DESIGN PORTFOLIO PT.1

Westfield Online Shopping Application

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Contents

1. Introduction

1.1 Purpose of this Document

The purpose of this document is to show our client (Scentre Group Limited) the research and analytics, along with the design processes and choices that will lead to the successful implementation of our product into Westfield Shopping Centres, nationwide. It is in both our (Techniworks) and the client's best interest to have a comprehensive portfolio detailing what exactly the product is going to offer for our client. We will show the decisions we have made to ensure the best possible user experience for the Westfield customers. We hope the information provided in this document will show our client the confidence we have in our research and, by extension, the final product.

1.2 Scope of this Document

In this document the scope that we will focus on is the interactions between the product (Mobile Application) and the user group (Customers).

The research we will conduct and document are as follows:

- Identifying our target audience and how we can develop our product in a way that encapsulates as wide an audience as possible, and then analysing various human factors that would play a role in how certain users interact with the product.
- Conducting User Research techniques to provide information about the environment that this product will be used in as well as how the audience will be using it. We will utilise this research to refine the user interfaces as well as overall user experience.
- Discussing the usability of our product and using card sorting to show how our users will interact with the product and presenting what findings we have gathered.
- The visual design aspects such as the layout, the important visual elements, the icons and why we chose them, the style of our product, what colour palette we have decided to use and finally the font type and size. This will include sketches and mock-ups to try to father portray the style and look of our product as well as discussing why we have specifically chosen the design features.
- Paper and wireframe prototypes, as well as user testing with those prototypes.

And to end the document we will discuss various topics including the accessibility of the product, the different domains that the product could be implemented in and the emerging technology that would potentially influence our design in future iterations.

The following topics are outside the scope of this document:

- Interactions between the retail store's staff members and the application
- Interactions between the Westfield and the application
- Programming of the application
- Physical implementation of the product into the shopping centres

1.3 Background

Our client Scentre Group Limited (Westfield Shopping Centres) has come to us with a request to design a new innovative technology that seeks to increase the tenancy rates, better the customer experience, and increased the overall sales within their nation-wide network of shopping centres. With that in mind the product we will cover in this document is a way for all of the customers of the Westfield Shopping Centre to have their needs fulfilled. We predict that the product will increase the quality of life for the customers and tenants of the shopping centres and serve as a means for all customers to be able to shop how they want. In saying that, our product is an online shopping application that allows users to order products from any combination of stores in a Westfield shopping centre, and have them be ready for pick-up inside locked boxes located in the carpark.

With more and more retailers having the option for “In store pick-up” or “click and collect” style transactions, we have jumped on the opportunity to design a product that enables the customers of Westfield to collect their goods without the need to enter the shopping centre. According to Inside Australian Online Shopping (2017) “Department & Variety Store items are the most popular purchases, accounting for 30% of all online purchases in Australia – followed closely by Fashion at 22%” and the total spend on physical goods in Australia was $17.7bn in 2016 [1], we see this as a huge opportunity for Westfield to capitalise on, considering the vast range of products that fall into these categories offered inside Westfield shopping centres.

Westfield has a reputation for its very large and often multilevel shopping centres, and whilst the shopping centres maintain a high level of accessibility for customers with physical impairments, it can still remain difficult for such customers to find exactly what they need without running into complications. According to the Australian Network on Disability, over 4 million people in Australia have some form of disability [2], that’s almost 20% of the population that could utilise a new form of accessible shopping. Not only that, we predict this product will be a very efficient way for busier individuals to have their products ready to go upon arrival. We predict that this product will accommodate a wide range of customers and open up opportunities for increased sales and customer satisfaction in every store that this product is implemented.

2. Audience

Our product reaches out to a wide variety of users, but the main audience groups that this product is targeted towards is anyone who would be more inclined to pick their items up rather than traverse the shopping centre, whether that be because of a disability or just personal preference. A brief overview of the different types of users include:

Users with Physical Impairment (Target Audience)

It is important to consider that this user group may have very personal and specific difficulties that prevent them from using our product, certain considerations must be made to enable these groups to interact with our product. This group could be from all ages and backgrounds, the main consideration for this group is isolating the individual impairments that prevent the user from interacting with our product.

Non-English-speaking Users

Australia is a very multicultural country with citizens from many different backgrounds. It is important to consider that users who do not read/speak English will be using the product. This group of users will most likely have been born in another country, so cultural considerations have to be made as well. The level of competency with technology may differ depending on the country these users have come from, education could differ depending on country of origin.

Parents (Target Audience)

Many of the customers of Westfield who have children may find convenience in not having to traverse the large shopping centres. Parents can often find themselves overly stressed, or have their attention drawn away from the product to tend to their children’s needs. Ages typically are 25 and older. Disposable income may be lower due to having children. Level of competency with technology is typically anywhere between average and low.

Students

We expect the age of the students interacting with our product to be ranging from 18 to 25. The competency with technology should be very high for most students. We estimate most students to have a below average income, possibly relying on government benefits. Potentially located in suburbs surrounding universities.

Busy Users (Target Audience)
Individuals who have little time to spend traversing the shopping centre, would rather have the goods ready to be picked up upon arrival. Knowledge of technology can vary, attention may be short due to stress. Typically, high income and stable occupation and located inner CBD. Age can vary between 25-55. Level of education is usually high.

Fatigued/Tired Users (Target Audience)
Individuals who do not wish to enter the shopping centre due to inconvenience. No specific age, background, education or level of competency with technology. Occupation may include nightshift or individuals with a high workload doing 40+ hours a week.

Targeted Audience (‘Users with Physical Impairment’, ‘Parents’, ‘Busy Users, ‘Fatigued/Tired Users’)
The motivation behind targeting these user groups is based on convenience and accessibility. We believe these user groups can utilise this product in a way that improves their quality of life, and potentially attracts customers to Westfield that previously weren’t being accommodated for.

2.1 Human Factors
The customers of Westfield come from many different backgrounds with many different levels of competency. It is important to detail the different human factors that will play a role in how our target audience interacts with the product.

Touch
For most users interacting through their sense of touch will be suitable, but a significant portion of our audience may have certain impairments that make it either difficult or impossible to interact with our product through this medium. The majority of our users will have no issue with interacting via touch, so this medium will remain as the primary form of interaction with our product. We will use intuitive gestures that are widely used and accepted in the touch screen industry (I.e tap, swipe, pinch, flick, hold). We have implemented voice controls for the users who are unable to utilise touch as a form of interaction.

Attention / Memory
One of the audience groups our product is targeting the users who don’t have enough time or energy to traverse the large shopping centres, which is why we have to take into consideration that our users may be experiencing stress or fatigue that interferes with their ability to focus. For this reason, we find it incredibly important to have as few steps required to enable users to maintain a strong sense of attention whilst interacting with our product. Intuitive design needs to be applied in every step of the design process otherwise there will be an increased risk of losing users due to a lack of usability. It is also important to not rely on the user’s memory to navigate the product’s different screens.

Language
One of the first dialogue options in our application will give the user the ability to change which language the application is displayed in; the appearance of the icon will be designed such that it is recognised regardless of the cultural and/or lingual background.

Voice
For the users who are unable to use their touch to interact we will implement voice recognition to assist in controlling the application. There are apparent flaws with this medium of interaction due to users’ different accents or verbal competency, so we have ensured that the verbal commands are short, distinct and easily verbalised.

2.2 User Research

Obviously, it is important to tailor each aspect of our product to the target audience and their needs, so we will conduct the following user research to ensure we come as close as we can to fulfilling the needs of all the audience members. This includes:

Site Visit

To gather information about our users we must first establish the environment that they will operate in. Our product will be used primarily in two places, at the user's home and when the user arrives at the shopping centre to pick up their order. By visiting Westfield shopping centres, we can gain insight into how environment may play a role in how the user will interact with our product and it may also be important to visit the homes and conduct contextual interviews with our users to see how they operate at home.

Contextual Interview

Engaging directly with the users is important so that we can gain insight into the different levels of physical and mental competency our users possess. It would also be beneficial to the design process to see how the users operate in their own environment, and how they would operate at the shopping centre, these differences could influence certain decisions further into the design. Interviewing our target audience is incredibly valuable considering our product is being designed for those who find it difficult to make it into the shopping centre, finding out why that is will heavily influence the different features and design choices for our product.

3. Usability Objectives

In order to have a successful implementation of our product we must first conduct relevant research into how usable our product will be, to measure this we have used Jakob Nielsen's five quality components:

- Learnability: How easy is it for users to accomplish basic tasks the first time they encounter the design?
- Efficiency: Once users have learned the design, how quickly can they perform tasks?
- Memorability: When users return to the design after a period of it using it, how easily can they re-establish proficiency?
- Errors: How many errors do users make, how severe are these errors, and how easily can they recover from the errors?
- Satisfaction: How pleasant is it to use the design?

Incorporating these five quality components into a survey and providing this alongside the prototype testing further into the design may give us an idea into how usable our product is. We aim to directly measure these five components and make adjustments to our design to increase the usability of our product. The user will be given a specific task to fulfil, and then provided with the survey below. Our objective is to reach at least a 7 on all 4 usability components and have no more than 3 errors when the user is asked to perform a specific task.

Usability Component	Scale 1 – 10 (Or no. of errors)	Comments
Did you find this task easy to complete?	1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10	
If you were to perform this task again, how likely would you be able to reproduce the result	1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10	
Do you think you would be able to perform the task again in 24 hours' time?	1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10	
Did you find the product pleasant to use?	1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10	
How many errors were made in trying to perform the task?		

3.1 Usability Objective for Use Case Diagram with Kano model

The objective for the Use Case Diagram is to see which use cases would allow us to develop a minimum viable product and to allow the user to specify the sequence of events that are necessary to achieve a specified goal. We will gather user feedback into what use cases they think are necessary, as well as some use cases that improve user satisfaction. To summarise, the objectives we wish to achieve for this technique are as follows:

- Categorisation of three types of use cases:
    - Threshold attributes: The use cases that the user deems necessary in order to achieve the specified goal.
    - Performance attributes: The use cases that the user feels that would further increase the functionality of the product and are necessary in supporting other functions of the product.
    - Excitement attributes: The use cases that have no necessity in completing the main function of the product, but increase user satisfaction and quality of life for the user.
- Sequence of events that enable the user to achieve the specified goal.
- The distinction between the multiple user groups and which use cases they are able to interact with.

3.2 Usability Objective for Card Sorting

The objective we have set for the card sorting technique is to observe how a user defines the priority of the different use cases of the application and how they categorise them into groups. This can give us insight into how the user thinks the application should be navigated, potentially what use cases could be grouped into menu items, what the main goal of the product is, and what use cases the user feels they need to use the most. To summarise, the main objectives for the card sorting technique are as follow:

- Early stages of navigational pathways and sequence of events
- Prioritisation of use cases to achieve specified goal
- Grouping of use cases to be embedded in navigational elements
- Potential labelling for grouping of use cases to support navigational pathways

3.3 Use Case Diagram (Including Kano Model)

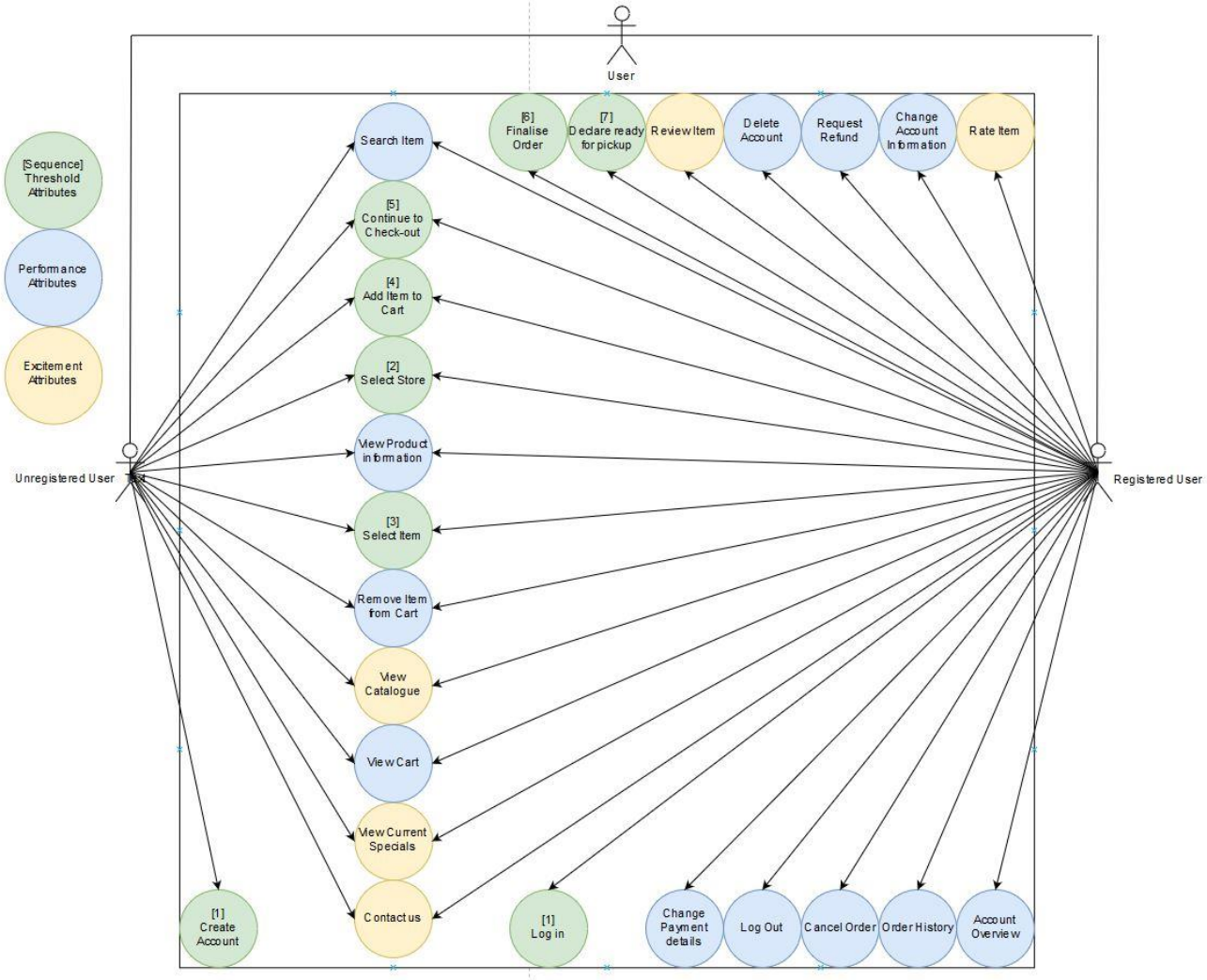

Figure 1 – Use Case Diagram (Including Kano Model)

The goal for the users in this use case is to buy an item on the application and have it ready for pickup, to show how this goal is achieved we have introduced the kano model to show what use cases are vital to achieving the goal, which use cases are related to performance, and the use cases that increase user satisfaction with the product. As you can see in figure 1, the sequence of events to achieving the goal has been noted above the descriptions of the use cases. This model has provided insight into the use cases that will be available to specific users and those that will be available to all users.

3.4 Card Sorting

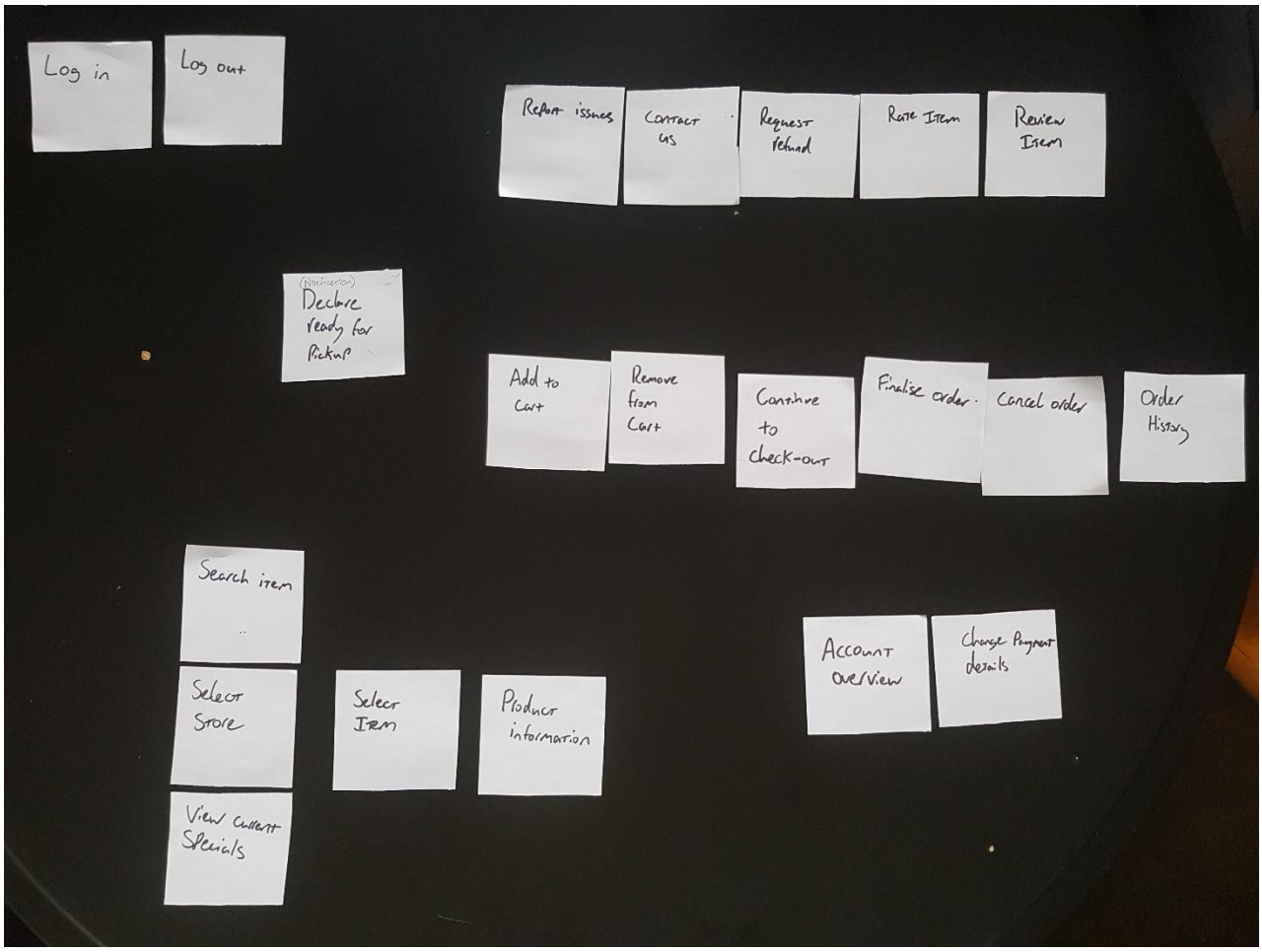

Figure 2 - Card Sorting Exercise

The card sorting exercise was performed on a potential user and showed some early stages of the categorisation of different functions. The cards were sorted in order of priority from left to right in their groups. The feedback provided by the user was recorded and will be detailed below.

The user felt it would be beneficial to have a “quick view” option as an alternative to selecting an item to view the product details, the user expressed the inconvenience of having to go into a product page to read the description or sizing, and then having to go back if they change their mind.

The user expressed that it would be convenient to have the ability to report issues with the product, or with the order in an easily accessible location, an order summary with the option to report issues or request refunds sound like of high importance to this user.

The user felt that the importance of being able to find which store they would like to shop at is of high importance, and that it should be easily revisited. They expressed that a favourited stores feature would be beneficial if the users feels like they wish to return to a store at a later time without navigating too far into the application.

4. Design

4.1 Visual Design

Log in / Account creation

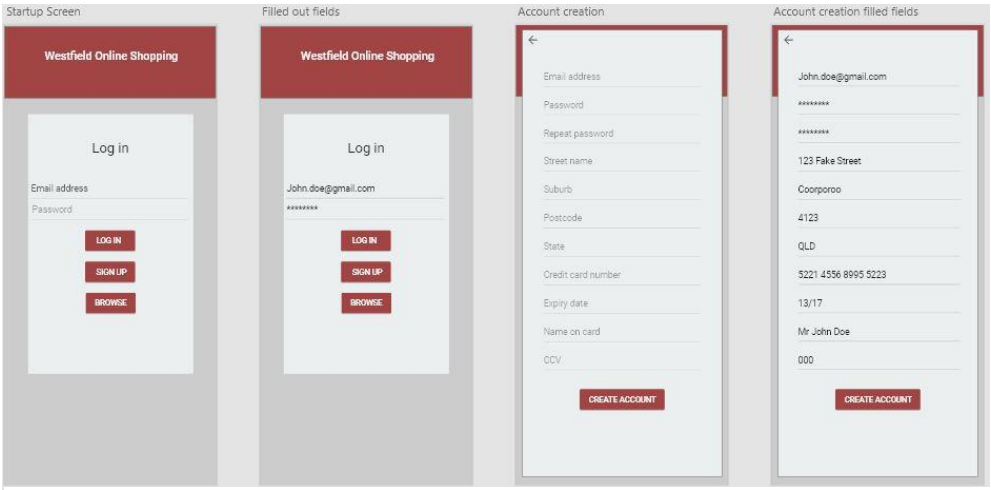

Figure 3 - Log in / Account Creation

Greyed out fields

The use of greyed out form elements in figure 3 has the intention of showing the user that they are required to provide information in those elements, this practise is widely conventional and we anticipate it to promote a sense of familiarity with our product. Once the user has typed in the dialogue box, the element's font becomes black to show that the user has filled out that field.

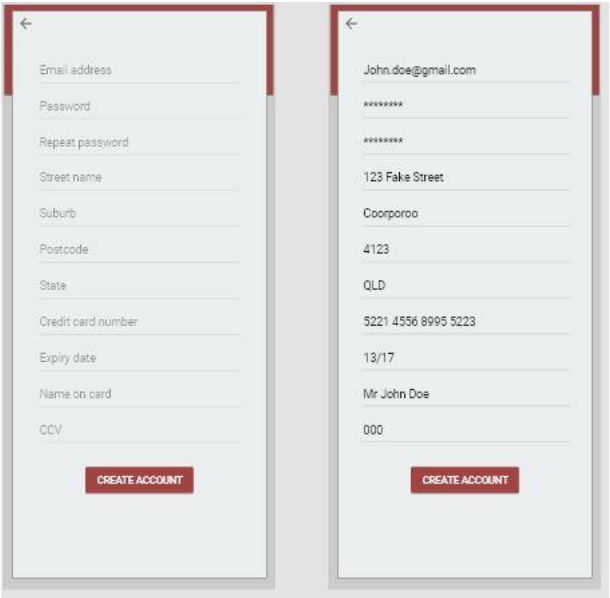

Figure 4 - Unfilled / Filled fields

Colour Palette / Style

We've chosen to use a simple colour palette with the aim to not oversaturate the user's interactive environment with unnecessary colours, the aim is to keep the applications purpose clear and allow the user to immediately understand what can be interacted with, by having only a few colours to choose from for the interactive elements we can keep it clear and concise. As for the colours we have chosen to use #A24444, #CCCCCC, #ECEFF0, #000000 and #FFFFFF we believe these colours accurately represents our client's (Westfield) signature colour palette and keep the screen easy to look at for our users. The style we have chosen to implement is a simplistic style, as we mentioned before, the aim is to keep the applications purpose clear, we don't want to have unnecessary elements on the screen as it can distract the user from what they are trying to accomplish. We have chosen to use Roboto font in this application as it is easily read by users, and does not contain any unnecessary stylisation.

Figure 5 - #A24444

Figure 6 - #000000

Figure 7 - #CCCCCC

Figure 8 - #ECEFF0

Figure 9 - #FFFFFF

Figure 28 – Roboto Font

Log in and Account Creation screen elements / back button

We've chosen to go with a conventional button style, simplistic rounded edge square buttons with white text (#FFFFFF) on a red background (#A24444) as seen below in Figures 9 - 12. The colours used provide a sufficient level of contrast to enable our users to easily read the text without strain on the eyes. We've implemented greyed out buttons to show the user that a button is disabled until the prerequisite is met such as filling out user information to create an account or entering log in information to log in (figure 9 and 11). The greyed-out buttons (Figure 9 and 11) and back button (Figure 12) are both very widely used in the industry and communicate their meaning despite lack of technological literacy or differing lingual capabilities, we anticipate there to be very little issue for our users to understand the purpose of these elements. We anticipate once users become familiar with the application, the level of usability will reach a point where the user makes little to no mistakes due to the simplistic and intuitive layout of our product.

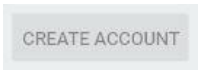

Figure 10 - Create Account Grey

Figure 5 - Create Account Red

Figure 12 - Log in / sign up / browse

Figure 6 - Back button

Figure 14 - Log in Grey

Log in and Account Creation screen error fields

We have used red error messages that read “field incomplete” to show the user the required fields have not been completed and progression will be halted until done so. The red colour along with the error icon (figure 15) clearly describes that there is an issue with the highlighted field. The use of the colour red has a strong tie to “stop” in a lot of cultures, specifically cultures that make use of the green, yellow and red traffic lights. We anticipate this meaning to be clearly understood by a lot of the users considering the locations that this application will be implemented coincides with the cultures that understand this meaning.

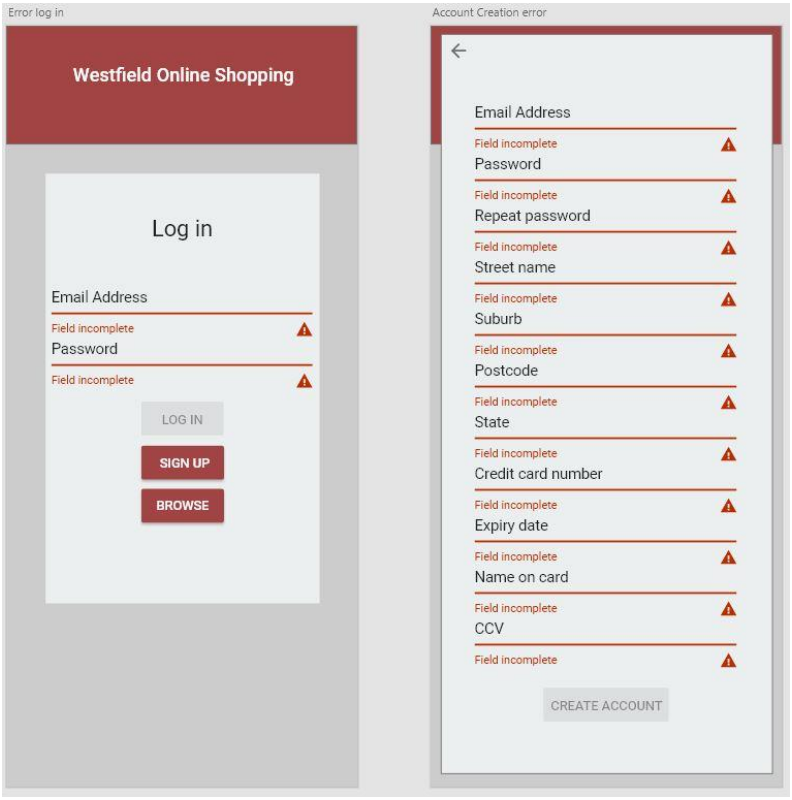

Figure 7 - Incomplete Fields

Figure 8 - Error

Order History / Stores / Account

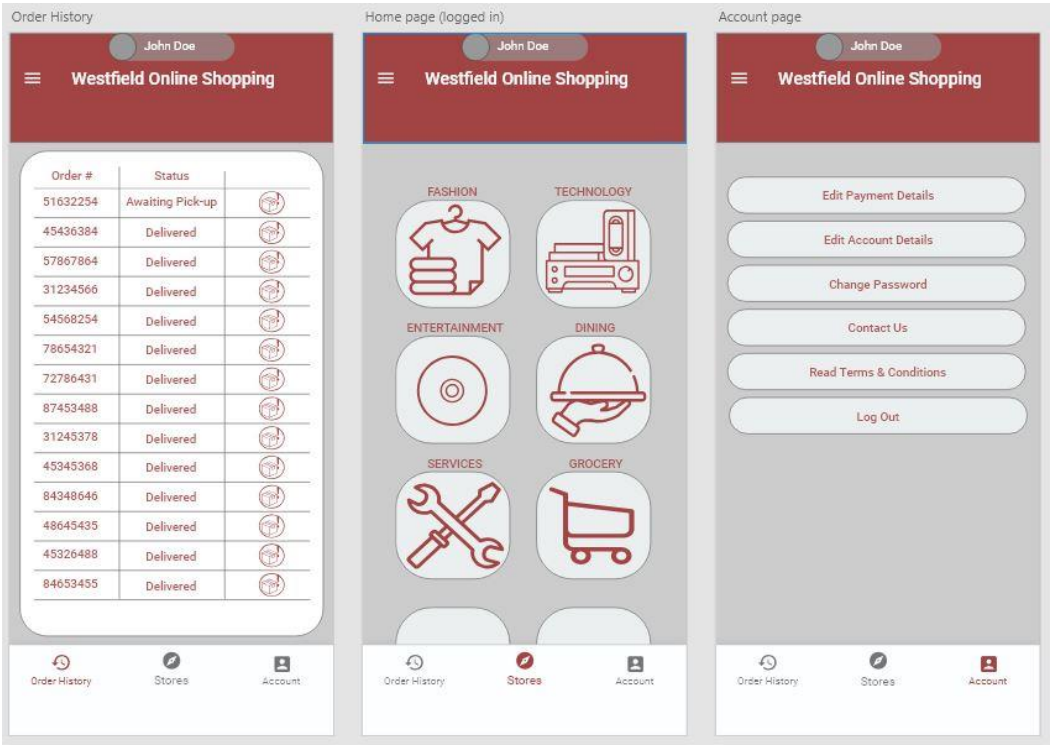

Figure 9 - Order History *Figure 18 – Stores* *Figure 19 - Account*

In figure 18 we can see the different icons for the various shopping categories. The icons have a strong tie to the text above. The icons have distinct visual representations and do not share similar shapes to enable the user to use the application without accidental selection of the wrong icon. We've used a simple, informative layout in the order history and account overview page (Figures 17 and 19) to remove any feeling of discomfort whilst navigating these menus. The navigational tabs at the bottom of the page show where the user currently is in the application by highlighting the currently open tab in red, whilst the other tabs are greyed out to show that they are not currently open. Note that there isn't any back button in these menus as they are all surface level menu pages that have no previous page. If the user has not signed in at this point, selecting the account or order history tabs will redirect the user to an account creation page, as these features are only available to registered users as shown in the use case diagram in figure 1.

The gestures a user can use to interact with these pages are:

- Tap: To select menu icons
- Swipe (left/right): To navigate through the different menu screens
- Swipe (up/down): To scroll up/down the pages

Store Selection Page

In this page we can see the icon in the top right, a shopping cart with an eye in the centre depicting ‘View cart’. The shops are shown with pictures of the shop front to provide context for the user, making it clear that they are “visiting” the store to look at the available goods. The user is able to use the heart icon to favourite their most used stores in order to more easily re-visit them in the future, this feature was discussed by our user in the card sorting exercise in section 3.4 and has been implemented.

The gestures a user can use to interact with these pages are:

- Tap: To select menu icons
- Swipe (left/right): To navigate through the different menu screens
- Swipe (up/down): To scroll up/down the pages

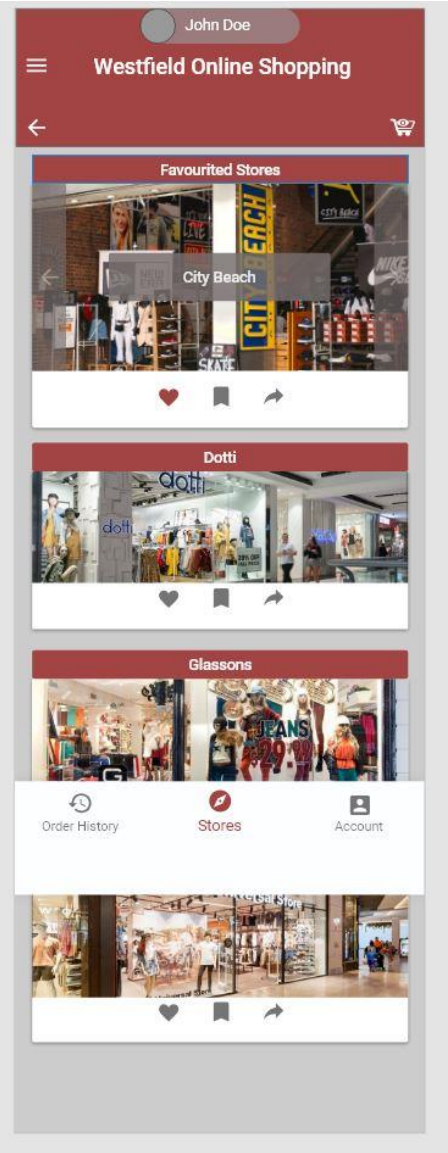

Figure 10

Item Selection / Product Info / Drop Down Menu

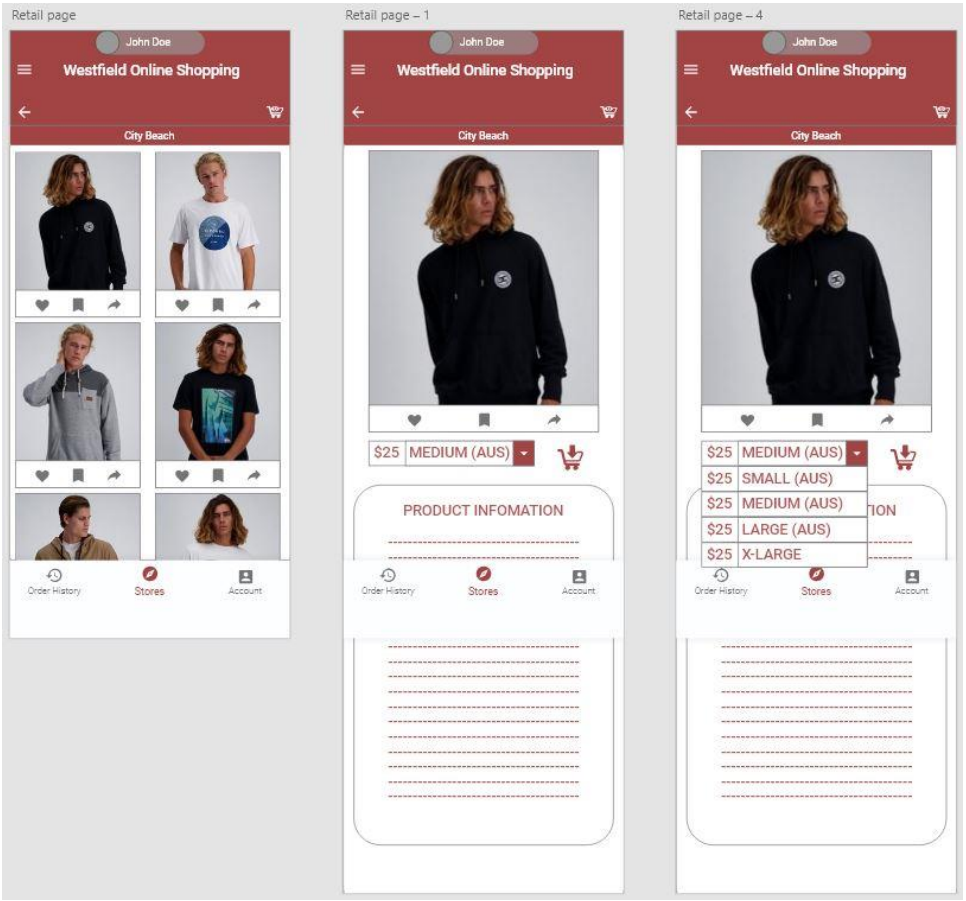

Figure 21 – Item Selection Screen *Figure 22 – Product Information* *Figure 23 – Drop Down Menu*

The item selection screen features drop down bars for selecting different sizing or potentially colours of the clothing. There is an 'add to cart' icon with a shopping cart and an arrow pointing to the inside of the cart, accurately emulating the action of putting something into the shopping cart. In accordance to the findings gathered from the user testing regarding the "add item to cart" feature, we have followed the user's suggestion to make it clearly visible and the first time you would see once you open up the product information page. The user is able to share items via social media / text / email via the share icon beneath the product picture. The user is also able to bookmark items that will come up in a menu item that will be implemented in a future iteration. A feature that was suggested in the cart sorting exercise (Section 3.4) was to have some means of viewing product information without accessing the item page, we hope to have a tap and hold gesture implemented before you access the product information page to enable this feature. Once the user has added all the items that they wish to purchase they can select the view cart icon and proceed to payment.

The gestures a user can use to interact with these pages are:

- Tap: To select menu icons
- Swipe (left/right): To navigate through the different menu screens
- Swipe (up/down): To scroll up/down the pages
- Pinch: To zoom in on product or product information
- Tap and Hold: To open up additional menu items

Shopping Cart

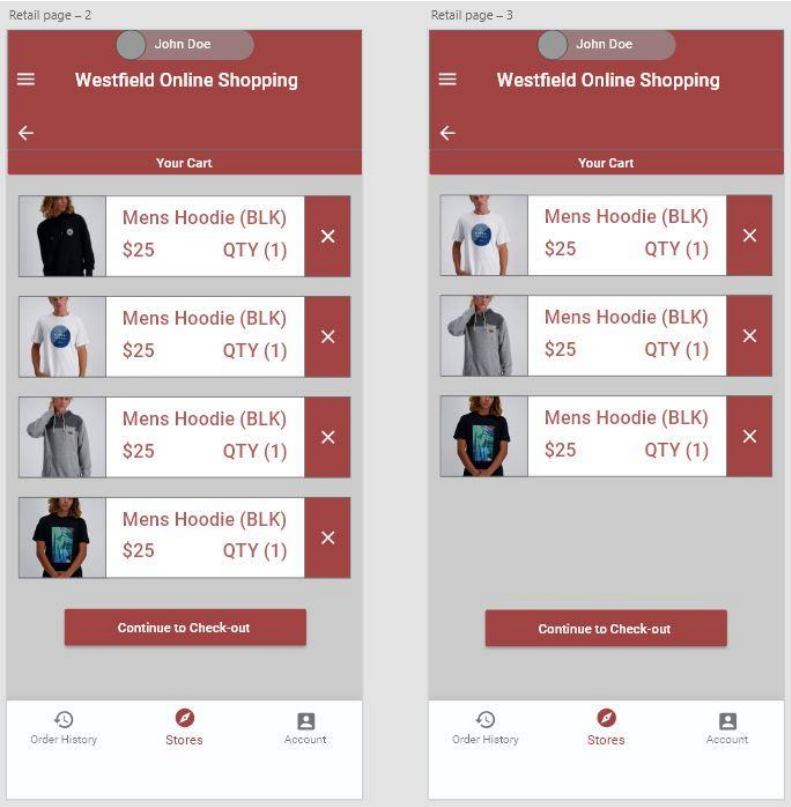

Figure 24 – Shopping Cart *Figure 25 – Shopping Cart Removed Item*

The "Your cart" page features a simple design allowing for any changes to be made such as different sizing or removal of a product from the cart. If the item is selected via a tap gesture it will bring the user back to the product information page (figure 22). Once the user is happy with their cart, they can select continue to checkout to finalise their order.

The gestures a user can use to interact with these pages are:

- Tap: To select menu icons
- Swipe (left/right): To navigate through the different menu screens
- Swipe (up/down): To scroll up/down the pages

Hamburger Menus / Slide button

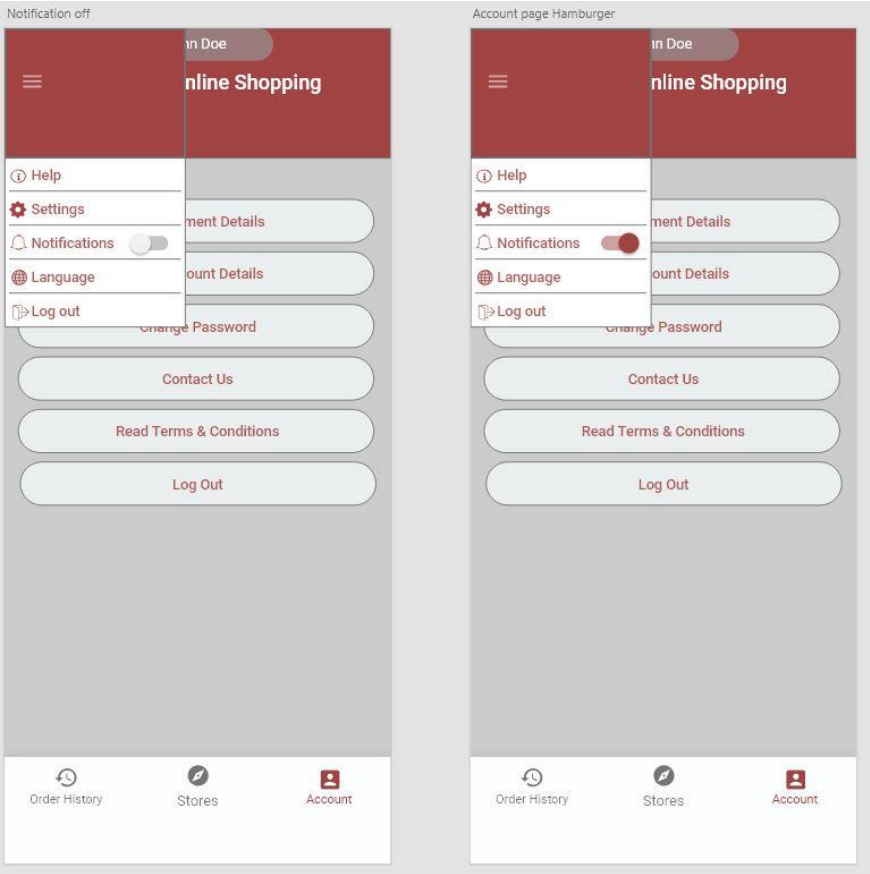

Figure 26 – Hamburger Menu *Figure 27 – Slide Button*

Here we see a quick overview of the hamburger menu where the user can access different menu items such as “help” which is yet to be implemented, we hope to have a live chat system that will enable the user to chat with a representative who can help them navigate the application. The language menu item allows for users to quickly change language to help non-English speaking users, the language icon used is very conventional across different nations and allows for moderately technically skilled users to navigate to without the necessity to read the menu items. The slide bar lets the user quickly enable/disable notification from the application, we hope to use more slide buttons in the future when we implement the complete settings page. We’ve added the log out option in the hamburger menu so the user has multiple ways of logging out and doesn’t have to search many different menu items to find.

The gestures a user can use to interact with these pages are:

- Tap: To select menu icons
- Swipe (left/right): To navigate through the different menu screens
- Swipe (up/down): To scroll up/down the pages

Order Finalisation

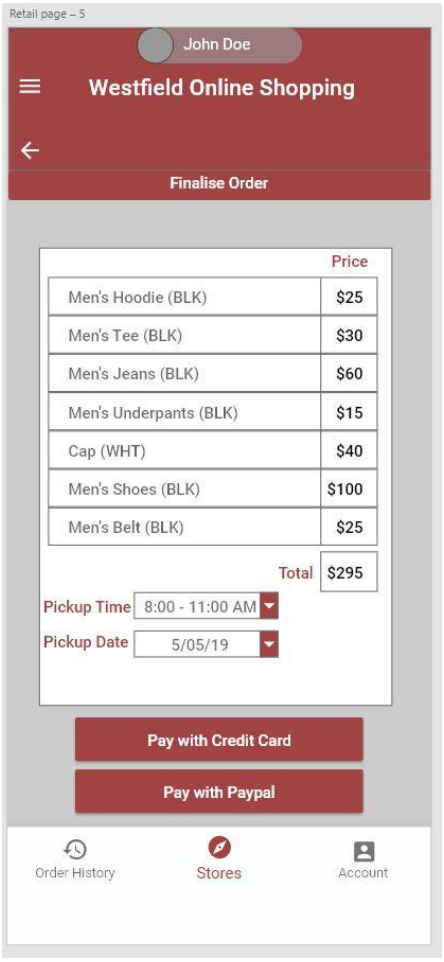

Figure 28 – Order Finalisation

Here the user can view in a simple, informative layout which items they have selected and the information on those items. The total is displayed beneath and there are drop down bars to select a pickup time / date. There are options to pay with credit card or Paypal currently but we will implement many more payment options. It's important to note that anywhere in the application the user can select one of the navigational tabs at the bottom to return to the respective pages, these buttons serve as navigational pathways but also as a pseudo home button.

The gestures a user can use to interact with these pages are:

- Tap: To select menu icons
- Swipe (left/right): To navigate through the different menu screens
- Swipe (up/down): To scroll up/down the pages

References

[1] Inside Australian Online Shopping – eCommerce industry paper - 2017

[2] ABS Survey of Disability, Ageing and Carers, Australia: Summary of Findings - 2015