

DECO2500 - INDIVIDUAL REPORT

Feedback 2

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1 Introduction

In the domain of discovering, deciding where to dine out is an important topic that impacts almost everyone's lives, and most of the time it is time-consuming and frustrating. Based on research, at least once per week, everyone wants to try somewhere new from lots of different options to have a shared experience with others. However the problem arises with the gap between what users want and need, and how they are supported in fulfilling these.

There are 8 factors that are important to almost every user when deciding where to dine out. A user wants to be able to choose what they are craving from a nearby location with easy access to basic information. These factors are all beautifully handled by existing applications, however they focus heavily on reviews when research shows that word-of-mouth recommendations have a greater influence. Additionally, those with dietary requirements (about 20%) and those with a budget (almost everyone) must search using niche apps or be directed to a menu that they must filter themselves. What results is an average of 15 minutes searching every single time, with budget, dietary requirements and friend recommendations ignored.

This report details the process and feedback of three iterations of the interaction decision process to design an application to support all of the factors that are important to a user when deciding where to dine out.

2 Low Fidelity Prototype

The initial research and conceptual design of the low-fidelity prototype were previously presented as a mind map and [presentation](#). In review, there are six main features that have been incorporated into the design of the low-fidelity prototype to address users needs. All of these features will be brought to the attention of the user during this first evaluation to determine they align with user needs and whether they should be carried into the next iteration.

2.1 Evaluation Methods

The purpose of these evaluations is to learn more about the users' needs, confirm that the conceptual model is appropriate for the users, and to provide feedback about design and flow. It is imperative that any misalignment of values or expectations are identified at this early stage before further time is spent on interaction design. Users must be able to understand how the system works and it must align with their expectations to be a worthwhile project. The evaluation method chosen for the Low Fidelity Prototype is a combination of Design Walkthrough, Co-design and TAM.

A design walkthrough involves giving the user a task and, without guidance, ask them to complete the task. By observing and documenting how they interact with the system, feedback on how users expect the system to operate and what they expect the system can be obtained. This feedback provides clearly whether the conceptual model chosen is appropriate to the users mental model. This method was chosen as the steps involved in using the application are almost the same for every instance, and so it is imperative that users are able to easily complete these steps (i.e the task) without cognitive overload at this early stage of design.

The co-design process generally involves explaining to the user how the system works and asking for their opinion how they would design the features of the application. For this evaluation, at points during the design walkthrough when a user gets stuck, in addition to asking them what the issues are and what they are experiencing, additional co-design practices will be adopted. This includes asking the user what they think should be happening and how they would design this part to be more intuitive. Since the user is in control of instructing the system it is important that they are able to achieve their goal of choosing a place to dine out the way they want to and expect, especially since it is a process that will be repeated on average twice a week for them.

TAM consists of a set of questions based on perceived usefulness, perceived ease of use, attitude and intention to use the system. These questions are scaled from 1 (strongly disagree) to 4 (strongly agree). For this evaluation, eight of the questions were selected (at least one from each category). These questions were identified as most relatable to the purpose of the application, without being repetitive. The questions provide quantitative analysis that can assist with identifying problem areas of user acceptance, however by themselves they don't provide the reasoning behind the response. So in addition to these questions, follow up questions will be asked when a response less than strongly agree is selected to gain further insight into the users experience to understand why there is a gap between mental models. This method was incorporated as an extension to the design walkthrough/co-design process to determine that not only can users intuitively use the system but that they believe the design and the features assist them with mitigating the problem of deciding where to dine out.

Together these evaluation methods provide a succinct overview of whether at this stage of design that application gives the user what they want, what gaps may exist in the conceptual model and the overall acceptance of the design and flow of the prototype.

2.2 Evaluation Protocol

This protocol was created to provide structure and consistency amongst evaluation of participants. The protocol outlines the flow of the evaluation including scripts, instructions and details of notes to be taken. The protocol can be viewed as Appendix A.1. Due to current measures relating to COVID-19 all evaluations were performed online, unless part of the family unit. Users are invited to a Google Form where they are asked to sign in with their Google Account. From here they can navigate themselves through all aspects of the evaluation. The form can be viewed in Appendix A.2.

Firstly, the user is introduced to the evaluation process and asked to complete a consent form online. The consent form is then uploaded in the provided section on the form. Secondly, the user is given instructions for the Design Walkthrough and directed, via a link, to a Google Slides presentation. Here they are given the task and access to navigate through slides depicting different pages of the paper prototype. The task is fairly vague to provide feedback on whether it is clear to the users what features are available without being told. The presentation is designed so that when users select areas of the paper prototype that are ‘clickable’ they are directed to the appropriate slide with the corresponding page. The presentation can be viewed in Appendix A.3.

Thirdly, whilst completing the task any time they are stuck for a period of time they are asked to stop and follow up questions are asked, including contribution of design as part of the co-design process. Finally, once the user has completed the task they select a link on the presentation that takes them back to the Google Form where they will complete the TAM evaluation. On the form, users will select their answer between 1 and 4 (strongly agree) which will be stored as quantitative results and follow up questions will be asked for further clarification. The results can be viewed in Appendix A.4. Throughout all sections of this process, notes were taken of observations and feedback. These notes can be seen in Appendix A.5.

2.3 Evaluation Results

The following provides an overview of the results and feedback from the evaluations and is separated by the key features of the application.

1. Filter by preferences (including both craving and dietary requirements) - this filtering extends to the map results and menu display
 - Users liked that they had the option to filter by dietary and cuisine.
 - Some confusion about the difference between cuisine and dietary which would be clear when the dropdowns are clickable.
 - It wasn't clear that the menu was filtered as well, users noted that if they had been able to filter they probably would have noticed that it was only showing specific meals.

- A user wanted to be able to view other menu items as well and suggested that below the filtered items on the menu page there was also a way to access the full menu or change filters on this page.
2. Interactive map - replicate the familiar experience of exploring destinations
- Users had no problem selecting a restaurant
 - About half of the users selected the filter icon before picking a restaurant. They either expected to be taken back to the preference page or bring up a more detailed version of the same list (with those previously chosen pre-selected).
3. Promote existing deals - have existing deals from restaurants separate from the menu and easily viewable based on date selection
- Users liked that deals was easily accessible and was one of the main tabs on the restaurant page.
 - Was clear that it was filtered based on the day and that they could change that selection in this tab.
4. Editable and shareable list - provide support to be able to compare options and share these with others
- For most users, when they reached the restaurant page it was not clear what the next step was. They looked at all the information and most got stuck.
 - Most users didn't notice the small list icons in the corner. Their attention was on the six main tabs. When asked whether this was a good position for these icons all but 1 users said yes if it was clearer what the list was.
 - Many of the users didn't recognise what the 'list' icon was. One of the suggestion was to add the text 'Add to list' and another was to change the icon to scales (the icon would also change on the main tab).
 - Many of the users mentioned that before getting to the list page they didn't know what the 'list' icon on main tab meant. Once reaching the list page, for some it wasn't clear whether it was a list for them to compare or a list of places they have saved for later. One of the suggestions was a different name, such as 'Compare' since 'list' was vague. Also, a design suggestion was to use scales as the icon.
 - Most of the users noticed the share button and knew exactly what it did, one of the users suggested adding the text 'share' as well like every other icon
 - The delete, edit and go here icons were all clear. Users liked that you could just be directed straight there after deciding.
 - Once on the list page, most users were happy to just select a restaurant and go there as currently designed. They were happy with just have the name, rating and deals information.
5. Recommend to a friend - focus on word-of-mouth recommendations instead of star ratings
- Users liked the idea reviews were friends only. In the TAM evaluation when asking if they would recommend, some commented that this would mean they had a better experience on the app.
 - Users understood the thumbs up and down was ratings, but not that it was friends only until it was explained.
 - None of the users had issues with the notification page, and understood it was related to friend recommendations (after being told earlier). Like the clear wording and only 3 options.
 - Users liked that they would be nudged later without having to remember to go back and do it themselves later, especially since the more people that reviewed the better

the ratings.

- One of the users wanted to be able to see other reviews too and raised the questions 'What if I don't have friends/know people who live in my area?'. They saw the star ratings on the information page, but wanted to see others thumbs up and down recommendation. They suggested that on the restaurant page where the icons are to have with the default as friends and swipe to be able to see all reviews from the app.
6. Restaurant information - ensure users are able to readily access general information about a restaurant without being overwhelmed
- Users understood all of the icons on the about page, liked that this was one of the tabs but not the first one.
 - Users had no issues with finding the information about the restaurants.
 - Once on the list page, some of the users expected to be able to select the restaurant and be taken back to the restaurant page or see more information. One suggestion was to incorporate right and left swiping for different actions. Another suggestion, from a user who wanted to be able to call the place, suggested when selecting a restaurant it overshadowed the name and you had the icons for delete, more information, call and directions.

2.4 Evaluation Analysis

From the process of this evaluation, there are a number of key factors that will influence the design of the medium prototype to ensure increased usability and acceptance of the application for the user. For users deciding where to dine out, this prototype has met their needs. From the walkthrough aspect of the evaluation, all users interacted with all of the features of the system, with the list feature the only aspect that needed guidance to reach. On the TAM evaluation, the overwhelming result for the perceived usefulness of the app was strongly agree. Users said they felt all aspects of the application were important in assisting them and especially liked the simpler rating system from friends and the ease of deal access. Therefore, all features of the low fidelity prototype will be carried through to the next iteration.

From the evaluations it is evident that specific areas of the conceptual model didn't match the users mental models. The results of the TAM evaluation showed that the areas of concern were perceived ease of use and attitude. For all users there was only one area of the application in which they had concerns. For some, this was during the gulf of execution due to the misunderstanding of how to complete the task, that is not knowing how or that they could proceed from the restaurant page to the list page. For others, this was during the gulf of evaluation, as there was the misalignment of design expectation of selecting a restaurant on the list page before proceeding to the location. During the TAM follow up questions users said they would rate strongly agree in these categories if their suggestions from the co-design were adopted.

Overall, users had no feedback about the overall flow of the application. During the walkthrough, users appreciated the simple design and all commented on the three tabs used to break up the restaurant page as sleek, and easy to use and understand. Most of the icons were recognisable by users, who especially liked when there was text accompanying them. For the next iteration, using the suggestions from the co-design the metaphor used for the list will instead be scales, accompanied by the new name of 'compare'. Additionally, on the list page, when selecting a restaurant an overshadow of icons with text will appear showing the existing

delete and go here icons as well as more info and call. Not only does this make it clear what selecting the restaurant does and allow them to instruct the system as they want, but also saves screen real estate and uses Fitts Law to reduce cognitive load.

3 Medium Fidelity Prototype

The medium fidelity prototype is the first digital version of the application. It follows the research and initial conceptual design of the low fidelity prototype, while revising these concepts using the analysis of the first round of evaluations. The main sections of misunderstanding are from restaurant to comparison list, and comparison list to restaurant. To better understand the users and the usability of the app, this section additionally includes personas, scenarios and UX Goals. The prototype can be viewed [here](#).

3.1 Revised Requirements/Conception Design

From the low fidelity evaluations the initial requirements and conceptual designs will be revised accordingly. This includes more detail to the design principles and system requirements.

System Concept Statement

The problem statement and high-level description of the outlined in the low fidelity prototype are still accurate for the next iteration, as well as the definition of mobile paradigm and instructing mode. However, whilst most of the metaphors were accurately chosen, there were several that either didn't align with the user's mental models or the defined design principles.

The following updated metaphors will be applied to this next iteration.

- Explore: map with location marker --> compass
- List: bookmark --> scales
- Deals: coupon --> offer

Design Principles

The design principles were briefly identified for the low fidelity prototype. With the feedback from the user evaluations, there are several design principles that were not followed well enough.

- Give clear direction and guidance - Most users were unable or unsure of how to move from finding a restaurant to going there. In this next iteration there needs to be more focus by providing large actionable buttons.
- Be familiar - One of biggest confusions was with the word and icon choice for list. In this iteration this will be changed to scales and compare.
- Encourage collaboration - Users weren't aware that the recommendation system was based on word-of-mouth only, and so in this iteration the word friends will be added to be clear.

Additionally, two new design principle will be introduced in this iteration.

- Fluid navigation - Users weren't able to move smoothly back and forth between pages which added steps to their process.
- Immediate access to actions - Once reaching the comparison page, users wanted access to more action options then just directions. In this iteration they will be given additional

options readily available on the same page.

In order to satisfy these principles and those previously stated, the below will be taken into consideration for the prototype. Many of these design choices were made to follow the well documented industry standards outlined by material design. These standards are not only thoroughly researched to ensure the optimal user experience, but their popularity creates a sense of familiarity for users which greatly reduces cognitive load (especially in terms of memory, learning, and pattern and recognition).

- Colour

- Consistent colour throughout: The primary colour, used for a majority of the application, is 'medium violet red'. This colour was selected as pink is calming, joyful and encourages creativity (Cherry, 2019), which aligns with the aim of wanting to users to enjoy the experience of choosing where to dine out.
- Follow recognizable colour schemes: Variants of the primary colour are used in contrast to distinguish different elements and were chosen using the palette generator from materialdesign.io. The light variant is 'lavender blush' and is used to fill buttons when they are selected. This follows a monochromatic scheme which produces a soothing effect and is easy on the eyes (). By using specific colours this also assists with reducing cognitive overload using gestalts theory of similarity.

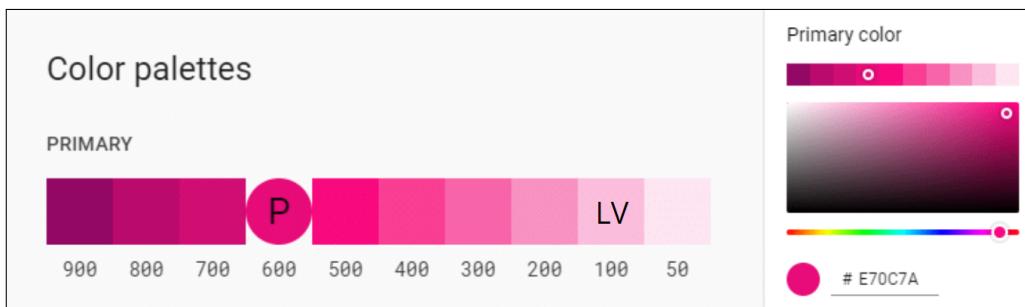


Figure 1: Colour Palette - Medium Violet Red

- Typography

- Use popular font: The only font used throughout the app is 'roboto'. It is the default font for Android and many Google services (Jackson, 2020). The colour of the font is either the primary, white or grey depending on the background.

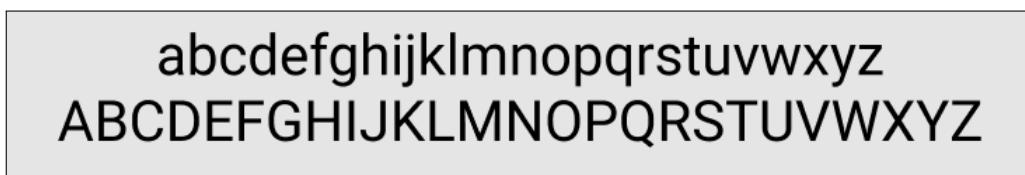


Figure 2: Font - Roboto

- Iconography

- Use industry standards metaphors: The appearance of the icons is in-line with material design where possible. Some of these icons take advantage of closure in Gestalt's theory (users complete borders themselves). The only icon that had to be sourced elsewhere was the scales for the compare feature.

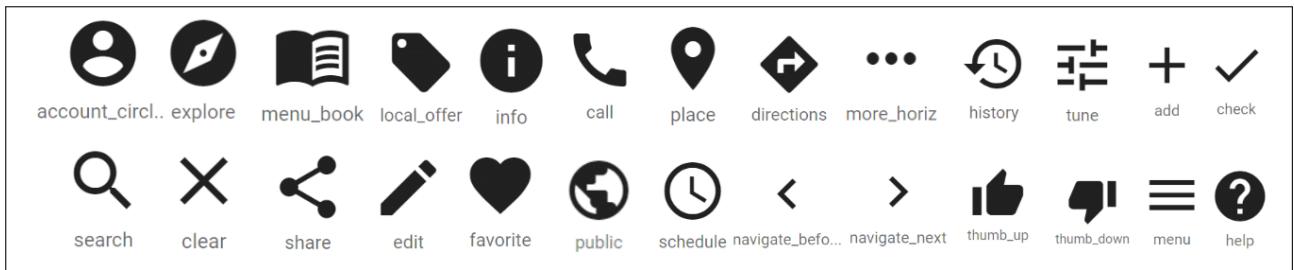


Figure 3: Icons - Material Design

- States
 - Hierarchical visuals (colour, text) - Titles and buttons should be large and primary coloured, to contrast against other elements to allow quick access.
 - Highlight active interfaces - Ensures tabs are coloured when selected to make it clear to users the current page they are on.
- Navigation
 - Bottom navigation bar - Provides access to 3-5 top-level destinations. This allows quick movement between screens.
 - Navigation tabs - Used within the restaurant hierarchy to replicate the bottom bar to enable later navigation but for peer related content.
 - Elements are consistent and locked - Follows Gestalts Theory of continuity.
 - Access to desired buttons - Offer clear affordances, less movement between pages
 - Large buttons lose to action - Reduced errors and wasted time as per Fitts law.
- Communication
 - Icons accompanied by small text - Although selected icons should be popular metaphors, added text helps to reduce the cognitive load and assist first-time users.
 - Avoid jargon - Everyone should be able to understand any text used throughout the application. For example LIST was not clear and has been amended to COMPARE.
- Space
 - Dropdown/hidden menus - Proximity Gestalts theory of proximity to show the options are related to one another. This promotes customisation and reduced cognitive load by allowing user to only see what is relevant to them.
 - Keep interface elements to a minimum - Reduces the amount of space taken on the screen so overcrowding doesn't occur. White space is a friend.
 - Overlays - When elements are selected use an overlay with action buttons as proximity indicates these action are related to the selected.
- Time
 - Minimise user input - Stepping through should be quick and since on mobile typing only increases frustration and so should only be when absolutely required.
 - Don't overload with options - Hick's law makes it clear that users only want a select number of options to choose from.

System Requirements

From the initial research there were six system requirements identified that were implemented in the low fidelity prototype. For this next iteration, the first three requirements will remain the same:

1. Promote existing deals - Users are informed of whether an option is in their budget.
2. Interactive Map - Interface needs a way to search for options.

3. Editable and shareable list - User needs a way to review their options.

The fourth requirement will be split into two separate requirements as the functionality and purpose were identified to be actually slightly different. The map view provides an overview of options that match the user's need, however while the menu also performs this action it is a narrower and more customised view of the particular restaurant. This not only requires the categorisation of the restaurant as a whole but also the individual factors of the menu; price, ingredients, etc.

4. Map filtered by preference - Users want an overview of what is relevant to their individual needs. *This is supported by previous research and the evaluations confirmed that this is expected behaviour of an interactive map.*
5. Filter restaurant menu by preference - Users want to make decisions without navigating to another graphic/page. *Users weren't aware in the low fidelity prototype that the menu was filtered and embedded but supported the idea as per the initial research that users almost always look at the menu beforehand and use apps to avoid navigating between different websites for information.*

The fifth requirement will also be split into two, as there are actually two separate requirements being compartmentalised into one; word of mouth recommendations and user tracking.

6. Recommend to a friend - Remove focus from reviews and encourage user interaction. *As per the initial research, users rarely leave reviews. From the evaluations most users commented that they would this word-of-mouth recommendation system as it is simple and it improves their experience.*
7. Track user history - Remember preferences and customise experience. *Users expected that they had access to their history and that they would be able to save their preferences for later use, especially since the application would be used weekly.*

The original sixth requirement will also remain the same (though now it is eighth).

8. Restaurant Info - Information to make an informed decision.

3.2 Personas

To summarise and empathize with the users of the system, four personas have been developed. Each of these personas represent a different type of user to provide an overview of each group's expectations, use cases and highlight the most important functionality they need (Yale, 2020; usability.gov, 2020). There is a typical user as well as one at each end of the extremes (low and high use) and a user who requires the use of less required elements (dietary and planning). Each persona has a name, photo, life goal, blurb, quote relating to the system and an overview of their characters (employment, relationship status, income, interests, use of the system, restrictions). The full breakdown of each persona can be viewed in Appendix B.1.



Figure 4: Personas Overview

3.3 Interaction Scenarios

For each of the created persona's a storyboard of their typical interaction with the system was sketched. These scenarios communicate the subsets of user behaviour of the system to assist with ensuring all users needs are met and that the design of the system supports these expectations. Each scenario has 11 slides and uses the template supplied by NNGroup with rough sketches and simple explanations. There are four scenarios, all of which can be found in Appendix B.2.

1. David - Student Deals - Find the cheapest place with friends
2. Jessica - Hump Day - Choose from favourites with partner
3. Sophie - Busy Planner - Plan lunch ahead
4. Matt - Lunch at work - Choose first nearby, recommended place

3.4 UX Goals

When determining the 'success' of the user experience it is important to 'focus on the outcome not the feature' (NNGroup). Rather than focus on the service the application is offering, focus on the problem that this application is solving. The problem is that no existing solutions that give users what they actually want (the benefits); options to dine out with others based on personal preference (craving, dietary), nearby location and word-of-mouth recommendations.

These UX Goals were developed by identifying the main user needs, from previous evaluations and research, and then selecting content and functionality requirements to meet them. The goals use SMART principles and together cover all systems requirements. Each goal is a real-world end state that users want to reach (Yale, 2020). The full details of the UX goals can be found in Appendix B.3, including their source, measures and link to requirements.

1. I want to dine out at places that match my dietary requirement.
2. I want to eat what I am craving.
3. I want to choose where to eat based on my location.
4. I want to view the menu of the restaurant as it relates to me before going there.
5. I want to learn about the relevant deals of a restaurant.
6. I want access to the basic information of a restaurant.

7. I want to compare a variety of restaurants at once.
8. I want to share the experience of dining out with friends.
9. I want to dine out at restaurants that have been recommended by word-of-mouth.
10. I want to re-visit restaurants that I enjoyed.
11. I want to find new places to eat out.
12. I want to dine out in my budget.
13. I want to decide where to dine out in less than 20 minutes.
14. I want support restaurants without having to leave long reviews.

3.5 Prototype Development

Taking into consideration the revised requirements as outlined from the results of the low fidelity prototype evaluations a medium fidelity prototype was created. Figma was chosen due to its browser-based interface, easy-to-use design, prototype functionality and popularity in the UX world. Colour, icons and basic functionality has been implemented. Since this is the first digital version of the prototype, the same interaction as the low fidelity prototype was implemented (only one end option for each feature). Overall the updates ensure user's have clear understanding and awareness that:

- the shareable comparison list is a main feature with clear guidance to get there and understanding of its purpose.
- both the map and menu are filtered by their personal preferences with the ability to expand or minimise these options as needed.
- recommendations are by word of mouth, with the option to view all responses as well.
- they have access to basic information of a restaurant on every relevant page.

The below is the interface of the medium fidelity prototype, with any relevant updates outlined. Also note, the application now has a name; foodie. It is simple and fun. It will replace APPNAME in the top navigation bar.



Figure 5: Medium Prototype

3.6 Evaluation Methods

Instead of evaluating whether the application assists users with solving a problem the purpose of the evaluations of the medium fidelity is to determine the usability of the application. Any gaps between mental models in the low fidelity prototype have been amended for the medium fidelity prototype and it has been determined that this application is something users want, so now it is a matter of whether they can use it.

The think aloud evaluation method requires users to either complete a specific task or walk through all aspects of the application, whilst saying out loud everything they are thinking. This method was chosen as it provides substantial qualitative feedback on the user's experience as it is happening in regards to their expectations of the system. Since the end goal for this

application is the same for every user, deciding where to dine out, the process of deciding is different for every user with a wide range of approaches that can be taken with the system.

The System Usability Scale (SUS) is a set of 10 questions, with both positive and negative responses, that provides a grade for the usability of the system. These questions are a popular staple of evaluation in the user experience industry as they are cheap and quick process. Since the user is only required to respond with a numerical value, the full picture of why and how users feel about a system may be missing. This is used to supplement the think aloud evaluation as it provides an overall quantitative picture of the user experience after an overload of qualitative feedback.

3.7 Evaluation Protocol

The purpose of this protocol, structure and consistency, is the same as the low fidelity prototype. The protocol can be viewed in Appendix B.4. Also similarly, users are invited to a Google Form where all instructions, links and surveys are available to them. The form can be viewed in Appendix B.5. After providing consent the user will be directed to an interactive prototype. Each page of the prototype in presentation mode is outlined by a typical android smartphone frame. The slides can be viewed in Appendix B.6.

Users are asked to use the app as if they were a first time user interested in the app. They are given no specific task and to speak all thoughts out loud. This is inline with the Think Aloud evaluation method. In addition to taking note of their use and understanding of components of the prototype, the measures for the UX goals will also be taken simultaneously. After explaining each step of the system as they understand, users will be directed back to the Google Forms to complete the SUS questionnaire.

For this evaluation, there are six participants in total. Three of the users will be brand new to the system, whilst the other three took part in the evaluation of the low fidelity prototype. This provides a balance of fresh eyes with no preconceived ideas who can comment on the basic flow of the application, and also those who already have a basic understanding who were able to evaluate if the changes made were appropriate and look at the application in more detail. The raw notes are in Appendix B.7 and the results of the SUS questionnaire in Appendix B.8.

3.8 Evaluation Results

The following provides an overview of the results and feedback from the evaluations and is separated by each persona's ability to complete their scenario.

1. David - Student Deals

- Today/now confusing, didn't understand the difference between the two.
- Wants to be able to filter by price before getting to the map view.
- Liked that there was a dedicated page for deals, though wanted to be able to view this tab first (before menu).

2. Jessica - Hump Day

- Went to the saved restaurant but couldn't go to the restaurant information page without adding to the compare list first.

- Tried to find an option to view all deals.
- Wanted to be able to follow partner's saved places instead of just in the list.

3. Sophie - Busy Planner

- Was able to filter by location, cuisine, dietary and tomorrow which she felt made the search very custom.
- Wanted to be able to save her preferences for later but couldn't find how to without assistance.
- After finding places, wasn't sure if compare list was going to be able to save for the next day and wanted to be able to save for future trips.

4. Matt - Lunchtime at work

- Selected to filter by cuisine for the map, but wanted to be able tell which places were popular before having to click into each one
- Once at the restaurant looked at the recommendations and could tell they were friends
- Wanted to be able to go straight here without going to compare list, wanted a 'go here now' option
- After going to the restaurant wanted to be able to recommend without having to open the app.

3.9 Evaluation Analysis

The overall interaction of the app was much improved from the low fidelity prototype as users could now progress from the restaurant page to the compare list, and move from compare list to their next desired page (back or forward) without issues.

In terms of usability, as per the SUS analysis the grading of the system overall was a low A with an above average score in the 82nd percentile. However, the scoring was as low as 62.5% (C - below average) to 95% (A - above average). The lowest scoring question was 'I thought there was too much inconsistency in this system' with an average of 2.8. The highest scoring question was (reverse) I think that I would need the support of a technical person to be able to use this system' with 3.66, closely followed with 'I found the system unnecessarily complex' with 3.5. All other questions were either rated overall 3.16 or 3.33. This suggests that the system is easy to use in terms of technical complexity, however there is still too much thought process involved with moving through the system.

The think aloud evaluations identified that the main issue contributing to this inconsistency in this iteration was the availability of options for different actions. Firstly, users want to be able to filter by budget on the first page, and agreed the now option is redundant. Secondly, users want a broader view of the places on the map view with differentiation of restaurants based on popularity (different colour or icons with legends). Thirdly, users want the ability to be assisted with going to a restaurant straight from its page without proceeding to the compare screen (more buttons). On the restaurant page no-one used the bottom tab and so instead this will be replaced by the popular action buttons.

Fourthly, users wanted to be able to set default preferences more easily, by changing the filters on the profile to settings. Finally, users wanted to be able to access more information on the places recorded in their profile without having to add them to the compare list first. Most users commented they usually wouldn't select more than one restaurant at a time, so instead

of checkboxes the same overlay as the compare page will be used (more info, add to compare and delete as the options).

4 Notes for HIGH

1. UX Goals:

- I want to re-visit restaurants that I enjoyed.
- I want to dine out in my budget.

2. Design guidelines:

- minimal effort
- purposeful movement
- consistency

3. Evaluation method:

- Heuristics

Appendices

A Low Fidelity Prototype

A.1 Evaluation Protocol

EVALUATION PROTOCOL Low Fidelity Prototype

Tean-louise Cunningham (42637460)

Complete a design walkthrough with co-design and TAM questionnaire of a low-fidelity prototype to identify gaps between conceptual and mental models.

PREPARATION

Since this is an individual evaluation only myself and the participant will be involved. Therefore, I will be fulfilling the role of facilitation, observation, recording and interaction flow. The following materials will be prepared for the user prior to the evaluation.

1. Electronic Consent form
2. Paper Prototype
3. Walkthrough Presentation Slides
4. Questionnaire
5. Google Forms
6. Zoom software

INTRODUCTION

Opening Statement

User has been sent a link with survey and instructions on Google Forms. User's screen is being shared over an online conference call. *Thank you for taking the time today to provide some feedback on the early stages of a mobile application. The purpose of this app is to assist you with deciding where to dine out using an interactive map, filtered preferences and comparison feature.*

Today, I will be showing you the basic prototype to observe how you interact with it , to determine any functionality or design that is not intuitive, and whether it is achieving its purpose effectively for you as the user.

Consent

Before we get started, please read carefully through this consent form. It reiterates the purpose for today and how your data will be used. Your personal details will not be used directly in any way and all observations are of your interaction with the software only. If you like to proceed with contributing please fill out this form and upload with the given link. User reads through and fills out consent electronically with provided link and uploads.

Thanks for filling that out, please save it on your computer for the time being. If at any time you don't wish to continue just let me know and we will stop, and none of your feedback will be used. A reminder that I am only testing the software and not evaluating you.

DESIGN WALKTHROUGH

Instructions

To get your feedback, I will be asking you to complete a specific task using the prototype. At any point you get stuck or are confused I may pause you for a moment to ask you some questions. I won't be explaining or showing you how to use the system. The point of this exercise is to see what you, as a first time user, expect of the system and how you think it should flow.

In a moment you will be able to view the paper prototype and move through the pages. Please interact with the application as if it was reactive. This means pressing everything that you normally would to complete the task. The more realistic your interaction with the prototype the better the feedback to know where to improve.

You will have 10 minutes to complete the following task. Any questions?

Please click on the link to the presentation. The task is to choose two places and decide between them where you would like to eat dinner tonight, takeaway of course. You can start.

The user confirmed they have no questions and is starting the task. Record, observe and take detailed notes of their process.

Task Notes

These are the steps that the user should be going through to complete the task, and observations relating to each one that need to be taken note of.

1. Filter preferences: This is the default page and so all users will start here.
 - Do they know how to filter?
 - Did they fill all of the filters out before proceeding?
 - Did they know how to get to the next page?
 - How long did it take to complete this page?
2. Interactive Map: This is the page that follows the preferences page.
 - Were they able to select a restaurant?
 - Did they know the map was interactive?
 - Did they try to press any other buttons on the page?
 - How long did it take them to select a restaurant?
3. Restaurant Information
 - After selecting a 'dot' on the interactive map they will be brought here.
 - How many of the cards did they select?
 - Did they understand the menu was filtered?
 - Did they know what all the icons meant?
 - Were they able to add a place to a list?
 - What information did they want to look at?
 - How long did it take them to move to another step?
4. List page: If a user selects the 'List' icon they will be brought here to compare.
 - Did they get to this page?
 - Do they know how to select a decision?
 - Do they understand what to do next?
 - How long did it take the user to find out what was a list page?
5. Repeat: Since the task is to select 2 places, users will need to repeat 2-5
 - Were they able to find out how to get back to previous steps?
 - Did they want to choose a second place?
 - How long did it take to figure out how to get back to the map?
6. Recommendation Page: After they have chosen a place and completed the task they will be nudged here.
 - Did they understand what was happening?
 - Did they know what they were suppose to do?

CO-DESIGN

Instructions

While completing the task the user encounters a problem and is obviously stuck trying to move to the next step, or they took an action expecting different functionality. Prompt them to speak out loud during this time.

Please just pause for a moment:

- Do you understand what the next step is?
- What are you having trouble finding or understanding?
- Where/what do you think you should be able to find?
- How would you design this part?

Show them the next step to continue the evaluation of the whole task.

Problem Notes

For each roadblock, in addition to noting the responses to the above questions:

1. The issue

- Do they understand what the next step is?
- What didn't they understand or couldn't find?
- Did they get stuck because they didn't understand the task?
- Did they get stuck because of the design?
- Was the flow confusing?
- After being showed the next step were they still confused?

2. Design Suggestions

- What do they think they should be able to find?
- What were their suggestions to redesign?
- How was the experience prior to this point?
- What elements of the existing design did they like?

TAM EVALUATION

Instructions

The user has completed the task.

Thank you for completing the task. Now select to go back to the form. Finally, I have some questions to rate your experience and your acceptance of this application. The purpose is to determine the perceived usefulness and ease of use, your attitude towards the app and intention to use.

For each question choose a number between 1 and 4, with 1 being strongly disagree and 4 being strongly agree. Please answer honestly. I may follow up with additional questions where necessary.

Questionnaire

1. I can accomplish deciding where to dine out more quickly using this application (PU1)
2. This application enables me to make better decisions about where to dine out. (PU5)
3. Overall I find this application useful (PU6)
4. It is easy to use this application to decide where to dine out (PEOU2)
5. Overall I believe this application is easy to use (PEOU3)
6. Overall my attitude towards this application I favourable (ATT3)
7. I will use this application on a regular basis in the future (ITO1)
8. I will strongly recommend others to use this application (ITO3)

Questionnaire notes

The quantitative answers from the users will be saved on Google Forms which automatically calculates and graphs collected data. Additionally, any score that is not 4 (strongly agree) will be followed up with the following questions.

- Why did you give this score?
- What stopped you from scoring higher?

Conclusion

All done. Thank you so much for your time today. Just a reminder that if you would like to withdraw at any time, let me know and your data will not be used. Thank you for your time, it is greatly appreciated and your data is very valuable.

A.2 Google Forms

Dining Out - Low Fidelity

Thank you for taking the time today to provide some feedback on the early stages of a mobile application. The purpose of this app is to assist you with deciding where to dine out using an interactive map, filtered preferences and comparison feature.

Today, I will be showing you the basic prototype to observe how you interact with it, to determine any functionality or design that is not intuitive, and whether it is achieving its purpose effectively for you as the user.

*Required

Consent

Before we get started, please read carefully through this consent form. It reiterates the purpose for today and how your data will be used. Your personal details will not be used directly in any way and all observations are of your interaction with the software only. If you like to proceed with contributing please fill out this form and then we will get started.

<https://deco7250-wfixrepkka-uc.a.run.app/index.cfm>

1. Please upload your consent form here.

Files submitted:

Design Walkthrough

To get your feedback, I will be asking you to complete a specific task using the prototype. At any point you get stuck or are confused I may pause you for a moment to ask you some questions. I won't be explaining or showing you how to use the system. The point of this exercise is to see what you, as a first time user, expect of the system and how you think it should flow.

PAPER PROTOTYPE

<https://docs.google.com/presentation/d/e/2PACX-1vRp-XVOiwPddbw5wp-AI2yggQTJgOKY-D8aeRK1Gcven4r3RGuu5s3ovfEP2nfOA/pub?start=true&loop=false&delayms=30000>

TAM Evaluation

These questions are about your acceptance of this application. The purpose is to determine the perceived usefulness and ease of use, your attitude towards the app and intention to use.

Please answer honestly. I may follow up with additional questions where necessary.

2. I can accomplish deciding where to dine out more quickly using this application.*

Mark only one oval.

1 2 3 4

Strong Disagree Strongly Agree

3. This application enables me to make better decisions about where to dine out.*

Mark only one oval.

1 2 3 4

Strong Disagree Strongly Agree

4. Overall I find this application useful.*

Mark only one oval.

1 2 3 4

Strong Disagree Strongly Agree

5. It is easy to use this application to decide where to dine out.*

Mark only one oval.

1 2 3 4

Strong Disagree Strongly Agree

6. Overall I believe this application is easy to use. *

Mark only one oval.

1 2 3 4

Strong Disagree Strongly Agree

7. Overall my attitude towards this application I favourable. *

Mark only one oval.

1 2 3 4

Strong Disagree Strongly Agree

8. I will use this application on a regular basis in the future. *

Mark only one oval.

1 2 3 4

Strong Disagree Strongly Agree

9. I will strongly recommend others to use this application. *

Mark only one oval.

1 2 3 4

Strong Disagree Strongly Agree

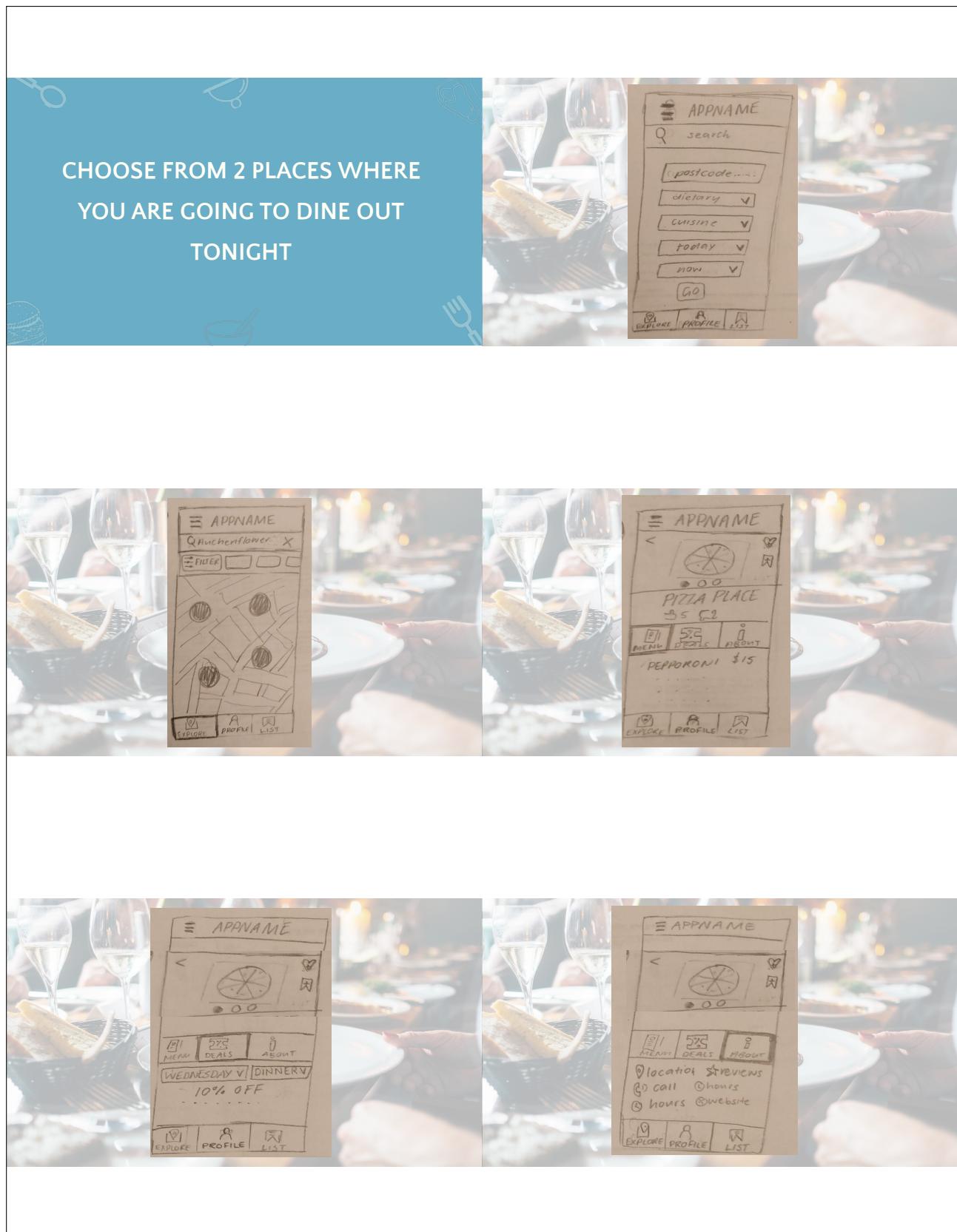
THANK YOU!!

A reminder that you can withdraw your consent at any time and your data will not be used.

This content is neither created nor endorsed by Google.

Google Forms

A.3 Presentation





YOU ARE GIVEN DIRECTIONS!

2 hours later

...you get a notification

APPNAME
WOULD YOU
RECOMMEND
"A pizza place"

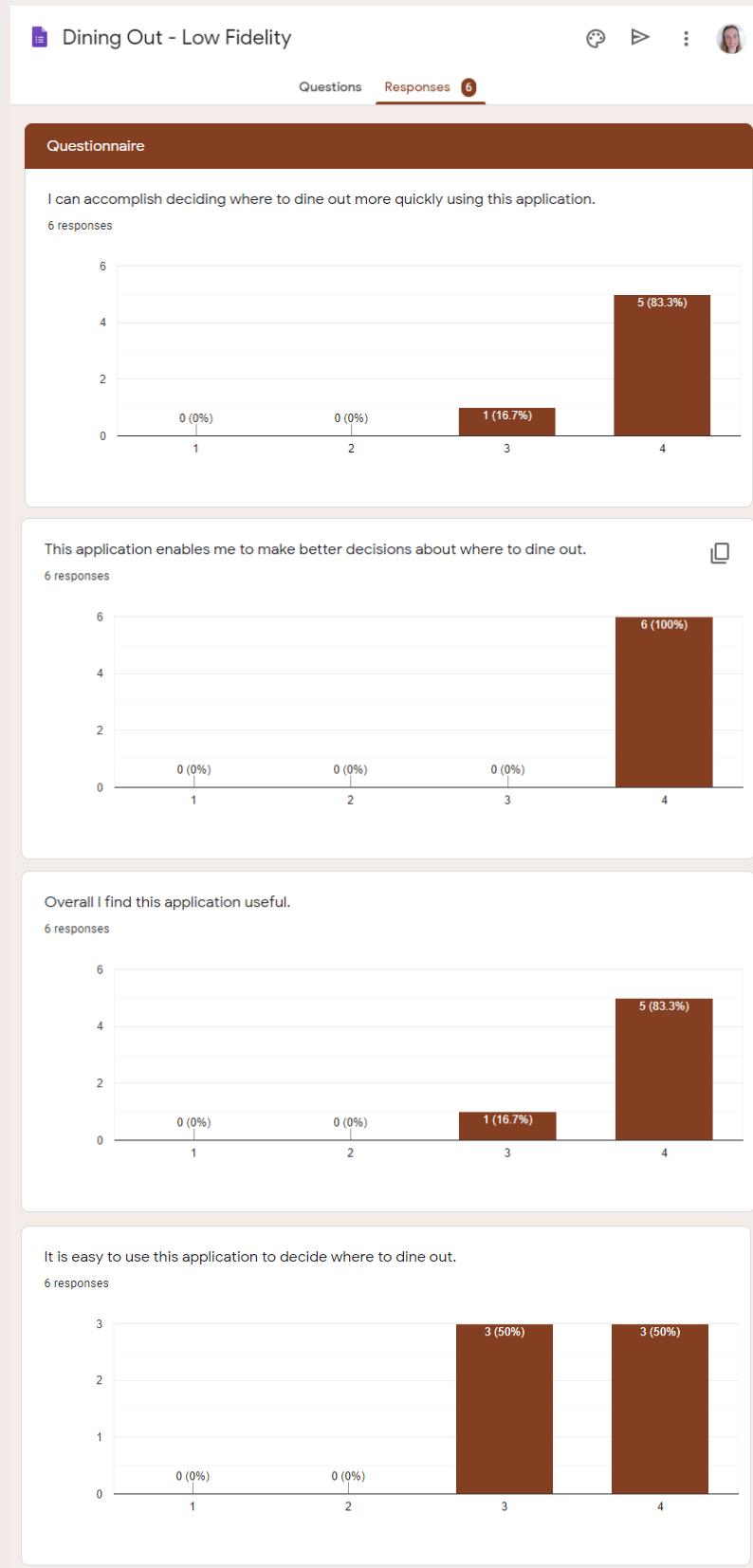
YES
NO
DIDN'T GO

EXPORT PROFILE LIST

DONE!

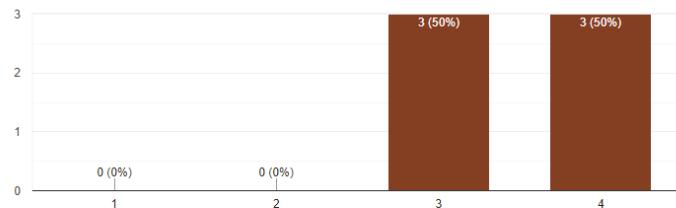
[Back to Google Forms](#)

A.4 Questionnaire Results



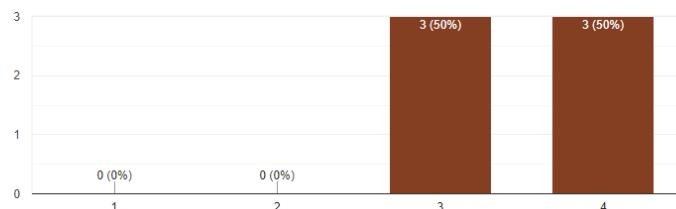
Overall I believe this application is easy to use.

6 responses



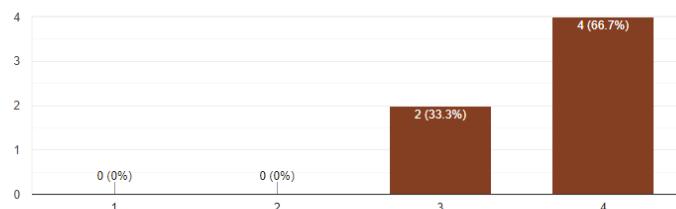
Overall my attitude towards this application I favourable.

6 responses



I will use this application on a regular basis in the future.

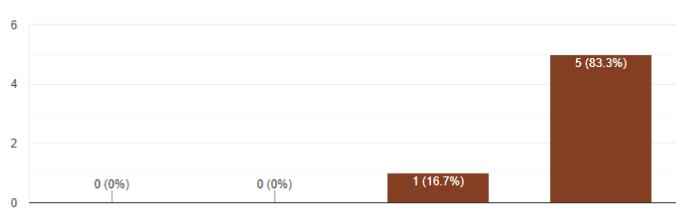
6 responses



I will strongly recommend others to use this application.



6 responses



THANK YOU!!

A.5 Interview Notes

		Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6
WALKTHROUGH							
1. Filter preferences	Do they know how to filter? Did they fill all of the filters out before proceeding? Did they know how to get to the next page? How long did it take to complete this page?	Yes - no problems All except date and time	No problems here They selected postcode and dietary before go	Yes - labels were click Selected all of them	Yes Dietary and assumed location was current Got stuck for a couple of seconds before noticing the go	Yes - dropdowns Postcode, cuisine	Yes Assumed current location, cuisine
2. Interactive Map	Were they able to select a restaurant? Did they know the map was interactive? Did they try to press any other buttons on the page? How long did it take them to select a restaurant?	Yes - no problems Yes - no problems Selected filters - expected to go back to preferences page	No problems - 'go' was clear Filters to go back to the preferences page	No problems - liked the big go	No problem No just selected place	about 3 seconds about 3 seconds	Yes Yes
3. Restaurant Information	How many of the cards did they select? Did they know the menu was filtered?	Looked at menu and deals No - had to explain	Looked at all of the 3 tabs No had to tell them	All of them No - had to tell them	All of them No - had to tell them	All of them briefly Yes - added to favourites and list and kind of hoped one of them would do something, then saw the list icon	All of them briefly No - had to tell them Yes - super clear about the heart and list at first
	Were they able to add a place to a list? Did they know what all the icons meant? What did they look at the most? How long to move to another step?	Yes	No the heart & list icons were too small, main focus was on the 6 large tabs, Didnt know what the list icon or list tab - vague name	No had to explain where the icon was, still didn't know what the 'list' really meant Understood the heart but not familiar with the bookmark icon	No - didnt see the list icon and didnt know what it was when pointed it out Knew the heart but not the bookmark	Saw the list and heart icon, and noticed bookmark in the list tab but didnt know the difference knew all the symbols but not the difference	Yes but wasn't clear about the heart and list at first
	The deals about 8 seconds	Mainly the menu and deals	Look at all of the information	The menu	All of them	The deals	About 10 seconds
	Did they understand what the recommendations meant?	Thought it was just ratings, had to explain its friends only	They got stuck at this point Thought it was a rating system, had to explain they were friends only - liked the idea	They stuck stuck at this point Thumbs up and down but had to explain it was friends only	They got stuck at this point Thumbs up and down but not that they were friends	Yes, but not that it was friends only, wanted to see others ratings too	Yes, but not that it was friends only, wanted to see others ratings too
4. List Page	Did they get to this page?	Yes	Werent able to get here	Werent able to get here	Werent able to get here	Got here but didnt add a place	Yes
	Do they know how to select a decision?	No - expected selecting to go back to the restaurant page	Yes	Yes - understood if it was highlighted then it was selected as their decision	Yes - at first thought about going back but decided didnt need to	Yes - just select and go here (liked that it gave directions)	Got stuck here - wanted to get the phone number of place
	Do they understand what to do next? How long did it take to get here? Did they understand the purpose of this page?	Yes About 10 seconds	Yes - select go here was easy to understand Couldnt get here	Yes Couldnt get here	Yes Couldnt get here	Yes Couldnt get here properly	Yes about 15 seconds
5. Repeat	Were they able to start again? Did they choose a second place? How long to go back to map?	Select explore to go back Yes 2 seconds	No problem - select explore Was happy to choose the first one 2 seconds	Selected explore Yes 2 seconds	Yes 2 seconds	Yes 2 seconds	Yes 2 seconds
6. Push	Did they know what they were suppose to do?	No problems	No problems - understood this connected with the friend recommendation	No problems - liked that it was simple yes or no	No problems	Yes	Yes
CO-DESIGN							
What and when did they get stuck?	Got to the list page - wanted to go back to the restaurant information	Got to the restaurant page - didn't know what to do next or how to move forward with selection	Got to the restaurant page - didnt know what to do next	Got to the restaurant page and wasnt sure what the next step was	Got to the list page without adding and didnt know how to add	Got to the list page but wanted to be able to get their phone number	
The issue	Do they understand what the next step is? What didn't they understand or couldn't find? Did they get stuck because they didn't understand the task? Did they get stuck because of the design?	Yes - but want to be able to go back a step before making a choice Different expectation for selecting the restaurant name No	No they don't know how to interact with the restaurant except the menu, deals and about tabs Don't know what to do next, the next step wasn't intuitive Yes - they didnt know that they could add items to a list to compare with others	No - not sure what to do Didnt know they could add to a list Yes - they didnt know that they could add items to a list to compare with others	No Didnt know they could go to a list to compare No - thought comparison was just looking at 2 places	knew they wanted to be able to compare, tried both heart and bookmark the difference between bookmark and favourite	Yes but wanted more information before going forward Couldnt find a way to get back to the restaurant page No - just wanted more before completing
	Was the flow confusing?	No	No - even after getting stuck, if it had been clearer on how to get to the list they said they wouldn't change the order	Up to this point was clear but was confused what they should be able to do	No - but didnt know there was a next step	No	No
	After being showed the next step were they still confused?	No	No - After explaining how to get to the list page, it made sense from there and they could continue with no issues	No it was clear after explaining what was suppose to be done	No	No	No
Design Suggestions	What do they think they should be able to find? What were their suggestions to redesign? What was their experience prior to this point?	Wanted selection to take them back to previous and have a different way to choose this option to move forward with Swipe left to delete, swipe right to get directions and selection to go to restaurant page (remove 'go here' and 'delete' OR have tick box next to the options to mark which ones should be deleted or go here No problems - overall reached here in about 10 seconds	Something to let them 'go here or move on' add to list' as text button near the name of the restaurant for more attention, change the name of list to 'compare'	Didn't know what they should be looking for change the icon for list both here and on the main tab as the 'bookmark' isn't clear, add text to the icon as well	Guidance that there is another step forward leave the list icon where it is but have text instead that says add to list with a notepad icon, and do the same for the list tab	Distinction between the heart and bookmark icon Change the bookmark icon to a scale and leave it where it is, remove the plus from the heart, have the map coloured based on if it is a favourite, change name to 'compare'	Selecting the restaurant would take them back to the restaurant page or if they selected go here they would get more info when you select a restaurant you are given the option to get more information, a number, delete or directions - suggested an overshadowing effect with icons and text Except for the list icon at first was smooth
	What elements of the existing design did they like?	Like the bottom 3 tabs and the 3 tabs on the restaurant page, was very intuitive up till this point	Had no problems, had all been very smooth liked the overall layout of the page and especially the 3 main tabs on this page, and the 3 bottom tabs	No problems up to this point liked the tabs and was intuitive they could be selected, very clean and simple, liked when there was text included with the icons	No problems up to this point liked the tabs and the filtered menu after I told them about it	No problems up to this point Liked the tabs, the menu and tabs page easily accessible, liked all the icons other than bookmark	the highlighting of the tabs and that there were 3 main tabs, liked being able to easily move through the tabs on the restaurant as well.
TAM EVALUATION							
PU	I can accomplish deciding where to dine out more quickly using this application (1) This application enables me to make better decisions about where to dine out. (5) Overall I find this application useful (6)	4	3 - Would strongly agree if clearer how to compare	4	4	4	4
		4	4	4	4	4	4
		4	4	4	3 - hard with dietary	4	4
PEOU	It is easy to use this application to decide where to dine out. (2) Overall I believe this application is easy to use. (3)	4	3 - Having the menu and deals at the forefront was great	3 - liked the simple design, but the icons could sometimes be confusing	4	4	3 - the list icon wasn't very intuitive
		4	3 - Vague of journey to endpoint	3 - up till understanding that places could be compared with a list	4	4	3 - except for the end when wasn't able to go back
ATT	Overall my attitude towards this application I favourable (3)	4	3 - Like the app, but didn't like getting stuck	3 - smooth process but wants more clarity from restaurant to list page	4	4	3 - although got stuck, doesn't stop me from being able to use
I TO	I will use this application on a regular basis in the future (1) I will strongly recommend others to use this application (3)	4	3 - Due to COVID won't be able to use it much now, plus normally only eats out about once a week 3 - Agree because having more people you know using the apps the better the ratings	3 - doesnt eat out often	4	4	4

Appendices

B Medium Fidelity Prototype

B.1 Personas

 <p>HIGH USE</p>	<p>MATT</p> <p>GOAL: FOSTER RELATIONSHIPS</p>	<p>Matt works at an accounting firm in the city. He doesn't enjoy cooking so eats out at least 4 times a week with others (coworkers or family). He is open to eating anything, but doesn't like to spend much time looking. He will choose based on craving and will always visit a place if it is recommended by a friend.</p>
 <p>RESTRICTIVE</p>	<p>SOPHIE</p> <p>GOAL: BE HEALTH CONSCIOUS</p>	<p>Sophie works for the city council and is vegan. She is very conscious about what she eats and with her schedule she will generally eat out twice a week. She likes to plan and spends a lot of time deciding on where to eat as it needs to matches her dietary. She reads lots of reviews as she likes to support reputable local businesses.</p>
 <p>TYPICAL</p>	<p>JESSICA</p> <p>GOAL: TRAVEL WITH PARTNER</p>	<p>Jessica works in retail and is in a relationship. They both enjoy trying different cuisines and travelling. They generally eat out twice a week together (once at a new place), and once at work. When deciding where to eat she focuses on value (low cost and good reviews), as she wants to save to money but also wants to eat good food.</p>
 <p>LOW USE</p>	<p>DAVID</p> <p>GOAL: COMPLETE UNIVERSITY DEGREE</p>	<p>David is a university student with a casual job at the grocery store. He enjoys spending time with his friends but doesn't have much income. Once a week he will take a break from instant noodles and eat out with friends. He is happy to spend the time to search through options, as long as he can find the cheapest place.</p>

B.2 Interaction Scenarios

PERSONA: DAVID

USER STORY/SCENARIO:

STUDENT DEALS

1 David and his friends have had long day at uni.

2 They decide to eat out for cheap tuesday

3 Opens up the app

4 Doesn't care about any of the filters on first page.

5 Wants somewhere near campus, walking distance

6 Filters by under \$10

PAGE # 1 PROJECT/TEAM: FOODIE DATE: STORYBOARD NNGROUP.COM

PERSONA: DAVID

USER STORY/SCENARIO:

STUDENT DEALS

7 Selects a place and look at deals

8 Adds to compare list and searches again & again

9 Sends list with 3 options to his friends

10 They decide on the one with best price/ideal

11 Doesn't care about recommending

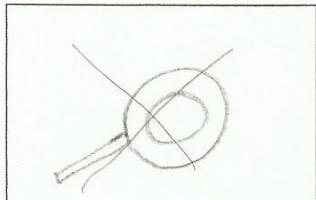
PAGE # 2 PROJECT/TEAM: FOODIE DATE: STORYBOARD NNGROUP.COM

PERSONA: JESSICA

USER STORY/SCENARIO:

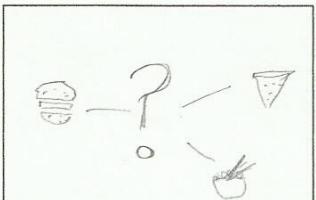
HUMP DAY

1



It's wednesday
and Jessica doesn't
want to cook

2



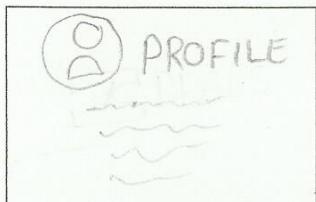
Not sure what
she feels like

3



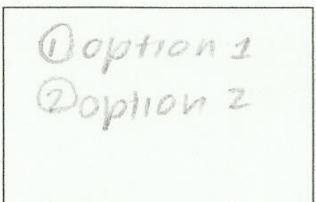
Wants to see
wednesday deals
of favourites.

4



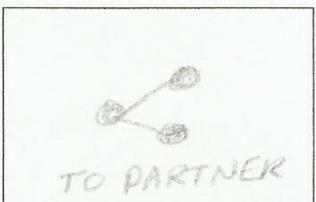
Looks at list
of favourites on
profile

5



Adds places
with wednesday
deals to list

6



sends list
to partner

PAGE # 1

PROJECT/TEAM: FOODIE

DATE:

STORYBOARD NNGROUP.COM

PERSONA: JESSICA

USER STORY/SCENARIO:

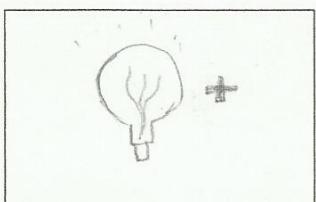
HUMP DAY

7



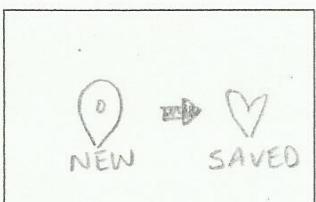
Partner looks
at list on app

8



Reminded of
new place and
adds to list

9



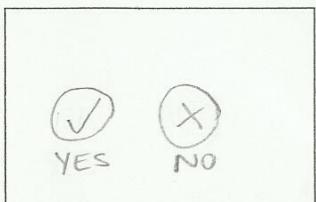
Jessica likes look
of new place and
saves for later

10

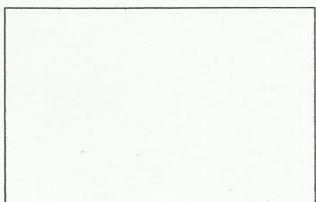


Go to new place
together

11



Recommends
afterwards



PAGE # 2

PROJECT/TEAM: FOODIE

DATE:

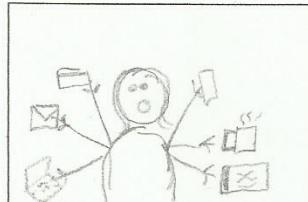
STORYBOARD NNGROUP.COM

PERSONA: SOPHIE

USER STORY/SCENARIO:

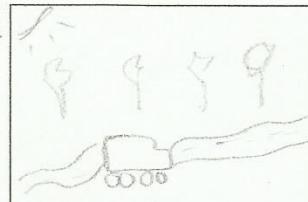
BUSY PLANNER

1



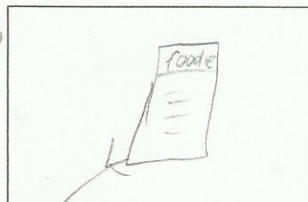
Sophie has a
busy day
tomorrow.

2



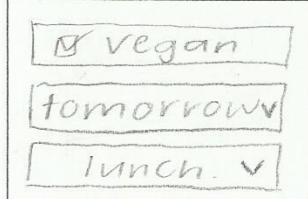
She will be
travelling so
needs to eat out.

3



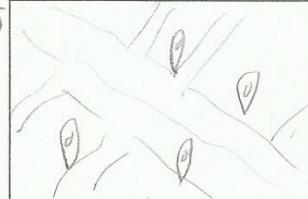
Opens the app.

4



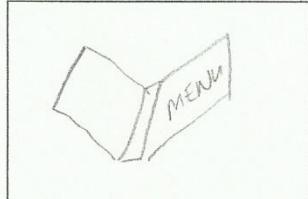
Selects vegan
& tomorrow
from filters

5



Looks at area
she will be
for lunch.

6



Selects an option
and looks at
menu.

PAGE # 1

PROJECT/TEAM: FOODIE

DATE:

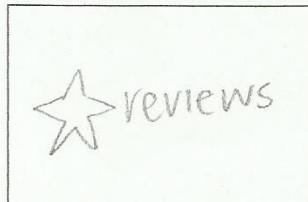
STORYBOARD NNGROUP.COM

PERSONA: SOPHIE

USER STORY/SCENARIO:

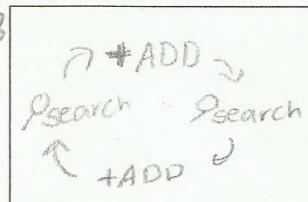
BUSY PLANNER

7



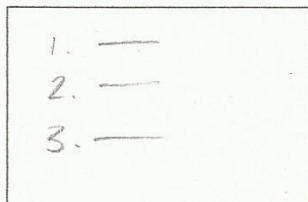
Looks at reviews
from everyone

8



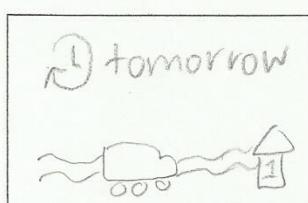
Adds to list
and searches
again & again

9



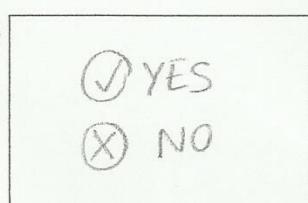
Now has list
ready for
tomorrow

10



It's tomorrow
and she is
close to option1

11



Recommends
afterwards

PAGE # 2

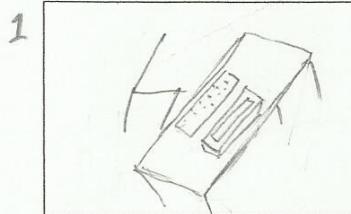
PROJECT/TEAM: FOODIE

DATE:

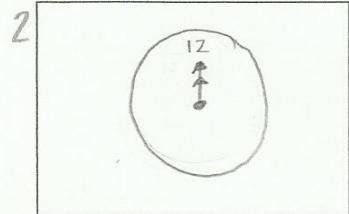
STORYBOARD NNGROUP.COM

PERSONA: MATT

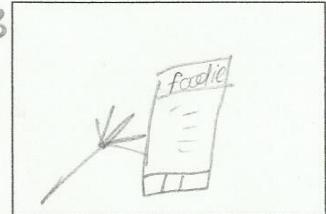
USER STORY/SCENARIO: LUNCHTIME AT WORK



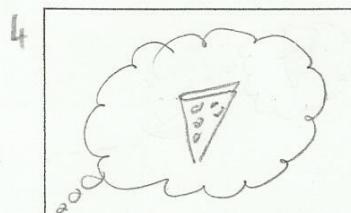
Matt is at work



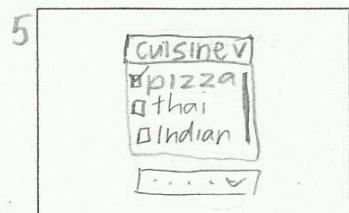
It's lunch time



Opens the app



Matt is craving pizza



Filters by pizza
on first page
only



Chooses somewhere
nearby

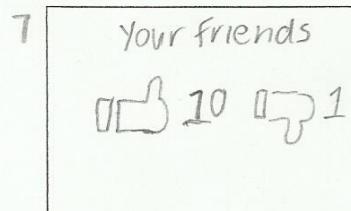
PAGE # 1 PROJECT/TEAM: FOODIE

DATE:

STORYBOARD NNGROUP.COM

PERSONA: MATT

USER STORY/SCENARIO: LUNCHTIME AT WORK



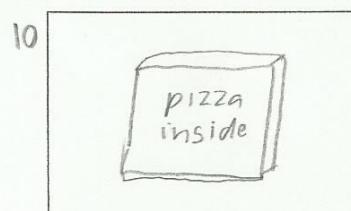
Looks at friend
recommendations



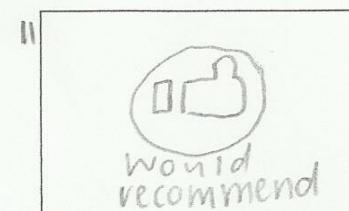
Adds to compare
list



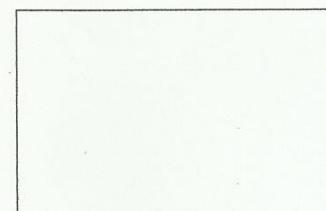
Happy with
this option



Buys pizza
with friends



Rates afterwards
when reminded



PAGE # 2 PROJECT/TEAM: FOODIE

DATE:

STORYBOARD NNGROUP.COM

B.3 UX Goals

SOURCE	UX GOAL	MEASURES	REQUIREMENTS
Initial Research Interviews <ul style="list-style-type: none"> <i>Participant 11:</i> "My partner is vegan so that usually greatly reduces the scope of choice. Happy Cow removes the necessity to manually filter out non-vegan places." 2 of 12 of the participants were restricted by dietary when deciding where to dine out 	I want to dine out at places that match my dietary requirement.	Survey Questions: <ul style="list-style-type: none"> I was able to choose based on my diet. It was clear the map was filtered by my preference for 'dietary' It was clear the menu was filtered by preference for 'dietary' Clicks: <ul style="list-style-type: none"> User chose a dietary User changed filter on map User changed filter on menu 	<ul style="list-style-type: none"> Start with page of filters to make it obvious Separate options for dietary and cuisine Add/remove filters after initial search Set dietary preferences in profile Predefined list of dietary
Initial Research Interview <ul style="list-style-type: none"> <i>Participant 7:</i> "I think about what I feel like and jump on Uber Eats to search. I don't actually order from the app because I want to go there but it helps me decide what places have what I'm craving by categorising by cuisine." 5 mentioned 'Craving' as part of decision process 	I want to eat what I am craving.	Survey Questions: <ul style="list-style-type: none"> I was able to choose based on my craving. It was clear the map was filtered by preference for 'cuisine' It was clear the menu was filtered by preference for 'cuisine' Clicks: <ul style="list-style-type: none"> User chose a cuisine User changed filter on map User changed filter on menu 	<ul style="list-style-type: none"> Start with page of filters to make it obvious Separate options for dietary and cuisine Add/remove cuisines after initial search Predefined list of cuisines (not over the top)
Low Fidelity Evaluations <ul style="list-style-type: none"> <i>Participant 1:</i> "I assume the postcode will be filled with my current location or I will enter it. This is the only thing I would change on this page as I only care if the place is nearby, then I'll decide from whatever options come up on the map." Initial Research Interviews <ul style="list-style-type: none"> 4 mentioned 'location' as part of decision process 	I want to choose where to eat based on my location.	Survey Questions: <ul style="list-style-type: none"> I was able to filter places based on my location. I was able to search in my area of interest. Clicks: <ul style="list-style-type: none"> User entered a postcode User understood how to use interactive map User changed location 	<ul style="list-style-type: none"> Have option to filter by location on first page Set location preferences in profile
Initial Research Interviews <ul style="list-style-type: none"> <i>Participant 2:</i> "I choose based on whether there are options on the menu that suit everyone in the family." 5 mentioned 'menu' as part of decision process Half of respondents said they always look at the menu before, and the other half said sometimes 	I want to view the menu of the restaurant as it relates to me before I go there.	Survey Questions: <ul style="list-style-type: none"> I had no trouble finding the menu of the selected restaurant. I was happy the menu was filtered based on preference. I was happy the menu is embedded in the app. Clicks: <ul style="list-style-type: none"> User scrolled through menu User selected menu User selected filters 	<ul style="list-style-type: none"> Menu is filtered for each user Menu is the tab open after selecting an option Menu is embedded in application so not external link
Low Fidelity Evaluations <ul style="list-style-type: none"> <i>Participant 2:</i> "I like that the deals have a dedicated space. Normally you have to go to a million different links just to find their menu or find them on social media and scroll through posts." Initial Research Interviews <ul style="list-style-type: none"> 75% of respondents said they sometimes order a deal, and the remaining 25% responded always 	I want to learn about the relevant deals of a restaurant.	Survey Questions: <ul style="list-style-type: none"> I had no trouble finding the deals of the place. It was clear the deals were filtered based on day. I was happy I was only shown the deals relevant to my day. Clicks: <ul style="list-style-type: none"> User selected deals tab User changed filters User added on this page 	<ul style="list-style-type: none"> Deals have their own tab Pre-select day of deals on the first page Deals are visible when comparing options
Low Fidelity Evaluations <ul style="list-style-type: none"> <i>Participant 1:</i> "After selecting somewhere in my area, I expect to see all the basic stuff – phone, address, hours etc." Initial Research Interviews <ul style="list-style-type: none"> <i>Participant 10:</i> "I use Google Maps because I can see photos of food or menu, reviews, general information about opening hours or peak busy periods" 	I want access to the basic information of a restaurant.	Survey Questions: <ul style="list-style-type: none"> I had no trouble finding the basic information of the restaurant. I had access to everything I wanted to know. I could easily access information when needed. Clicks: <ul style="list-style-type: none"> User selected about tab User added on this page User went back to about 	<ul style="list-style-type: none"> Information about the restaurant has its own tab Access back to about when comparing options Directions and call are readily available when deciding on place
Low Fidelity Evaluations <ul style="list-style-type: none"> <i>Participant 5:</i> "Normally I would search, pick a place, look at it then go back to the map and do it again... I just try to remember what I saw before but it's very time consuming." Initial Research Interviews <ul style="list-style-type: none"> <i>Participant 4:</i> "Maps makes it easy to view wide variety at once." 	I want to compare a variety of restaurants at once.	Survey Questions: <ul style="list-style-type: none"> I was able to compare options in one glance. I was able to add places to compare. I liked having the ability to compare options. I wanted to be able to compare more options. Clicks: <ul style="list-style-type: none"> User added to compare User looked at compare User selected option in list 	<ul style="list-style-type: none"> Dedicated page for comparing options, one of the main tabs Ability to add options to a list for comparison when viewing the restaurant
Low Fidelity Evaluations <ul style="list-style-type: none"> <i>Participant 6:</i> "I like that I can share this list with my friends. Deciding where to eat is always a team effort and coordinating the different options is normally a nightmare." 	I want to share the experience of dining out with friends.	Survey Questions: <ul style="list-style-type: none"> I could easily share options with friends. I would recommend this app to friends. Clicks: <ul style="list-style-type: none"> User selected share. 	<ul style="list-style-type: none"> Share comparison list with friends Follow other people View friends recommendation on
Low Fidelity Evaluations <ul style="list-style-type: none"> <i>Participant 4:</i> "I try and remember what places people at work told me about and show my husband. I would say 8/10 times we go there." Initial Research Interviews <ul style="list-style-type: none"> 4 mentioned 'word-of-mouth' as part of decision process 	I want to dine out at restaurants that have been recommended by word-of-mouth.	Survey Questions: <ul style="list-style-type: none"> It was clear friend's recommendations were available. It was clear how the recommendation system worked. Clicks: <ul style="list-style-type: none"> User looked at friends recommendations. 	<ul style="list-style-type: none"> Thumbs up and down system instead of star reviews. Friend recommendations are visible first, then others After visiting restaurant, nudged for recommendation
Low Fidelity Evaluations <ul style="list-style-type: none"> <i>Participant 3:</i> "I'm a creature of habit and like to go back to places I liked when travelling for work, can I see where I've been before?" 	I want to re-visit restaurants that I enjoyed.	Survey Questions: <ul style="list-style-type: none"> I had no trouble finding places I had visited before. Clicks: <ul style="list-style-type: none"> User selects profile User selects history 	<ul style="list-style-type: none"> History of visited locations and recommendations in profile Save restaurants as to be viewed later
Low Fidelity Evaluations <ul style="list-style-type: none"> <i>Participant 1:</i> "I probably try new places at least once a week. I like to mix it up to find new favourites." Initial Research Interviews <ul style="list-style-type: none"> All respondents said they sometimes try new places. 	I want to find new places to eat out.	Survey Questions: <ul style="list-style-type: none"> I could easily find new places. Clicks: <ul style="list-style-type: none"> Number of places clicked 	<ul style="list-style-type: none"> History of visited places in profile Interactive map for exploration View saved restaurants on profile Main tabs
Initial Research Interviews: <ul style="list-style-type: none"> Cost was the third most important factor when deciding where to dine out 75% spend less than \$20 per meal 	I want to dine out in my budget.	Survey Questions: <ul style="list-style-type: none"> I was able to choose a place based on my budget. I had no trouble finding the prices on menu. Clicks: <ul style="list-style-type: none"> User clicked on filter to change price 	<ul style="list-style-type: none"> Option to filter by budget on menu and map pages Dropdown list of predefined budgets Menu has clear prices Easy access to deals Ability to change budget
Initial Research Interviews <ul style="list-style-type: none"> <i>Participant 7:</i> "It takes way too long to decide where to eat out. Half the time I give up and make something at home." Over 65% said it took at 20 minutes to make a decision and most said they wanted to spend less time. 	I want to decide where to dine out in less than 20 minutes.	Survey Questions: <ul style="list-style-type: none"> I was able to choose a place quicker than usual. Time: <ul style="list-style-type: none"> Total time from opening the app to choosing a restaurant to visit 	<ul style="list-style-type: none"> Process is broken down into manageable steps Flow of steps is clear Large actionable buttons Top and bottom navigation bars Max of 3 tabs per page
Initial Research Interviews <ul style="list-style-type: none"> <i>Participant 5:</i> "I always read reviews I just never leave them. Sometimes I think about leaving a review, because the place was good, but then I put it off and forget... It takes too long - rate, write and photo." Reviews were the 5th most important and ratings the 8th when making decision. 67% of respondents said they never leave reviews, 25% sometimes and only 8% always 	I want support restaurants without having to leave long reviews.	Survey Questions: <ul style="list-style-type: none"> I could easily recommend a place after visiting. I would use this recommendation system. I would be happy to be nudged with the notification to recommend. Clicks: <ul style="list-style-type: none"> User chose yes or no 	<ul style="list-style-type: none"> Star and commented reviews are obsolete. Thumbs up and down system is used Users are asked to recommend after visiting place using nudging. Large buttons to make it easy to select Only 3 options to choose from

B.4 Evaluation Protocol

EVALUATION PROTOCOL Medium Fidelity Prototype

Tean-louise Cunningham (42637460)

Complete a think aloud evaluation accompanied by SUS Questionnaire of a medium fidelity prototype to identify gaps between conceptual and mental models.

PREPARATION

Since this is an individual evaluation only myself and the participant will be involved. Therefore, I will be fulfilling the role of facilitation, observation, recording and interaction flow. The following materials will be prepared for the user prior to the evaluation.

1. Electronic consent form
2. Digital medium fidelity prototype
3. Figma prototype presentation
4. SUS questionnaire
5. Google forms
6. Zoom software

INTRODUCTION

Opening Statement

User has been sent a link with survey and instructions on Google Forms. User's screen is being shared over an online conference call.

Thank you for taking the time today to provide some feedback on the early stages of a mobile application. The purpose of this app is to assist you with deciding where to dine out using an interactive map, filtered preferences and comparison feature.

Today, I will be showing you the first digital prototype of this application to observe your interaction with it and evaluate its usability.

Consent

Before we get started, please read carefully through this consent form. It reiterates the purpose for today and how your data will be used. Your personal details will not be used directly in any way and all observations are of your interaction with the software only. If you like to proceed with contributing please fill out this form and upload with the given link.

User reads through and fills out consent electronically with provided link and uploads.

Thanks for filling that out, please save it on your computer for the time being. If at any time you don't wish to continue just let me know and we will stop, and none of your feedback will be used. A reminder that I am only testing the software and not evaluating you.

THINK ALOUD

Instructions

Now its time to look at the prototype. Click next and you will be taken to the next section of the form where you will find a link. This link will take you to the prototype.

Pretend that you have just downloaded this app and you want to see what you can do with it. Say everything out loud that you are thinking. For example, "I think this button does this", "When I click this button I think I am going to go here", "Now I am looking for how to do this". As it is still in the design stage not every button will work, however, the important part of this exercise is for me to understand how you think you should be able to use it and what you expect each part of the app to do.

As you go move to each new page on the the app I will also be asking you some questions to help me rate how whether the app is providing you the best user experience. For each question please give an answer between 1 and 5, with 5 being strongly agree and 1 strongly disagree. Do you have any questions?

User is able to find the link and has no questions.

You can start. Remember to talk about anything big or small.

Observations

As the user talks out loud while walking through the application it is important that notes of all factors are recorded. The notes are separated by page and components.

- Text
 - Did the user understand the text?
 - Did the user think there was too much text?
 - Could the user read the text?
- Button
 - Did the user know what each button did?
 - Did each button take the user where they expected?
 - Did the user select all the buttons?
 - Was the user able to easily select the buttons?
 - Were there enough buttons for the user?
- Icons
 - Did the user understand all the icons?
 - Were the icons what they expected?
 - Were the icons familiar?
- Tabs
 - Did the user like the number of tabs?
 - Did the user use all the tabs?
 - Did the tabs take them where they expected?

UX Measures

There are two measures for the UX goals outlined in Appendix B.3; survey questions and clicks. These have been separated to the appropriate pages. Firstly, as the user is using the app, note the number of clicks for each of the basic functionality actions (white squares). Secondly, after the user has moved forward to a new page, the relevant UX survey questions for the previous page will be asked. These questions are rated between 1 and 5, with 5 being strongly agree (they are noted with black square). The results are recorded quantity by the interviewer to reduce the load of the user. Any additional clarification can be asked at the same time.

1. Filter
 - I was able to choose a based on my diet.
 - I was able to choose a based on my craving.
 - I was able to choose a based on my budget.
 - I was able to search in my area of interest.
 - User chose a dietary
 - User chose a cuisine
 - User entered a postcode
2. Map
 - It was clear the map was filtered by preference for 'dietary'
 - It was clear the map was filtered by preference for 'cuisine'
 - I had no trouble finding places near my location.
 - User changed filter for dietary on map
 - User changed filter for cuisine on map
 - User understood how to use interactive map
 - User changed location
 - Number of places clicked
 - User clicked on filter to change price
3. Restaurant
 - It was clear friend's recommendations were available.
 - I could easily add places to compare.
 - User looked at friends recommendations.
 - User added to compare
4. Menu
 - I had no trouble finding the menu of the selected restaurant.
 - I had no trouble finding the prices on menu.
 - I was happy the menu was filtered based on preference.
 - I was happy the menu was embedded in the app.
 - It was clear the menu was filtered by preference for 'dietary'
 - It was clear the menu was filtered by preference for 'cuisine'
 - User selected filters
 - User changed filter for dietary on menu
 - User changed filter for cuisine on menu
 - User changed filter for price on menu
 - User scrolled through menu
 - User selected menu
5. Deals
 - I had no trouble finding the deals of the restaurant.
 - It was clear the deals were filtered based on my day.
 - I was happy I was only shown the deal relevant to my day.
 - User selected deals tab
 - User changed filters for day on deals
 - User added to compare from this page
6. About
 - I had no trouble finding the information of the restau-

- rant.
- User selected about tab
 - User added on this page
 - User went back to about
7. Compare
- I was happy with the number of options I could compare.
 - I could easily compare options in one glance.
 - I could easily share my options with friends.
 - User looked at compare
 - User selected option in list
 - User selected share.
8. Profile
- I had no trouble finding places I had visited before.
 - User selects profile
- User selects history
9. Recommend
- I could easily recommend a place after visiting.
 - It was clear how the recommendation system worked.
 - I would recommend this app to friends.
 - I would be happy to be nudged with the notification.
 - I would use this recommendation system.
 - User chose yes or no
10. Overall:
- I could easily access restaurant's information when needed.
 - I could easily find new places.
 - The application offered clear guidance.
 - I had access to everything I wanted to know about it.
 - I was able to choose quicker than usual.

SYSTEM USABILITY SCALE (SUS)

Instructions

The user has completed the task.

Thank you for completing the task. Now select to go back to the form. Finally, I have some questions to rate your experience and your opinion of the usability of this application.

For each question choose a number between 1 and 5, with 1 being strongly disagree and 5 being strongly agree. Please answer honestly. I may follow up with additional questions where necessary. Please take note that the questions alternate in terms of positive and negative responses.

Questionnaire

1. I think that I would like to use this system frequently.
2. I found the system unnecessarily complex.
3. I thought the system was easy to use.
4. I think that I would need the support of a technical person to be able to use this system.
5. I found the various functions in this system were well integrated.
6. I thought there was too much inconsistency in this system.
7. I would imagine that most people would learn to use this system very quickly.
8. I found the system very cumbersome to use.
9. I felt very confident using the system.
10. I needed to learn a lot of things before I could get going with this system.

Questionnaire notes

The quantitative answers from the users will be analysed according to the guidelines for SUS data using excel to create boxplots to view the data. Additionally, any score that is not the highest choice (not 1 or 5 as appropriate) will be followed up with the following questions.

- Why did you give this score?
- What stopped you from agreeing/disagreeing strongly?

Conclusion

All done. Thank you so much for your time today. Just a reminder that if you would like to withdraw at any time, let me know and your data will not be used. Thank you for your time, it is greatly appreciated and your data is very valuable.

B.5 Google Forms

Dining out - Medium Fidelity

Thank you for taking the time today to provide some feedback on the early stages of a mobile application. The purpose of this app is to assist you with deciding where to dine out using an interactive map, filtered preferences and comparison feature.

Today, I will be showing you the first digital version of this prototype to observe how you interact with it and determine the overall usability of the application.
***Required**

Consent

Before we get started, please read carefully through this consent form. It reiterates the purpose for today and how your data will be used. Your personal details will not be used directly in any way and all observations are of your interaction with the software only. If you like to proceed with contributing please fill out this form and then we will get started.

<https://deco7250-wfixrepka-uc.a.run.app/index.cfm>

1. Please upload your consent form here.

Files submitted:

Think
Aloud

The below link will take you to the prototype. Pretend that you have just downloaded this app and you want to see what you can do with it. Think out loud about everything you are seeing. "I think this button does", "When I click this button I think I am going to go ...", "Now I am looking for how to". As it is still in the design stage not every button will work, however, the important part of this exercise is for me to understand how you think you should be able to use it, what you expect each part of the app to do.

Prototype

<https://www.figma.com/proto/0WytAGvFm8aOhxSIDgGJ4R/Medium-Fidelity?node-id=4%3A3&scaling=scale-down>

System Usability
Questionnaire

Please answer the following questions truthfully. They are all about the usability of the prototype. The more honest the better the feedback. Reminder, this is only about using the prototype itself.

2. I think that I would like to use this system frequently. *

Mark only one oval.

1 2 3 4 5

Strongly disagree Strongly agree

3. I found the system unnecessarily complex. *

Mark only one oval.

1 2 3 4 5

Strongly disagree Strongly agree

4. I thought the system was easy to use.

Mark only one oval.

1 2 3 4 5

5. I think that I would need the support of a technical person to be able to use this system. *

Mark only one oval.

1 2 3 4 5

Strongly disagree Strongly agree

6. I found the various functions in this system were well integrated.*

Mark only one oval.

1 2 3 4 5

Strongly disagree Strongly agree

7. I thought there was too much inconsistency in this system.*

Mark only one oval.

1 2 3 4 5

Strongly disagree Strongly agree

8. I would imagine that most people would learn to use this system very quickly.*

Mark only one oval.

1 2 3 4 5

Strongly disagree Strongly agree

9. I found the system very cumbersome to use.*

Mark only one oval.

1 2 3 4 5

Strongly disagree Strongly agree

10. I felt very confident using the system.*

Mark only one oval.

1 2 3 4 5

Strongly disagree Strongly agree

11. I needed to learn a lot of things before I could get going with this system.*

Mark only one oval.

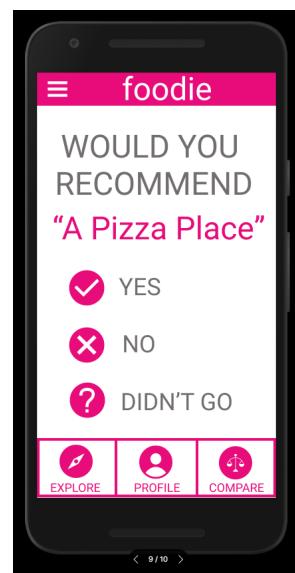
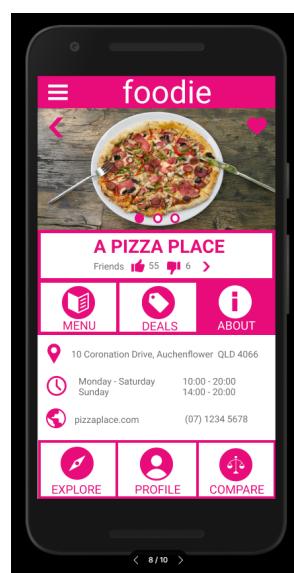
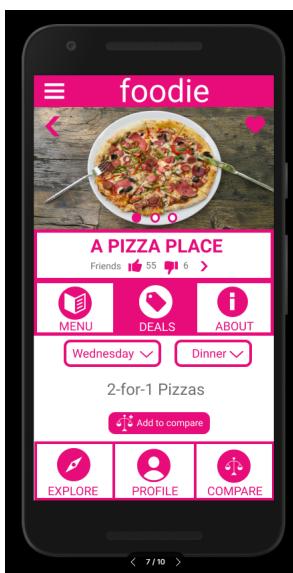
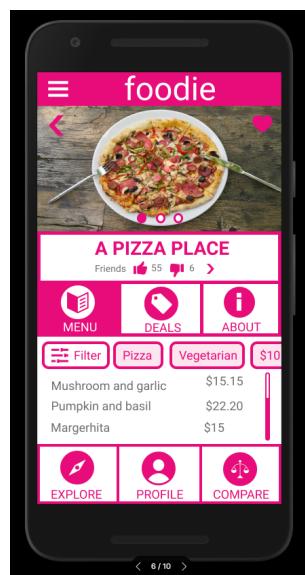
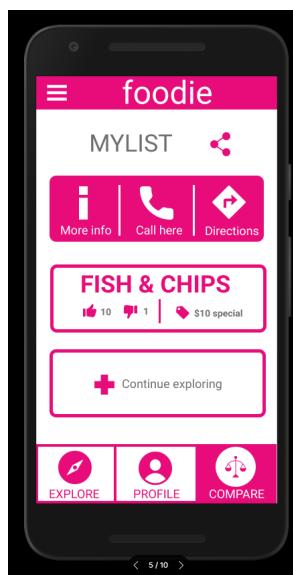
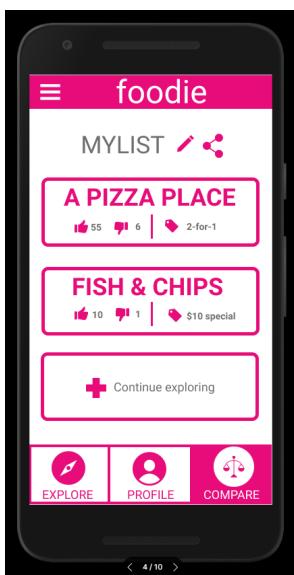
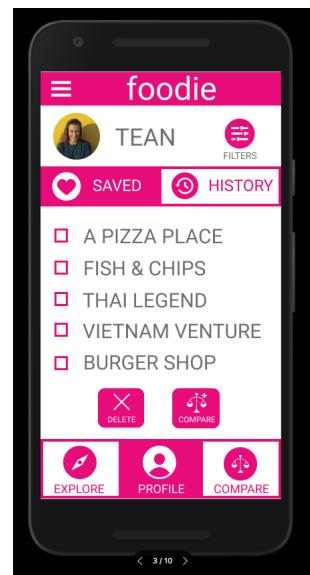
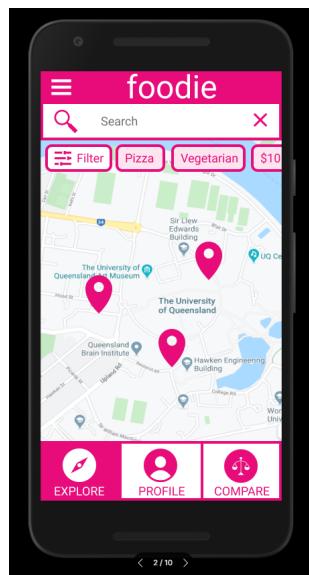
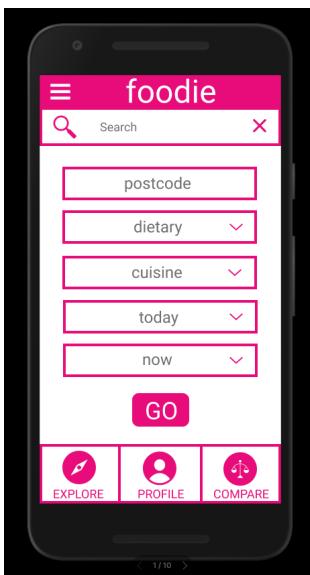
1 2 3 4 5

Strongly disagree Strongly agree

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B.6 Presentation



B.7 Questionnaire Results

SUS Results.

Questions	P1	P2	P3	P4	P5	P6	Average
I think that I would like to use this system frequently.	3	2	4	3	3	4	3.17
I found the system unnecessarily complex.	4	2	4	4	3	4	3.50
I thought the system was easy to use.	4	2	3	4	3	3	3.17
I think that I would need the support of a technical person to be able to use this system.	4	3	4	4	3	4	3.67
I found the various functions in this system were well integrated.	4	3	3	4	3	3	3.33
I thought there was too much inconsistency in this system.	3	2	3	3	3	3	2.83
I would imagine that most people would learn to use this system very quickly.	4	3	3	4	3	3	3.33
I found the system very cumbersome to use.	4	2	3	4	3	3	3.17
I felt very confident using the system.	4	3	3	4	3	3	3.33
I needed to learn a lot of things before I could get going with this system.	4	3	3	4	3	3	3.33
TOTAL	95	62.5	82.5	95	75	82.5	

Figure 6: Medium Prototype

Boxplot to be added.

B.8 Notes

To be added.