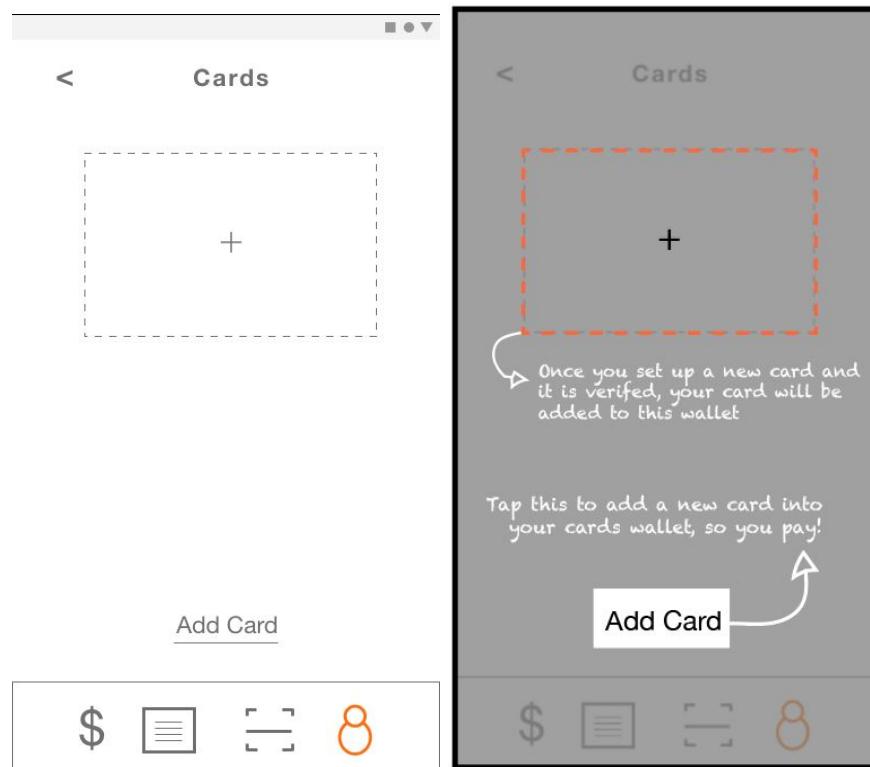


Image 37- WE Pay card wallet

This takes the user to another page where they have the option to add a new debit card or a new credit card, refer to image 38 for this page.

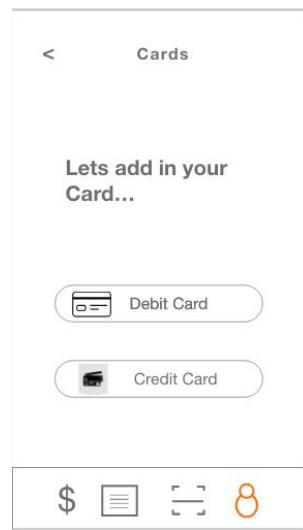


Image 38- WE Pay, first step to verifying a new card.

Once the user chooses what type of card they would like to verify, they will be directed to a page which asks for the cards details. This page can be seen below as image 39:

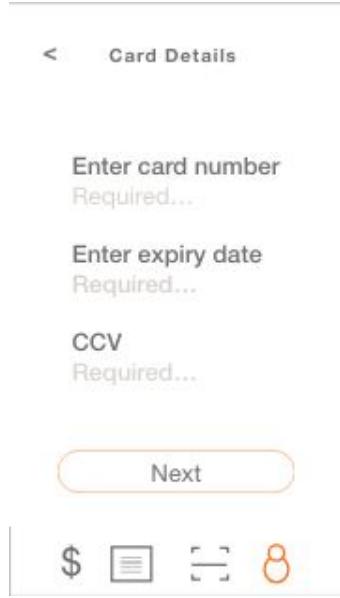


Image 39 - WEPay, enter cards details

Once the user has entered their card details into each section, they can tap on the button 'Next' to continue. This next page is where WEPay's UX goals has been satisfied appropriately for our target users. The UX goal which is so very important to our users, is goal 5. This reads as "I would like to make secure transactions within the application". In order to satisfy this goal, the designers believed it was necessary to follow a secure authentication process. Once users press the 'next' button they will be directed to the first step of this authentication. This can be seen below in image 40:

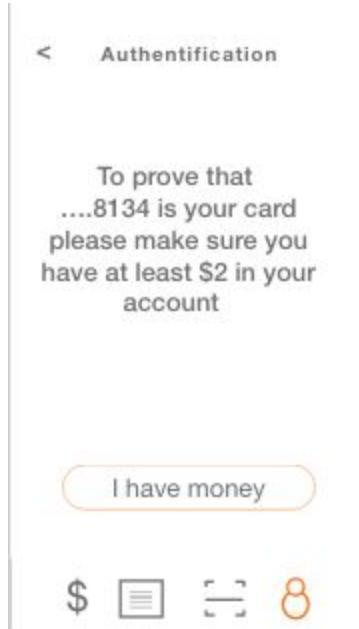


Image 40 - WEPay authentication 1.0

The first step to this process is users making sure they have at least two dollars in their bank cards account- the details that was just entered in to the app. If this amount is present the user can press the button 'i have money' at the bottom of the page. Once they press this button, the app will provide them with a pop up box full of information (image 41) as to why the user needs at least two dollars in their account.

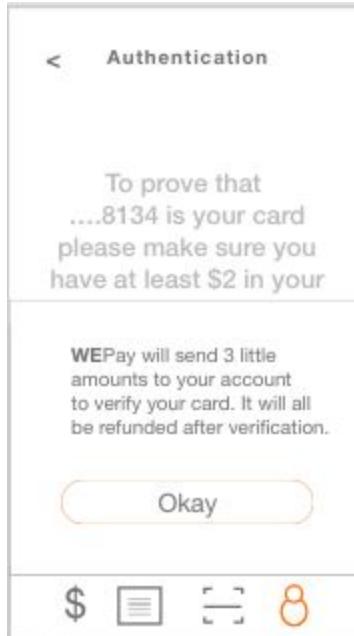


Image 41 - WE Pay authentication pop up

The most important reasons for the user needing to have at least two dollars in their account, is for WEPay to send three very small payments to their account. Once the verification process has been completed this money will be refunded. The user will then be directed to the next page of authentication if they select the button 'okay'. By WEPay sending these three little amounts, the user is able to check that it was sent. They will be required to leave the app, open their bank account statement and check the three amounts that were sent (Image 42). It is important that the user can check their account otherwise, the card trying to be added will not be verified. This is a great way for our company to check if the user is legitimate or a fraud. The user will be asked to see and know what the value of these three amounts are.

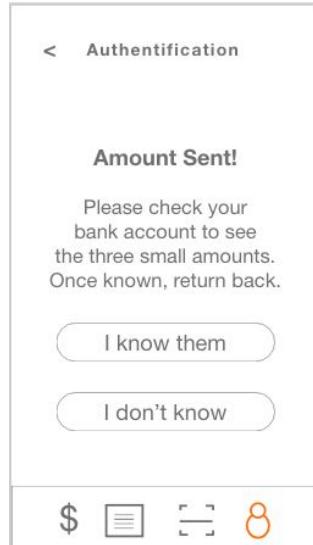


Image 42- second stage of WEPay authentication process

If the user is able to check their account, and knows the values of these three amounts sent, the user can select the button 'i know them'. If they don't know the values or don't have access to their account, they can press "I don't know them". And a pop up box will appear, giving them two options (image 43).

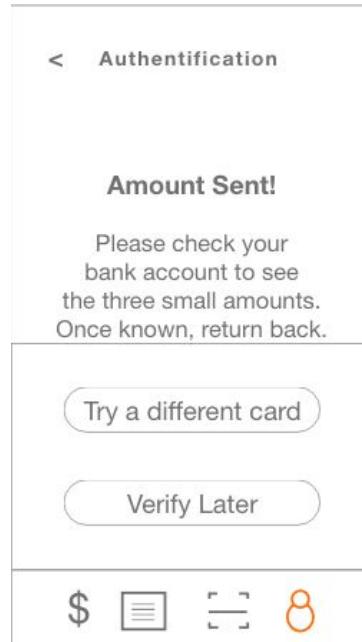


Image 43 - pop up box for not knowing values

The user has two options, they can either verify it later, or they can try a different card. This step is really important as minimizes the chance of fraud happening. Again tying in nicely with UX goal 6. However, if the user does know the values of the tree amounts, they can proceed to the next page (image 44).

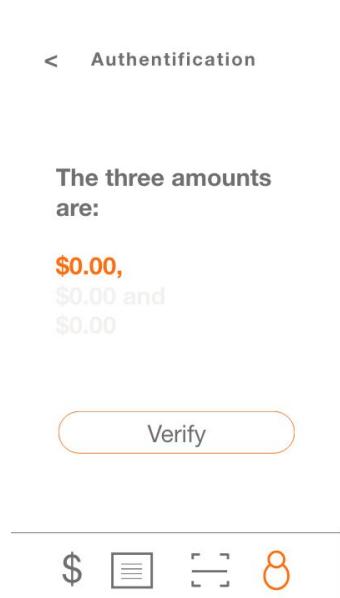


Image 44 - Debit Card Authentication

Once they have entered in each amount, they can tap the button 'finish'. The back system of the app will then see if the values entered in by the user, match the values sent out to the user's bank account. If these do match, the user will be presented with a page that congratulate them on their card being verified. This is seen below in image 45:

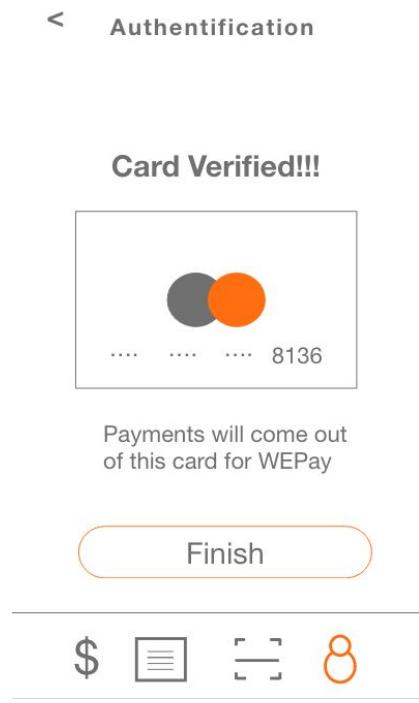


Image 45 - Card is verified

The design team chose to represent the users success of verification, by creating a card with their number on it, that would similarly exist if the user was holding a debit/credit card in their hand. For

safety reasons, only the last 4 digits of the card number is shown. The design team also thought it is important for the app to remind users throughout the app of important information. So in saying this, there is a sentence which notifies the user that payments will come out of this card (just newly added) for WEPay. Once the user taps the finish button, the users new card will be added to their card wallet (image 46).

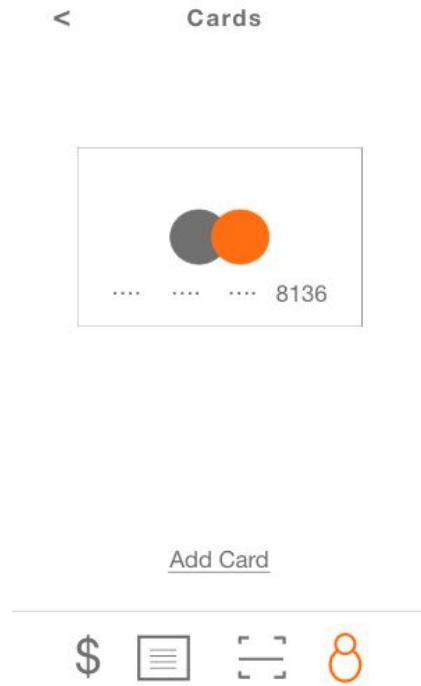


Image 46 - Newly verified card in the cards wallet

Users can of course add more than one card to this wallet, they will just have to the authentication process each time. The designers left the design and style of this page exactly the same as the previous page of the cards wallet (image 37) but added in the new card. Like explained above for image 45, the card has only the last four digits present on the card for security purposes.

< Security

Change Passcode

>

Enable Touch ID



Image 47 - Security

< Security

**Change quick access
passcode:**

4 digits....



Image 48 - Change Passcode

When the user presses the “Security” button on the Account page (image 34) they will see two options (image 47), the first option allows the user to change their 4-digit passcode and the second option allows the user to enable/disable Touch ID. If the user opts to change their passcode they will be asked to enter a new passcode (image 48). Once they have entered their new passcode the user will be taken back to the Security page and will again have the option to enable/disable Touch ID.

We have designed the security page in much the same manner as a lot of the other pages, going for a very simplistic theme. Due to this we have posed the two options one on top of the other using our standard font and font size. We have also used our typical back button and orange colouring of the profile icon. The button to enable/disable Touch ID has been designed as the generic iPhone enable/disable slider due to its effectiveness and familiarity. With the Change Passcode page we have gone for the generic number pad however we have changed the colour of the “Done” button to our signature orange. Overall the idea was to go for a minimalistic yet effective look and feel.

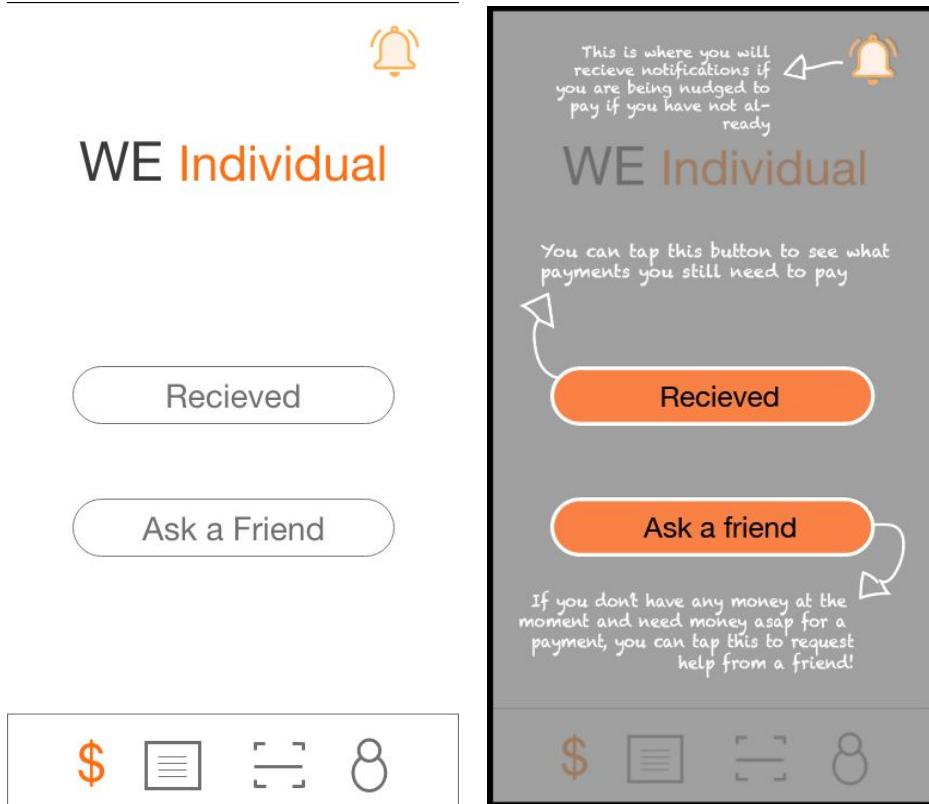


Image 49 - WE Individual page (left) and overlay (right)

From the WE Pay page (image 10) when a user selects the “Individual” option they are taken to the WE Individual page (image 49) where they can see what payments have been received, ask a friend for help with a current payment or check their notifications. Upon pressing the bell icon in the top right corner the user is taken to their notifications. When the user clicks on a specific notification they will be taken to the WE Track section of the app and it will depend on the type of notification as to which part of the WE Track section the user will be taken to. For example if a user clicks on Group C from image 50 they will be taken to the group pool tab of WE Track (image 32).

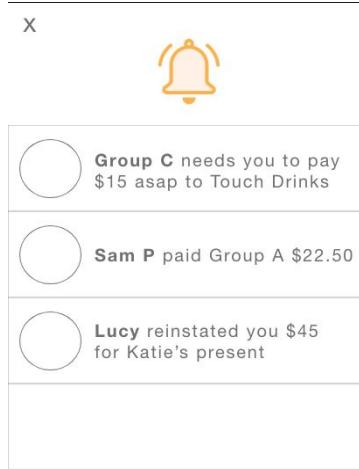


Image 50 - WE Individual Notification page

The design team started by creating the heading for the WE Individual page and have stuck with our theme of using grey for “WE” and using orange for the particular section of the app that we are in (Individual in this case). The designers also used their signature rounded rectangular buttons to keep the uniformity. They have also made the dollar (\$) sign orange to show that the user is in the billing section of the app. The bell has been used to signify the users notifications as a bell is the generic symbol used for notifications, the designers have also changed the colour of the bell to orange as it shows the importance of the notifications. Notification pages are always really similar in design, for example most notification pages stack the notifications on top of each other using square boxes with an indication of whether or not they have been seen by the user. WEPay’s notification page is no different, the notifications are stacked on top of one another in square boxes and there is a little bubble on the left hand side that indicates whether the user has seen the notification or not. While on the WE Individual page (image 49), if a user clicks the “Ask a Friend” button, they are directed to the WE Request Page (image 51).

Below, it can be seen that the WE Request page has an overlay which has been created. This overlay is another way to show the main features of the pay. Each main feature has been highlighted using colour, arrows and text to describe what the main features do. You can view this overlay in image 51, on the right hand side.

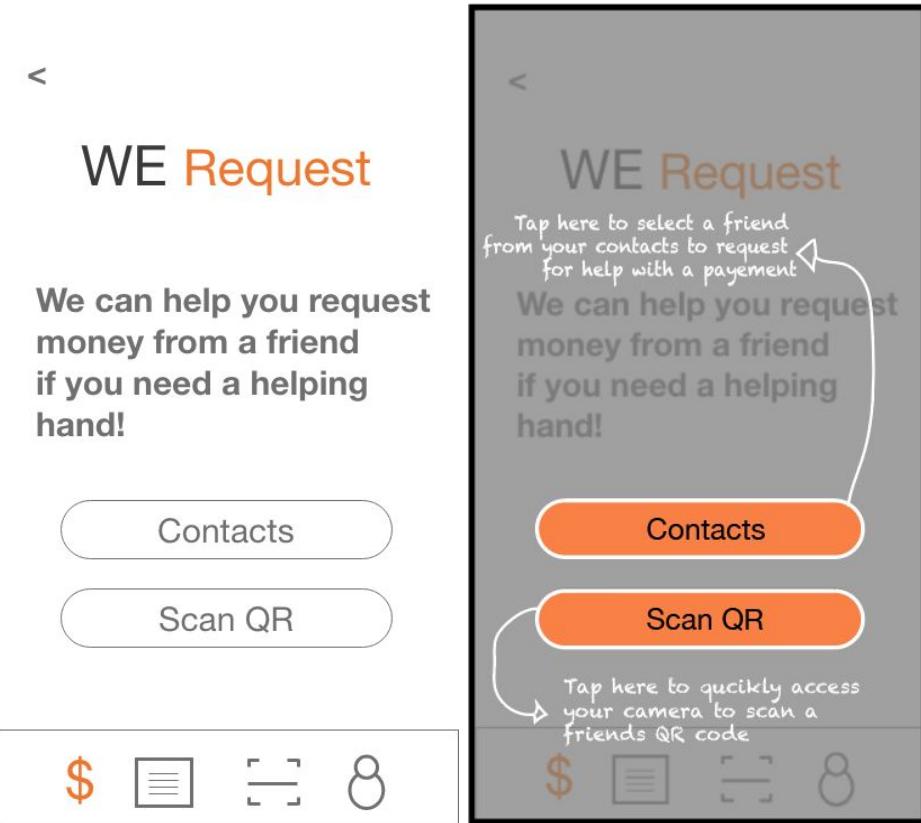


Image 51- WE Request page (left) and overlay for page (right)

WE Request was primarily designed to allow users who do not have sufficient funds to pay for their bills to request help from friends and other users (who also use WE Pay). As designers, we realise that there will be unfortunate circumstances where a user may not be able to fully complete payment of their share, for whatever reason, and thus it is our job to accommodate for these circumstances. Our choice to use the word 'Request' is based on an inherent knowledge of social interactions that requests are generally more "well received" compared to demands, and enable recipients of a request to act on it out of their own free will, rather than being urged to do so by external influences.

Users can essentially send other users requests to help pay the former's share of the bill, so that there is no inability to secure funds to complete payment for said bill. This can be done one of two ways. The first way is by clicking on the 'Contacts' button, which will direct them to the stored contacts page (image 52) and allow users to scroll through their stored contacts to pick the user they want to request funds from.

WE Request

<input type="radio"/> @aJ	<input type="button" value="Ask"/>
<input type="radio"/> @amyD	<input type="button" value="Ask"/>
<input type="radio"/> @aydenT	<input type="button" value="Ask"/>
<input type="radio"/> @bellaT	<input type="button" value="Ask"/>
<input type="radio"/> @jamesB	<input type="button" value="Ask"/>
<input type="radio"/> @lachlanH	<input type="button" value="Ask"/>
<input type="radio"/> @lucyM	<input type="button" value="Ask"/>



Image 52 - Stored Contacts page

WE Request

\$ amount
for what?
for when?
to whom?
reimbursed on?



Image 53 - Request Information page

Once a user is chosen, the requester can click on the “Ask” button corresponding to that individual and is then redirected to the Request Information page (Image 48). On this page, requesting users can fill out request details, which include request amount, request description, request date and requestee details as well as the date on which the requester will reimburse funds.

The second way to choose a user to request funds from is by scanning their unique QR Code. Each user that signs up to WE Pay is assigned a unique QR code that acts as a unique identifier for that specific user (can be found in the accounts page). By clicking on the ‘Scan QR’ button on the WE Request page (image 51), users are directed to a pop up scan QR page, that integrates the user’s device’s built in camera. This page can be seen below as image 53:

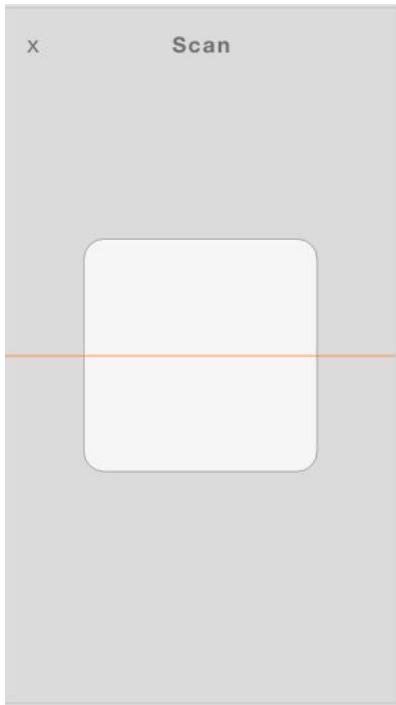


Image 54- WE Scan page

WE Request



@johndo

\$ amount
for what?
for when?
reinstated on?

Request

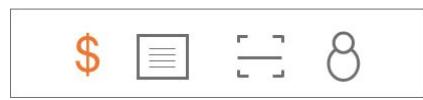


Image 55- Scanned User Request Info page

Requesters can then ask the requestee to display their unique QR code, which the former can subsequently scan and arrive at the Scanned User Request Information page (Image 54), which is a variation of the Request Information page (Image 55). Once again, this page requires the requester to fill in request details such as request amount, request description, request date and requestee details as well as the date on which the requester will reimburse funds. Like mentioned above with design consideration to the typography, the designers have used a consistent format for the typography throughout the app. Therefore, when the user is filling out the information, the text will change to the orange colour once it has been completed. As seen in image 13 above. It goes without saying that this change in colour of the typography, makes the page more interactive for the user.

Once requesters have finalised their method of request, and filled out the request details, they can click the “Request” button present on both of the Request Information page (Image 53) and the Scanned User Request Information (Image 55) pages, which will direct them to the requested acknowledgement page from the company WEPay. Also called the ‘WE Requested’ page (Image 56). Similarly, this page, ‘WE Requested’ has the unique WE receipt number which has been put there for security reasons. Thus, this links up with the security and authentication UX goal 6.

<

WE Requested

**Your request was
made!!**

\$13.13 for Drinks
To be paid to John Doe.
on the 26/05/19
You will reimburse on the
29/05/19

Home

\$   8

Image 56- WE Requested page

From this page, users can proceed to tapping the ‘home’ button if they wish to go back to the home page. Otherwise, they are able to use their menu bar at the bottom, to further navigate the app.

If we look back at the WE Individual page, as seen in image 49. The users can tap the button “Received” and will be directed to the WE Received page (image 57). Also below in image 57, is the overlay for this page. The overlay for image 57, highlights the main features of the page and describes what will happen for the user. From here the user can choose which payment is most important to pay first. They have two options to choose from, immediate payments or their future payments.

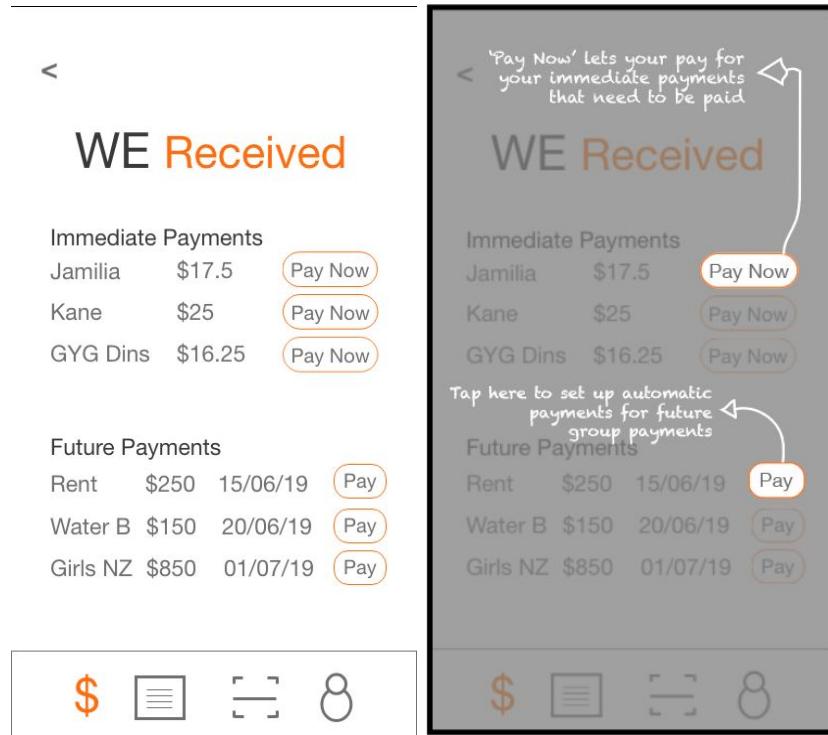


Image 57 - WE Received Page and overlay on the right side

When the user taps “Pay Now” apart of the immediate payments they are redirected to the WE Pay Now page (image 58). The user must then enter the details for the payment and then press “Pay Now”. This will pay the bill immediately and provide the user with a receipt number (image 60) for the transaction.

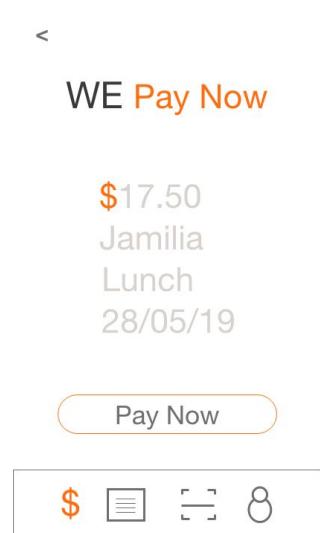


Image 58 - WE Pay Now

Once the user presses the 'pay now' button they will be directed to a page that shows acknowledgment of the payment being made. The user will be given a receipt to show this acknowledgement. This can be viewed below in image 59:



Image 59 - Receipt for WE Pay Now

The design aspect of the information filling out pages, image 58 + 60, has been mentioned multiple times above. The typography is an interactive feature to the page and allows users to feel like this app is more playful and a journey. Each time a line has been filled in, the text will change to the orange colour that WEPay has used throughout the app. Furthermore, the designers have been consistent with the layout for each page, leaving a bit of white space to create clarity for the user.

If the user decides to press the "Pay" button on the 'We Received' page, they will be taken to the WE Pay Future page (image 60).

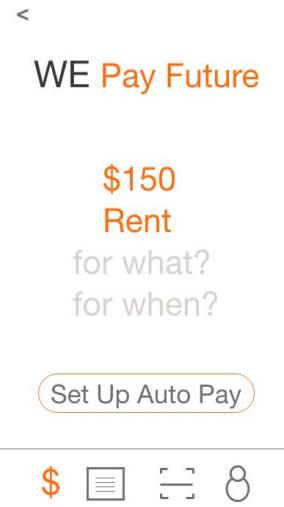


Image 60 - WE Pay Future page

On this page the user will again enter the details for the payment and then the user will press the button "Set Up Auto Pay", which will set up an automatic transaction and create a receipt number (image 61) for the transaction thus making the payment secure and verified within the application.

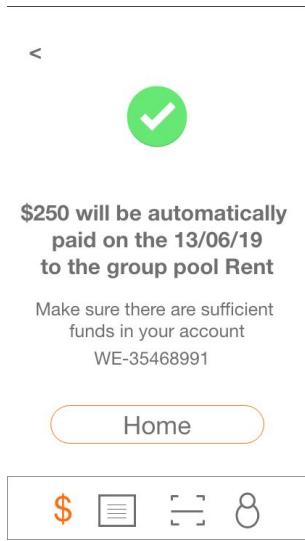


Image 61- Receipt for WE Pay Future

The WE Received page (image 57) has been designed in such a way that it allows the user to easily distinguish the difference between immediate payments and future payments. This has been done by completely separating the two sections. It also helps that there is different information in each section, for example, the immediate payments have the name and the amount owed whereas the future payments has the name, the amount owed and the date by which it is due. The design team has also opted to roll with the standard round edged rectangles for the buttons with an orange border to show that they are in fact buttons.

The design team chose to stay true to their theme with both the WE Pay Now (image 58) and WE Pay Future (image 60) pages. It is for that exact reason that the design simply shows the amount owed followed by who owes that money and then what it was for and when it was created. The dollar sign (\$) for both the amount owed and the menu bar has been made orange so that the user can tell that they are in the bill section of the app and that the number that follows is the dollar value that is owed. Again the button follows the standard theme of a round edged rectangle with an orange border.

Finally the receipt pages, both for immediate payments (image 59) and future payments (image 61) follow the structure of most receipt pages. They both contain details of who was paid, what day the payment occurred and lastly a receipt number in case anything were to somehow happen to that transaction. Both pages use the back button that is standard across most pages of this app as well as using the standard button styles. The green circle with the white tick was also chosen because it is very commonly used among banking/financial applications to show completion. It is also due to the fact that it is simple yet highly effective as everything should be.

Evaluation

The final iteration of our prototype is meant to depict the final representation of our conceptual design and the intended user experience established within it. To hold it to such a high level of usability and representation, we chose to perform certain user and expert based evaluations. User evaluations are essential as they represent the feelings, intentions and experiences of our envisioned end user, and thus offer rich insights into a user's sentiments regarding our app. We chose to add expert evaluations in addition to user evaluations in order to evaluate our application with industry standard evaluation procedures, which use standardised evaluation criteria to evaluate a system against. As such, expert evaluations will provide specific usability issues that will be grouped and categorised for easy identification and rectification. For this prototype, we have employed four evaluation methods, and they are listed below:

1. Heuristic (expert) evaluation
2. Pluralistic Walkthrough
3. Cognitive Walkthrough
4. Time on Task

For each of these evaluation methods, we opted to use a standardised set of tasks to evaluate. The reason for this is that standardised tasks provide consistency across the evaluation methods, while each method provides different perspectives on evaluation data. We chose these specific tasks as we believe they best represent the core tasks a potential user will complete in real life scenarios. The standardised tasks are mentioned below:

1. **Create a group bill, create a unique QR code for this bill, share the QR code with your friends via stored contacts and go back to the home screen**
2. **Create a future bill, add bill details such as amounts owed, bill members, add the recipients for the payment with payment dates; send this bill to the members included in it, and then return to home page**
3. **Request funds from a friend, scan your friend's unique QR code, add request details and hit request button, go home**

From henceforth, each evaluation method discussed will be in regards to these three tasks.

In this section, each evaluation method will be discussed in detail, providing an overview of the protocols used for each, the results obtained from each method and an in depth analysis of these results. Full protocols for each of these methods will be in the appendix section of this report.

1. Pluralistic Walkthrough

A pluralistic evaluation is a variation of the cognitive walkthrough method; it involves a diverse group of stakeholders taking part in the evaluation process to get a more accurate representation of the thoughts and feelings of our population sample regarding our app.

According to the evaluation protocol for this evaluation, firstly we provided groups of participants with smartphones which had our interactable prototype preloaded on them. These participants were also students of DECO2500, a human-computer interaction design course taught by the University of Queensland, making them the ideal “experts” for this method. We prompted participants to explore the app by themselves for some time, to get a feel for our app, and then initiated discussion regarding initial thoughts and feelings. These were recorded and transcribed (appendix section). We then instructed the participants to assume the role of potential users, and step through the outlined tasks as though they were users using an unfamiliar system, not amateur interaction designers.

Upon completion of these tasks, we once again initiated discussion about the app’s performance, asking questions pertaining to the following topics.

- Whether the system performed as they intended it to perform with respect to the task they had to complete
- how well they thought the system performed
- rate the performance on a scale of 1-10 where 1 is Extremely Poor performance and 10 is Excellent performance

Responses to the leading questions were recorded and transcribed (can be found in appendix). The results to the ratings are given below:

Participant Number	Performance Ratings (1- very poor performance; 10 - excellent performance)		
	Task 1	Task 2	Task 3
1	7	7	7
2	6	5	8
3	6	6	7
4	5	5	9

5	6	5	8
6	6	6	8
7	8	7	9
8	7	5	9
Average Scores	6.375	5.75	8.125

Table 2. Participant performance ratings for app based tasks

Evaluation results and analysis

Participants in the initial discussion before task completion highlighted features they had immediate feedback for. Design aspects were praiseworthy, with appealing visual design being recognised. They were also quite happy with the user interface elements, however, many pointed out that without our overlay pages implemented in the prototype, the lack of contextual information to perform actions was still apparent. When participants stepped through the tasks as potential users, they highlighted even more specific usability issues, in particular the use of certain icons and the lack of functionality information. These tasks were designed to pick up on such issues for users and they did just that. Participants also highlighted certain areas in the app itself where the lack of information for a fairly new user would lead to errors, and hence gulfs of execution. Some users however, relied on their intuition and previous experiences with similar apps to guide them through the tasks, and thus mentioned it in their feedback, noting that intuition combined with the app's fluid flow into its functions could help overcome errors in execution.

These evaluations adversely impact our UX goals, in positive and negative ways. The positive aspect is that through these tasks, our core UX goals were indeed achieved, however the negative aspect lies in the path taken to achieve these goals. Performance ratings for these tasks provided us with the conclusion that complex tasks such as setting up bills, especially future bills, prevents the system from performing adequately (*scores of 6.37 for Task 1, 5.75 for Task 2*), while simple tasks are achieved quite efficiently (*score of 8.125 for Task 3*). There were definite hurdles in completing the tasks, and since our UX goals are essentially overarching versions of our tasks, the UX goals were not completely satisfied, yet the additional features we added are the solution to improvement.

2. Heuristic Evaluation

The heuristic evaluation method was developed by Nielsen in 1990 as a discount usability inspection method. This method essentially involves a group of design and usability experts interacting with a system and evaluating it with respect to a standardised set of criteria. Nielsen developed the first set of 11 heuristics/criteria based on empirical analysis of 249 classes of usability problems. For this report, we will be evaluating our prototype with respect to 12 heuristics that are smartphone specific. These heuristics were provided by the DECO2500 teaching faculty at the University of Queensland.

Employing a heuristic evaluation for our prototype is key to flushing out usability problems that may not be visible explicitly or right away. The smartphone specific heuristics allow us to focus on smartphone based app usability issues that potential users of our app might encounter during usage.

In order to execute this evaluation method, we engaged five interaction design and usability experts, who are also students of interaction design courses at the University of Queensland. These experts were given a brief overview of our app, and walked through its functions and core features. These experts were then provided smartphones with our final prototype preloaded onto them. Experts were initially prompted to explore the app by themselves, in order to get a feel for the app and how functions are implemented. They were also each provided with a document with the 12 smartphone specific heuristics to refer to as they perused the app.

Once the experts indicated that they had interacted with the app sufficiently and had some level of familiarity, we then provided them with the standardised tasks to complete. Each expert was instructed to assume the role of a potential user and complete the tasks individually. As they stepped through the tasks, they were given further instructions to record any usability or interface issues (*if any*) in a provided usability issue form. This form required them to describe the element they were interacting with, the usability issue they came across, identify a specific heuristic they felt the issue would fall under and their opinion of the probable effect on a user. The form also required them to rate the severity of the usability issue on a scale from 0 to 4, where 0 is not an issue at all and 4 is a catastrophic usability issue. They were also told to keep in mind three factors affecting severity ratings before recording their rating. These factors are:

- *Frequency of encountering problem (common, rare)*
- *Impact of problem (low, high)*
- *Persistence – how easily is it overcome each time? (not easy, very easy)*

The completed form was then transcribed and converted to a table format, and this table is given below.

Participant Number	Screen/element description	Usability Issue	Heuristic Category	Probable effect on the user	Severity rating
P1	Share QR code feature	Lack of clarity regarding most optimal way of sharing QR code, too many options that are not relevant	SMART8: design a clear and navigable path to task completion	Confusion leading to erroneous button clicks, retracing steps and hence spending a lot of time on one page, which will cause annoyance	2
P2	WEPay Bill creator page; Bill payer and Individual button	Lack of any contextual information regarding either button, no prompts by the system as to right step forward	SMART4: Display an overlay pointing our main features to help first time users SMART7: Intuitive interfaces make for easier learning SMART8: design a clear and navigable path to task completion	The lack of information for these buttons impacts the core functionality of the app, and hence makes the app unusable for users unless they get some more information or are helped out	3

P3	Future Bill creation feature and associated features	This feature can allow users to make bogus payment requests to multiple individuals, multiple times, as there is no check for the validity of claim	SMART3: prevent problems where possible;	If a user receives multiple bogus requests continually and is unable to deny or block the requestee, which can cause annoyance and grievance and quite possibly put off users from using the app	2
P4	Notification button on WE Individual page	There is a singular notification button in the entire app and can only be accessed through the WE Individual page	SMART2: Use a theme and consistent terms, as well as consistent conventions and standards familiar to the user SMART9: Allow configuration options and shortcuts	The notification page can only be accessed from one page and it takes many hoops to get through to reach it. Being that it is an essential page that allows you to track requests and received payments, a hard to navigate interface to get to this page will not be ideal for anybody trying to have a quick glance at their notifications, neither does it do the job of notifying users	2

				of what they are owed.	
P5	WE Track and WE Group Pool pages	In order to reach the group pools you are part of, you must go through a we track page, which essentially also tracks your membership s but does not allow the functions of the group pool page	SMART7: Intuitive interfaces make for easier learning SMART8: Design a clear and navigable path to task completion	You have to go through the track page in order to get to the group pool page, which is the only page that allows you to pay instantly and view received funds from other groups, which can be frustrating at times where you are clicking through multiple pages in order to get where you want to go	3

Based on these results, it is evident that are major usability issues still existent within the prototype. Users will be able to complete their tasks but not without significant trial and error. In certain circumstances, this trial and error will indefinitely dissuade a user from using our app, which is quite the opposite of our conceptual design and our UX Goals. The system will take significant improvement and error handling in order to provide the optimal User Experience we set out to provide.

Re-establishing Requirements

The high-fidelity prototype has been our most accurate representation of the WePay app to date, and participants have been interacting with the app quite well as well as providing invaluable feedback. This feedback allowed us to provide a better user experience and improved the quality of the user interactions.

At this stage the design has been implemented on prototyping software (Adobe XD) and we have managed to utilise mobile devices in order for participants to feel more comfortable interacting with the app due to WePay being primarily a mobile application. There are obviously going to be problems with every iteration of any application, some more noticeable than others. Our main problem seemed to be the lack of familiarity with the icons on our menu bar. This meant that the users were unable to perform a task in the best manner possible due to the fact that they didn't know what was the purpose of a certain icon. From this evaluation we can say that for future works we should try to incorporate icons that are more familiar/common.

Another problem that we seemed to have was the lack of return buttons. Users mentioned that on a number of pages we were missing a return button to go back to the previous page, with this in mind it seems like this issue could be solved by simply adding these buttons.

Our third and final complaint was that there were too many steps involved in adding a debit/credit card to the wallet. Upon reflection of this process it is clear that it is quite a lengthy one and that there may be simpler ways of implementing this feature however without doing further research it is difficult to say whether there would be a less complicated way of completing this process.

If we were to do another iteration of this high-fidelity prototype it must address these issues head on. To do this would involve many more hours of research and user testing to discover the best way of implementing such tasks without compromising any of the current successes. Overall the application must be visually appealing while maintaining a high standard of functionality in order to become an accomplishment.

Conclusion

Overall, this report focuses on the WEPay in its closest resemblance to the final design, in terms of details and functionality. Problems that were an issue from report 1 and 2 have now been adjusted to meet the expectations of our target users and the board itself. The application has a justified back system and UI which coincides with our users needs and wants. WEPay meets all seven criterias as seen below:

1. Useful
2. Usable

3. Desirable
4. Valuable
5. Findale
6. Credible
7. Accessible

WEPay is an innovative and creative app that allows users to do so much more with banking than what is up for grabs in the market at the moment. The app is smart and has many new features that have not been seen before. Our target users feedback has changed dramatically throughout report 1 to 3 and is much more positive now. It is imperative that you choose WEPay to be developed to the next stage as it will be very successful.

Reference List

- Affairs, A. (2019). User Interface Elements | Usability.gov.
<https://www.usability.gov/how-to-and-tools/methods/user-interface-elements.html>
- Bruggemann, S., Turnbull, L., Menon, A. and Jin, X. (2019). *Report of WePay (version2)*.
Re-establishing Requirements. University of Queensland, p.19.
- Bruggemann, S., Turnbull, L., Menon, A. and Jin, X. (2019). *Report of WePay (version2)*. Appendix.
University of Queensland, p.23

Appendix

- Evaluation methods/protocols:

Pluralistic

Briefing:

Our application is a payment splitting application designed to streamline payment of split bills. It allows users to set up group bills, decide the splits between group members and share owed amounts with those group members. It also allows users to schedule bills and payment dates for the future, and add members to this future bill pool. All payments are deducted from the user's preferred bank card.

As experts, we will first get you to explore the application individually, go through the pages and functions of the app to get a feel of what the app is like. Feel free to voice your thoughts and opinions during this process. Once you feel that you have interacted with the app sufficiently, we will have a quick discussion regarding your thoughts on the app and establish some baselines in terms of mental models of the app.

Discussion points:

- *Have notifications button on mage*
- *Like the colour screen*
- *Nice context*
- *There is uncertainty with regards to the validity of requests sent to members of a group bill, whether the payment claim is truthful or bogus*
- *Lack of buttons that direct back the home page or previous page*
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For the next portion, we request you to assume the role of a real life user, to the best representation of this as possible. As "real life users", we will give you three tasks to complete.

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- *Whether the system performed as you intended it to perform with respect to the task you had to complete*
- *how well you thought the system performed*
- *rate this performance on a scale of 1-10 where 1 is Extremely Poor performance and 10 is Excellent performance*
-

Tasks:

- Create a group bill, create a unique QR code for this bill, share the QR code with your friends via stored contacts and go back to the home screen
-
- P1: icons are not obvious, lack of context, easy enough
- *Rating: 7*
- P2: did not know where to go with bill, needed step through to figure out how the bill was created
- *Rating: 6*
- P3: user decided to be intuitive
- *Rating: 6*
-
- Create a future bill, add bill details such as amounts owed, bill members, add the recipients for the payment with payment dates; send this bill to the members included in it, and then return to home page
-
- P1: underline in the fill boxes to highlight text fill
- *Rating: 7*

- P2: hella questions, not many answers
- *Rating: 5*
 - P3: had doubts whether individuals are forced to pay
- *Rating: 6*
 -
- - Request funds from a friend, scan your friend's unique QR code, add request details and hit request button, go home
- - P1: no consistency, task was simple, easy to understand and complete
- *Rating: 7*
 - P2: task was easy to figure
- *Rating: 8*
 - P3: indication that it was home page, and some more context , task was easy
- *Rating: 7*

Heuristic

Heuristic evaluations are a good source of feedback and data gathering for analysing an interface and determination of a standard of usability, based on 11 heuristics distilled from empirical analysis of 249 classes of usability problems (Nielsen, 1990; DECO2500 lecture 10).

Since our application is primarily a smartphone app, we will be using a set of heuristics/criteria that are more specific to the usability of smartphone apps, provided to us by the DECO2500 faculty at the University of Queensland.

SMART1: Provide immediate notification of application status.

SMART2: Use a theme and consistent terms, as well as conventions and standards familiar to user.

SMART3: Prevent problems where possible; help users if problem occurs, including with network.

SMART4: Display an overlay pointing out main features when appropriate or requested to help first-time users.

SMART5: Each interface should focus on one task, so that it's glanceable to users who are interrupted frequently.

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SMART7: Intuitive interfaces make for easier learning.

SMART8: Design a clear navigable path to task completion

SMART9: Allow configuration options and shortcuts.

SMART10: Cater for diverse mobile environments (lighting, ambient noise, gloves, etc).

SMART11: Facilitate easier input by displaying keyboard buttons that are as large as possible, supporting, multimodal input, and keeping form fields to a minimum.

SMART12: Use camera, microphone and sensors to lessen user's workload (e.g. GPS so the user knows where they are and how to get where they need to go)

Briefing:

Our application is a payment splitting application designed to streamline payment of split bills. It allows users to set up group bills, decide the splits between group members and share owed amounts with those group members. It also allows users to schedule bills and payment dates for the future, and add members to this future bill pool. All payments are deducted from the user's preferred bank card.

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- Create a group bill, create a unique QR code for this bill, share the QR code with your friends via stored contacts and go back to the home screen
- Create a future bill, add bill details such as amounts owed, bill members, add the recipients for the payment with payment dates; send this bill to the members included in it, and then return to home page
- Request funds from a friend, scan your friend's unique QR code, add request details and hit request button, go back to the home page.

•

In the process of completing these tasks, you will simultaneously be walking through the interface as a real life user would. Hence if you come across any usability issues or if you face any errors in the user interface, we ask you to record these on the provided usability issue form. The form will require you to describe the element you were interacting with, your usability issue, a specific heuristic criteria you think this issue would fall under, your opinion of the probable effect on the user.

You will also be required to rate the severity of the usability issue on a scale from 0 to 4, where 0 is not an issue at all, and 4 is a catastrophic usability issue. There are three factors affecting severity ratings, they are:

- *Frequency of encountering problem (common, rare)*
 - *Impact of problem (low, high)*
 - *Persistence – how easily is it overcome each time? (not, very)*
-

Please take under consideration three factors affecting a severity rating before recording your rating in the form.

• Participant Number	• Screen/element description	• Usability Issue	• Heuristic Category	• Probable effect on the user	• Severity rating
• P1	•	•	•	•	•
• P2	•	•	•	•	•
• P3	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•

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Cognitive walkthrough

Briefing

Our application is a payment splitting application designed to streamline payment of split bills. It allows users to set up group bills, decide the splits between group members and share owed amounts with those group members. It also allows users to schedule bills and payment dates for the future, and add members to this future bill pool. All payments are deducted from the user's preferred bank card.

We have assumed our user population to have a certain set of characteristics. The assumptions we made are that users are within the age range of 17-30, are often in situations where they have to split bills with others, are technologically proficient and informed, and finally open to use new technology that assists them with their daily routine. We assume that users will use this application as an alternative or even as a solution to the conventional forms of splitting bills (e.g. physically splitting with cash or through online bank transfers).

The task for you today is to create a future bill, add bill details such as amounts owed, bill members, add the recipients for the payment with payment dates; send this bill to the members included in it, and then return to home page.

The aspect of design we want you as experts to focus on is the ease of accessibility of the applications features, i.e. how simple it is to understand and access the functions of the app.

While walking through the provided task, feel free to voice your thoughts and opinions about the user interface, app functions and anything else that is relevant. As you complete the task, we will ask you some questions (Polson et al. (2002)), to obtain some more in depth information about user interactions.

The questions are given below:

- **Will the user try and achieve the right outcome?**
 - Is the interface making assumptions about a user's level of experience or knowledge that aren't accurate?
-
- **Will the user notice that the correct action is available to them?**
 - Are controls hidden? Is there too much data or choices, which could confuse the user?
-
- **Will the user associate the correct action with the outcome they expect to achieve?**
 - Is language clear or are overly complex words or industry jargon used that can be hard for users to work out what is needed to achieve their outcome?
-
- **If the correct action is performed; will the user see that progress is being made towards their intended outcome?**
 - Is feedback missing, unclear, easy to miss or ambiguous?
-

Time on task

The aim of this test is record the time taken by users to complete a pre-assigned task. This test will help determine whether our application is easy and accessible enough for users to complete their tasks as quick as possible. The time taken by each user to complete the task will be measured and recorded using a stopwatch.

Instructions:

- As potential "users", once you have sufficient knowledge of the workings of the application, you must complete the assigned tasks as if you were in real life scenarios, executing these tasks. You will have three tasks to complete individually.
 - At the beginning of the task, you must signal that you are ready to go ahead and we will begin the stopwatch at that moment.
 - When you feel that you have completed your task successfully, you must signal to us once again and we will pause the stopwatch and record the time taken.
 - Steps 1 and 2 will be repeated for each task
-

Tasks:

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-

● Participant	● Task 1	● Task 2	● Task 3
● Number			
● P1	● 1 m 20s	● 1 m 00s	● 3 7s
● P2	● 1 m 32s	● 1 m 12s	● 4 0s
● P3	● 1 m 36s	● 1 m 04s	● 4 5s
●	●	●	●
●	●	●	●
●	●	●	●

-

Theory:

- Grounded theory: derive a theory from systematic analysis of data, based on categorization of data
- Open coding: identifying categories
- Axial: identifying relationships between open codes, link to subcategories
- Selective: forming theoretical schemes such as principles of usage, generalisations etc
- Evaluation methods/protocols:

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