PROJECT PART 1

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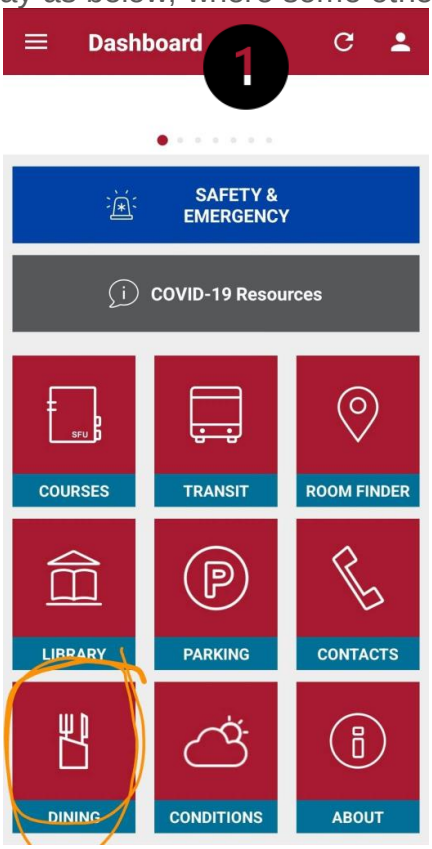
Part 2: Heuristic Evaluation

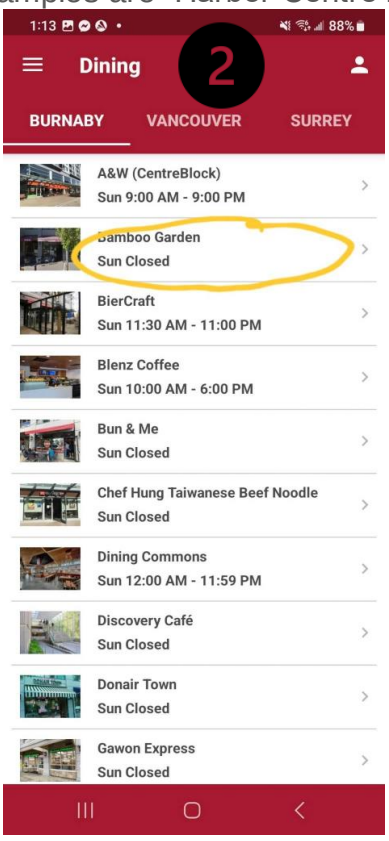
#: 1	**Problem/Good:** Usability Problem

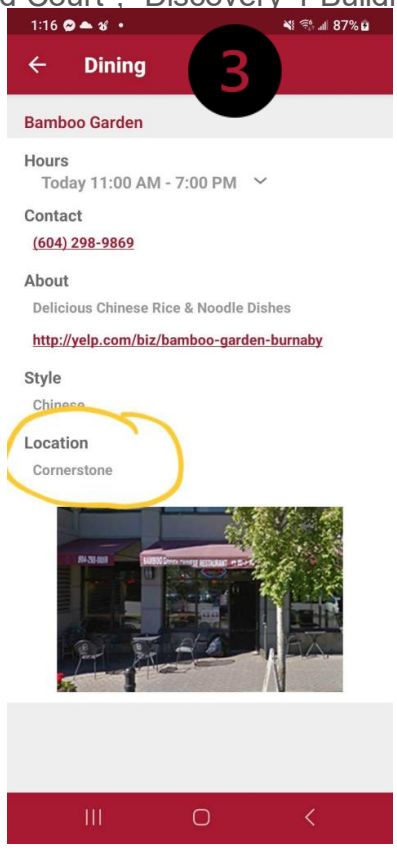
Name:
Non-optimal way to display the detailed location of a diner/restaurant and the opening/closing time of every day in a week

Relevant heuristic:
Recognition rather than recall, Aesthetic and minimalist design

Evidence of issue:
The issue is found when using Dining feature of the SFU snap app by clicking on the Dining button. In this (2) screen, only the day that is shown are "today". Then by clicking on any diner that user wants to explore – example in the image: Bamboo Garden, it will transit to the Bamboo Garden page, at the Location section, it only shows "Cornerstone" without any specific provided address or a map/sketch referring to the location. Almost every diner around SFU campuses is noted the same way as below, where some other examples are "Harbor Centre Food Court", "Discovery 1 Building".







Detailed explanation:
For the first problem, both the heuristic of "Recognition rather than recall" and "Aesthetic and minimalist design" are being violated. According to their definitions, firstly it should make objects and options visible, so people do not need to rely on their memory; and secondly, interface should not contain information that is irrelevant or rarely needed. There are 2 violations on the aesthetic. Firstly, by showing only the name of the location, which is rarely needed, it provides little to no

information on diner's exact location. Hence, user will need another step to remember/recall where it is located if they only go to this diner occasionally. They would need to look it up on the internet to find the correct direction to go. Secondly, the photo of the diner appear at the bottom of screen (3) is just an enlarge image of the preview photo on screen (2) and not only provide no extra useful information but also waste space.

The other violation on "Recognition rather than recall" is on the time frame, specifically when user may want to check what time these diners are opened and closed on other days of the week, they will again need to make an extra effort by going inside each diner page like in image (3) and tap on the "Hours" section to check while it can be made possible to put it outside screen (2) since most of the time the only difference in the time frame are between weekdays and weekends.

Severity or Benefit (minor, major, critical):

3 - Major

Justification:

This issue should be major because this is an essential feature that is needed for quick reference on the location of a diner instead of having to recall or open the map to check where exactly they need to go, since not many people are good with identifying directions, and showing only the name of the location with an enlarge photo of the diner provides a very vague information. The same issue applied for the hour, when it can entirely be summarized and fit in the list on screen (2), but user will need to go to screen (3) each time they want to check the time for other days instead

Possible solution and/or Trade-offs:

A possible solution is to include at least the exact location of the diner (example: 8911 Cornerstone Mews, Burnaby, BC V5A 4Y6). A better possible solution is to include a sketch of a map showing the diner's spot in exchange for the diner's photo or include a google map API to provide better navigation for the user, based on their current location.

For the hour, it can be put in the short format of: "Mon-Sat: 11:00 AM – 7:00 PM, Sun: Closed" outside screen (2) instead of only "today".

#:2	**Problem/Good: Usability Problem**

Name:
Tapping Dining feature on the main screen does not provide any button feedback

Relevant heuristic:
Visibility of system status

Evidence of issue:

Appear in the Dashboard screen of the app when user try to interact/tap the Dining button.

Detailed explanation:

Upon opening the app, when user try to interact with the dining button, there are no feedback to show that the action caused something (no sound effect, highlight or animation), which violate the "visibility of system status" heuristic, since there can be some case when the app is frozen but user cannot know whether the function is not working or their interaction has not been received.

Severity or Benefit (minor, major, critical):
2(minor)
Justification:

The feedback is only a minor cosmetic feature as it does not impact the functionality of the whole app since it can still lead the user into the main page of the dining feature if there is nothing wrong with the app or the connection.

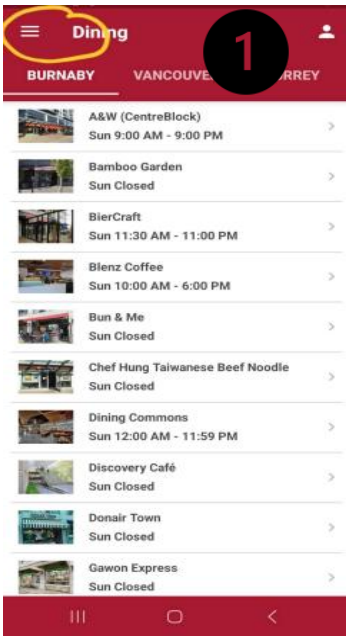
Possible solution and/or Trade-offs:
A possible solution is to add a tap effect or a voice over that says "Dining" upon hitting the button so that user will know if the app received the command from user.

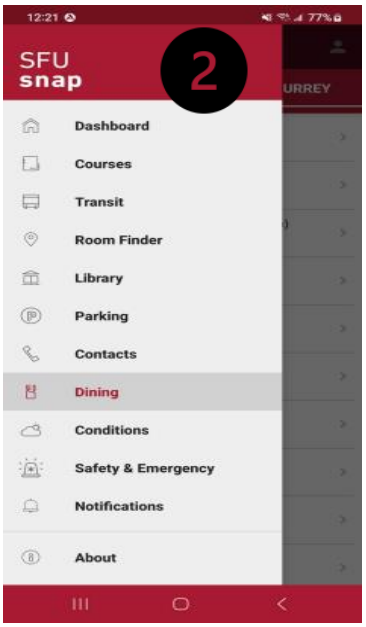
#:3	**Problem/Good: Good**

Name:
Back button / menu button is clearly shown for users to go back to previous screen

Relevant heuristic:
User Control and Freedom, Flexibility and efficiency of use

Evidence of issue:
Clicking the Dining button which will lead to the main page of dining feature, in which the menu bar button is shown on the top left corner of screen (1). Clicking on the bar button will open the menu like screen (2). Then click on any of the Dining/Restaurant that are in the list of screen (1) to go to screen (3), where the "Back Arrow" button are available on the top left corner.





Detailed explanation:
Upon clicking the triple bar button, the app allows users to either go back to the Dash Board (the first screen after opening the app) or providing a shortcut to other features built inside the app- which fulfill the requirement for "Flexibility and Efficiency of use" heuristic.

Moreover, by choosing a dining restaurant that are listed inside the Dining feature and go to the detailed screen like screen (3) above, user can notice the back arrow button that is available on the top left corner, which make it always possible for user to go back a step to backtrack the diner list. This fulfills the requirement for "User Control and Freedom" heuristic, where it allow user to undo their last action and go back to the system's previous state.

Severity or Benefit (minor, major, critical):
4 - Critical

Justification:
This option is critical as user often make mistakes or change their mind, in this case is when user click on one diner but also want to find out about other diner location and make a choice for their best place to go to. If this option is not available, then it would become very discouraging and inconvenience for users to explore more dining places. The app then would have to rely entirely on the back function of the device's toolbar rather than the app itself.

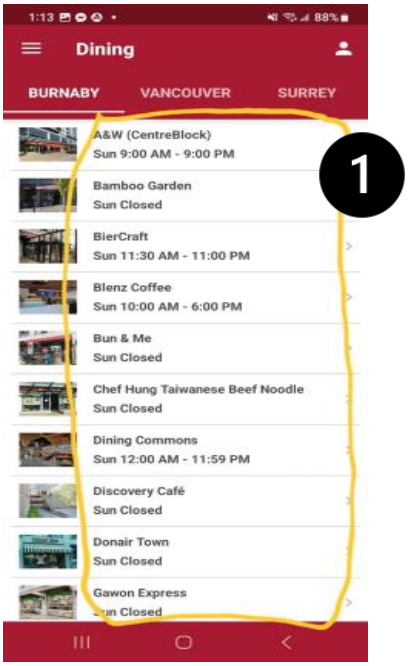
Possible solution and/or Trade-offs:
A possible minor improvement is to include an option to go back and forth between diner places, by including another left – right arrow with noted guidance such as “previous – next” so that users do not always have to go back to the list full of other diners and look for another place in there. This way it still fulfills the requirement for “User control and freedom” heuristic.

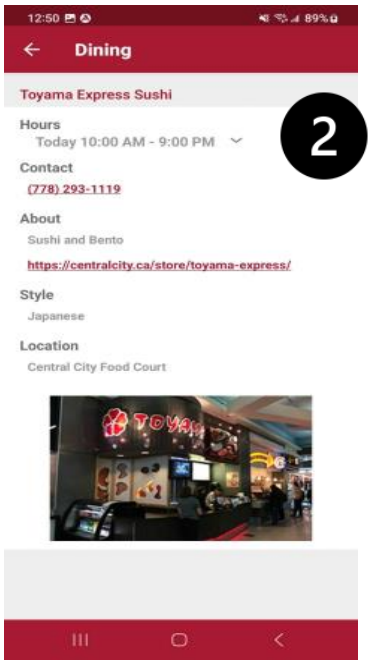
#:4	**Problem/Good: Good**

Name:
Consistent ordered wording & clearly separated sections through all the pages of the Dining feature

Relevant heuristic:
Consistency and standard & Aesthetic and minimalist design

Evidence of issue:
Clicking the dining feature will lead to the Dining main page. We can notice the order of all restaurants is sorted in an alphabetical order in (1). The same order is kept through all the campus options. Also, when clicking on any of the diner, we can see that they all have the same structure for each provided section: Hours – Contact – About section – Style – Location, example like screen (2) and (3) with different restaurants.





Detailed explanation:
The way they listed all the dining places in proper alphabetical order makes it much easier for users to find the name of the location they want to explore. This fulfills the heuristic of "Consistency and standard". Also, when navigating throughout each individual restaurant, the app keeps the red theme design consistently and also highlights each info section with bold, black font and the description in slightly less opacity for easier reading. Contact number and hyperlink are also highlighted in red on the same pattern, so that it brings user's attention onto the essential info on all restaurant pages, which also fulfill the heuristic of "Aesthetic and minimalist design".

Severity or Benefit (minor, major, critical):
2(minor)
Justification: This feature is a minor feature to have in the app, since it only contributes to the cosmetic look for the feature. All the necessary information for each restaurant can still be provided in different patterns.

Possible solution and/or Trade-offs:
A possible improvement is to include some wider, more recognizable line that separate each section of all diners that start with different alphabet (for example, there should be a blank, slightly grayed-out line that has the corresponding alphabet in Bold written inside that blank line, so that user can easier navigating through the list of diners, should there be more added

Summary:

- The version of the app is 2.2.3
- The inspection was done on February 5th, 2023.
- The inspection was done to evaluate the usability problem and the good usability of the Dining Feature built within the SFU Snap application.
- Step of evaluation: while using an android Smartphone to access the SFU Snap application downloaded from Play Store, user attempt to tap on the dining feature for the first time. The pages that needed to be tested are the diner list page and the diner detailed page. User will then take note of any flaws inside the design that can be usability problem, then find the good usability and evaluate them based on the 10-usability heuristic.
- Phone model that is used for the evaluation: SAMSUNG Galaxy S22 Plus, Android version 13.
- All provided images are taken with the phone device used for inspecting.
- Type of potential users: SFU students, SFU faculties.
- Tester Information:
    - Name: Danny Nguyen
    - Age: 26
    - Currently studying Computer Science at Simon Fraser University, BC.
    - Skill level: Year 3 of CS Bachelor, has experience with making Android application on Android Studio (Java),C++, Python, Web Development (HTML, CSS, JavaScript).
- Main findings of heuristic evaluation: there are two problems and two good usability.
    - Usability problem on Recognition rather than recall:
        - Issue is found when inspecting inside the detail information of a diner.
        - The provided opening/closing time frame for all days of the week that got shown in the list view of all diners is not optimized when most of the hours are similar between days, in which user will need to spend more time to remember or re-check the time by going extra step inside the detailed pages.
        - The provided information on the address is very vague with almost nothing valuable for the user – only the name of the street is provided.
        - Adding a map API or a screenshot of the location is recommender to improve the location section, while reformatting the time frame display for opening/closing hour on the list view of all diners is recommended to improve user's recognition.
    - Usability problem on Visibility of system status
        - There is no response feedback when tapping/clicking the diner feature inside the Dashboard page.
        - Adding sound/animation effect is suggested to fix the problem.
    - Good Usability on User Control and Freedom & Flexibility and efficiency of use
        - The app provided user with back button / menu button so that it is much easier to back out or navigate through other features inside the app
        - Adding options to switch pages within the detailed diner screen is recommended to improve the flexibility of use.
    - Good Usability on Consistency and standard
        - The app provided solid consistency on the list view of all diners by sorting them on alphabetical orders.
        - It also keeps the same format between the detailed page of each diners by using a good combination between red and bright/ dark colors on highlighting important information/options inside the Dining app, upholding the consistency.
        - Adding some change on the list view of the dining list page is recommended to improve the overall aesthetic UI design.

DESIGN REQUIREMENTS SPECIFICATION

- **Context Identification:**
  - When/where: the users would normally use it during lunch / dinner time, or when users need to have some snacks/coffee for temporary boost during study time on campus. Users are also presenting near the designated campus (Burnaby/Surrey/Vancouver).
  - Who: user is a current SFU student / faculty officer who study or work in SFU campus.
  - Why/what: the purpose of using the feature is to help user find more information about the local diners and help navigating to the diner that they want to go to . Also, they want to use this feature to know what time these diners are open during the day so that they can plan their time ahead.
  - How: When opening the snap app, the user can notice the dining feature button among other features, laying at the bottom left of the first screen. User would need to connect their device with the internet for the app to be functional by first installing the SFU Snap app on the App Store / Play Store on IOS/Android device. After tapping the diner's button, it will show the diner's list to choose between campus. User can proceed to choose which diner to go/explore from here
- **User Identification:**

Name: Tifa Lockheart **Current Job:** Student **Age:** 21 	**Bio:** Tifa is a first-year student at SFU and this is her first semester where all of her classes are in the Burnaby campus. She does not have any car so she has to travel to school by public transport or by foot for quite a long time so she mostly stays around campus until all of her class are finished. **Goal/Task:** Tifa has an appetite for food and would love to explore and try all the diners around the campus for the first time, but she does not know the way around very much since this is her first semester on campus. She wants to be able to quickly check out all of the diner's location and also find out the fastest way to go to her desired restaurant during her break.

Name: Cloud Strike **Current Job:** Instructor **Age:** 39 	**Bio:** Cloud is a math instructor who is currently working for SFU Mathematics department. He is currently living by himself and also quite busy with grading students work and preparing lesson paperwork, so he usually stays in his office until late. Therefore, he often goes to buy coffee to stay awake during his workday and sometimes instead of preparing meal at home, he goes out to buy some food at the nearby diners after work. **Goal/Task:** Since Cloud is an extremely careful person and does not like to abandon his work before he finishes, he usually wants to plan whether he can buy food or coffee during his break or after he finish his work on time. If not, he would need to call the diner and place a to go order as soon as possible before closing time. He also wants to be able to check out the list of SFU campus's nearby diners and find the short reference on the closing time so that he can plan ahead.

Functional Requirement:

- F1: The app should allow the user to open a map and activate GPS function to help user find the way to the diner's location and how long it can take to go there based on their current standing location.
- F2: The app should allow the user to check the opening and closing time of all diner at once without having to open the detail page of a specific diner, while providing a shortcut for making a phone call to the diner they interested in in case they want to make a takeout order or for some clarification. A scrollbar should also be included to speed up this process since more diners might be added.

Non-Functional Requirement:

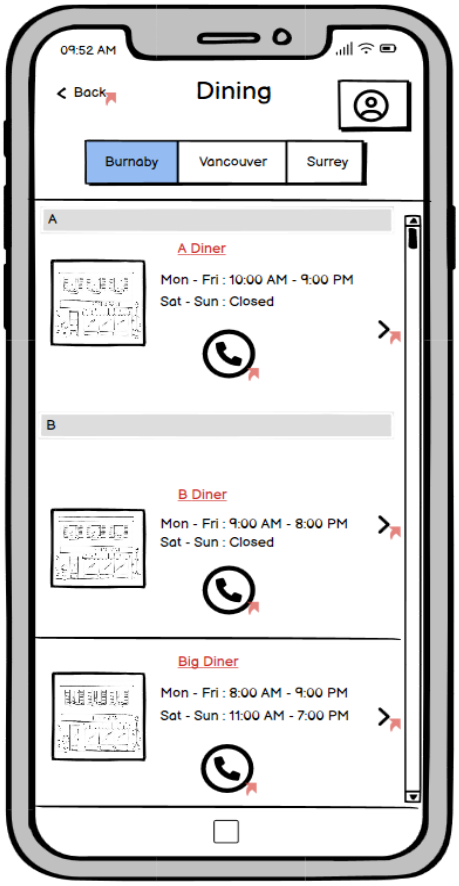
- NF1 (related to F1): The direction, the distance and the estimated time to go between user and the diner should be clearly shown. The estimated time should be measured based on walking speed so user can plan their time better. Map API / GPS should also load within 1 to 5 seconds.
- NF2 (related to F2): The timeframe between opening/closing time should be in short form and concise so that it will not overload the general UI. The shortcut button for calling the diner should be easy to find to use and should automatically attempt to make a call.

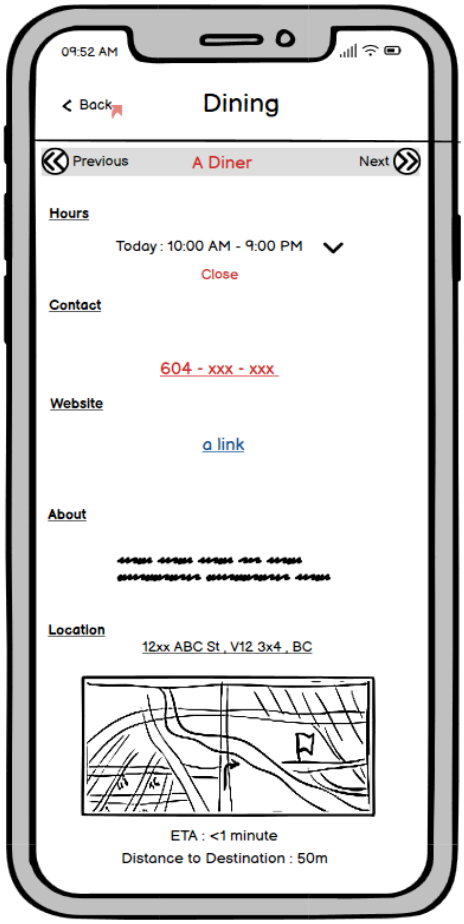
Next Step:

- So far, we have already tried to **evaluate** an existing working design by testing as a user and conduct heuristic evaluation to see what is missing, what are the problem and the good usability on the design, so that we can **understand the context** of use and identified them based on what user would possibly get from this app. We have also **specified the requirement** by listed out functional and non-functional requirement as an improvement. Therefore, the next step in the iterative design process of UCD is to **create the design solutions**. To do that, we need to start by brainstorming different ideas and making low fidelity prototypes by performing rapid sketching method, rough out ideas and design that would satisfy all the requirement specified from the step before, then present it by various methods including storyboarding and paper prototyping. Next, we will start putting ideas into similar mediums as final design but only some features – known as medium fidelity prototypes (MFPs), then create a scripted simulation for test users to try and follow tasks, to the point that the prototype is functional to demonstrate the main ideas of the design for test user to try and provide critical feedback.
- After that, we can expect some another step of heuristic evaluations and conduct fine tuning on these MFP design, then we can start making High fidelity prototype (HFPs), which also required more evaluation and testing on nearly fully implemented program that would includes all the content intended to be inside the working system. This would provide more useful and convincing feedback to do more tuning, before we move to the alpha/beta testing. Then, we will finally have a working system for user to use, then we reproduce the UCD approach again to continue improving the feature in the app.
- Notice that on every step that I described above, all steps follow an iterative design process that focuses on the user's needs (in this case, the SFU students and staffs) by letting test users go through the step of testing and providing feedback before moving from one to the next step after that.

Part 1b

Low Fidelity Prototype 1



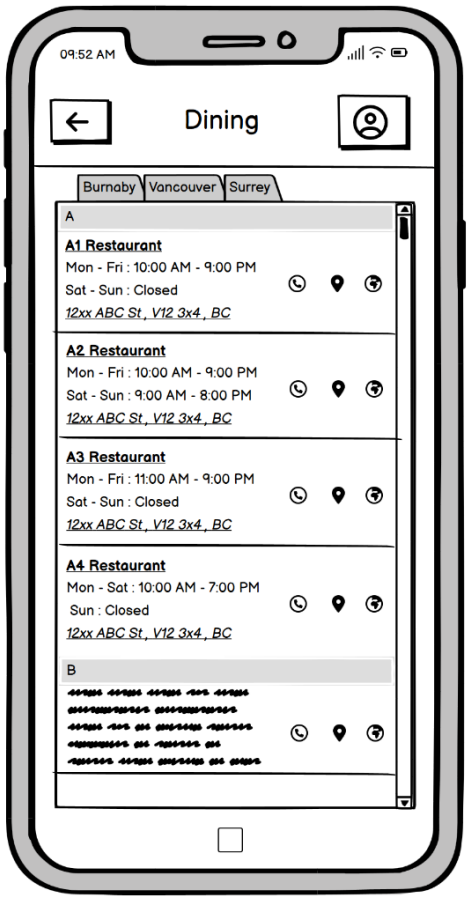


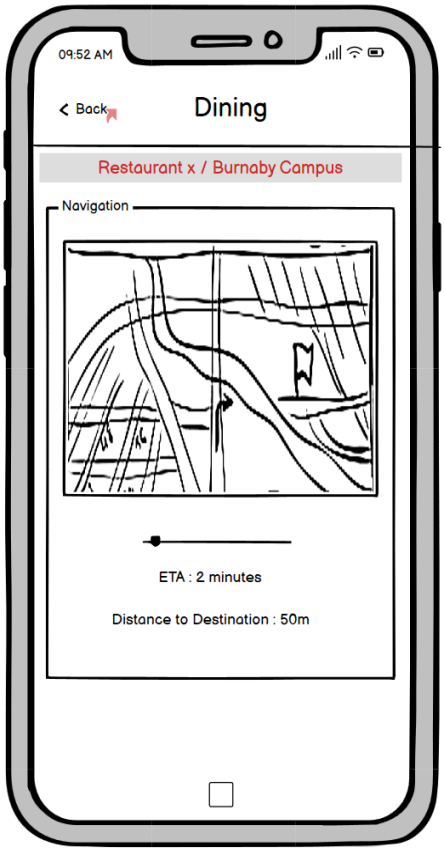
First LFP:

- This LFP design fulfill the functional requirement by including a call button and a short reference on the opening hour so user will not have to go the detail page to check the time and other important information since most-used features are compacted into the diner list's screen. A scrollbar is put on the right to speed up the process of finding a suitable diner. Also on the diner's detailed screen, a GPS/map API is clearly shown under the location section.

- For the nonfunctional requirement, Call button is also easy to find on the list screen. For the Map/GPS API on the detailed screen an arrow for direction, an estimated arrival time based on walking speed and the estimated distance from current user's perspective can also be clearly found.

Low Fidelity Prototype 2



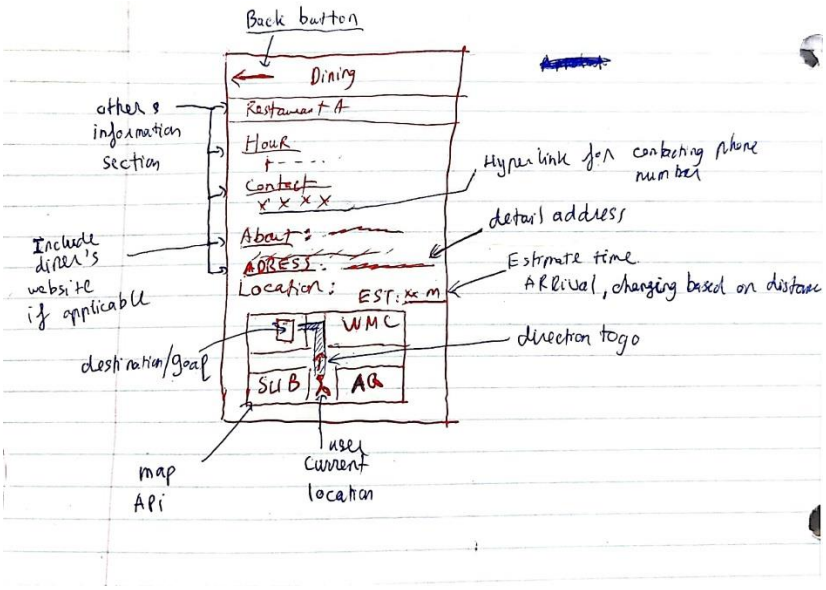


Second LFP:

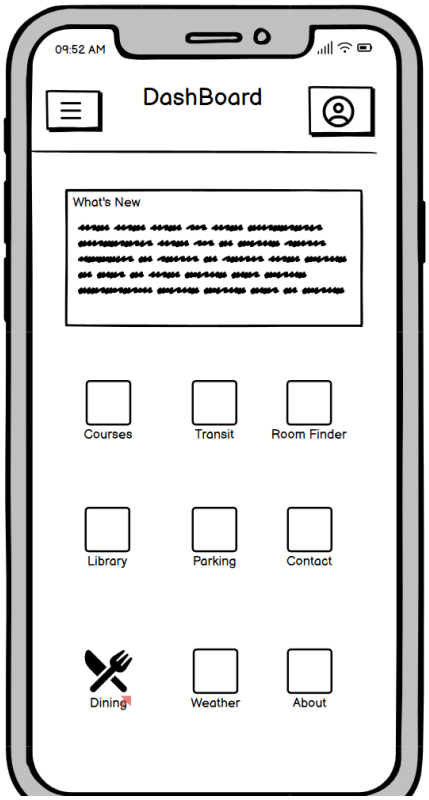
- This LFP design fulfill the functional requirement by including all the important feature on the list screen, including closing time frame, a call button, and a direction button, with an addition of the “website” button that leads to the website of the diner should it exists. A scrollbar is put on the right to speed up the process of finding a suitable diner. When clicking the “Direction” button, it leads to another screen that is compacted with the Map/GPS API for user’s need.

- For the nonfunctional requirement, Call button are all kept in the same arranging format throughout all sections of a restaurant on the list screen, which make it clear and easy to find. The GPS/map API is also put on a separate page with an arrow for direction, an estimated arrival time based on walking speed and the estimated distance from current user’s perspective. User can also zoom in our out on the map for better tracking navigation.

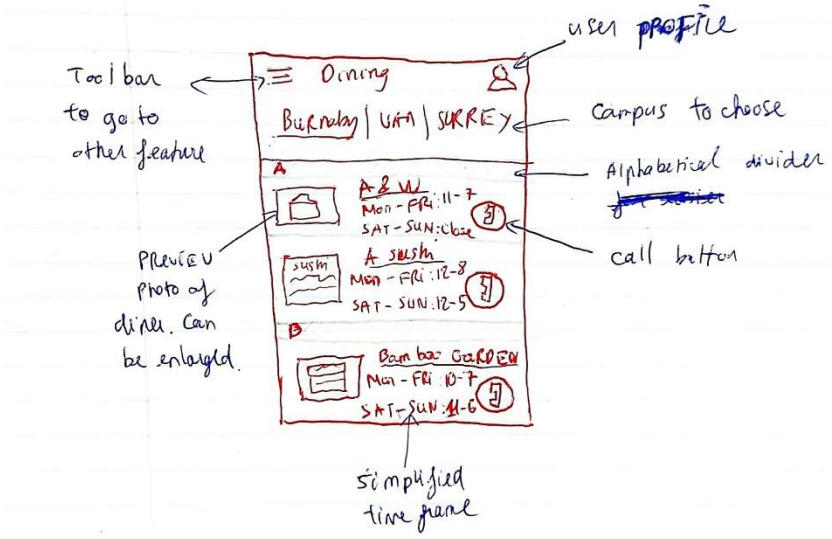
Appendix



Functional Requirement 1 - Sketch



App Main Screen



Functional Requirement 2 - Sketch

Calling Screen