

# Timber - A Gardening App

## Project Deliverable # 2 Ideation and Lo-Fi Prototypes

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YOU MUST FAIL  
AT GARDENING TO  
MASTER IT.

### Brainstorming Session

#### Description of brainstorm process

Our brainstorming process was conducted early in this part of the development cycle so that the lessons we learnt from our research stage were still fresh in our minds. We decided that quick, independent sketches would be the most efficient method of ideation, as we could each provide a sizable number of independent ideas and then evaluate them together as a group. The ideas ranged from how the user interface should look to what features should be included in the design. We found that there were very few overlaps between ideas. By comparing results afterwards, we found that there was only one feature that all the group members wrote down that were the same, which was the ability to search plants based on a photograph. After this, we decided that our ideas had been too closely grounded by reality and we discussed more eccentric alternatives, like being able to monitor the plants using special remote technology that monitored soil data. We found that this final push for more absurd ideas gave us more to think about than simply what the app would do, and more about how to user would interact with the world around them using the app. This was especially relevant when it came to interacting with the stores that sell plants, as one of our tasks was the ability to tell which store had the cheapest plants nearby.

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*Please refer to Appendix 1.8 for photographs of session*

## **Affinity Diagramming Session**

### **Description of diagramming process**

The time was five o'clock post meridiem. It was cloudy outside and there was a chilling breeze that blew through the campus. We decided that the location of the brainstorming should be in the computer science labs in the Math Science. The atmosphere in the lab was still and stagnant. It was probably from the lack of windows and natural lighting. We gathered around the long tables and devised a strategy for how we should approach this. The material we decided to use paper and pencil to convey our thoughts. The next thing that we did was set up a timer. This helped us brainstorm last time because, there is a constant pressure that the timer extruded. Which in turn helped us come up with ideas. As the timer counted down to zero, all members of the team tried frantically to write down their last thoughts. When the buzzer rang, and all the smoke settled we brought all our ideas together. In total there were thirty-nine ideas. This was surprising because, we only had a time limit of seven minutes. The ideas were built off of previous discussions we had had as a group, and also included information we learnt from the User Research stage about, for example, finding information on growing plants. It also took a lot of direction based on the rapid ideation we had performed in the brainstorming session, and the wide variety of topics raised (especially because of our 'absurd designs' round) helped to expand the scope of the cards we had written.

### **Summary of Process**

As a team we got together to group the ideas together. First we did a silent grouping and just grabbed the pieces of paper and placed them next to other ones that we thought would match. After have about nine initial groupings, we started to discuss why we chose to place the pieces of paper there. Since these were the initial group we didn't bother with naming them. The important thing was just making sure we understood why the ideas when together. From those nine group we started to refine the actual groups. Since there were so many groups we have to look at which groups have things in common or could fall into a bigger grouping. There was a lot of discussing and debating in the group. Finally came up with six grouping. We talked about trying to eliminating one more grouping but in the end we couldn't justify that.

The final groups of ideas are the following Finding plants / Searching, Plant environment / Health monitoring, Tutorial / Learning, Sorting user interface, Stores and Services, Convenient plant identification. First for Find plants / Searching we found that ideas dealing with trying to find plants or searching through databases fit into this grouping. The ideas that we had dealing with the search interface or ideas dealing with how we find plants belong here. Second for Plant environment / Health monitoring we found that ideas dealing with how to take care of a plant or the plant description or things that dealt with the status of the plant belonged here. Third for Tutorial / Learning we found that ideas dealing with teaching belonged here. For example, things that beginners would like to know belong in this group. Fourth for Sorting user interface we thought that ideas about how we could let the user sort through plants belonged here. Fifth for

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Stores and Services we grouped all the ideas that dealt with finding where to find the plants or what plant related services belonged in this grouping. Lastly for Convenient plant identification we grouped together ideas that dealt with quickly and effortlessly identifying plants.

## **Conceptual Groupings**

### **Finding plants / Searching**

This conceptual grouping deals with ideas we had for the finding and searching interface for our application. This group of ideas with traversing through a database of plants. The requirements we had to satisfy were that the application has to be simple for beginners to use. This is so the application feels inviting. The other requirement was that the application had to be functional for other levels of gardeners. Another consideration was whether the ideas aligned with what we had for our user research. First we had design idea about how to make the application approachable to new users. This was one of our top requirements, because there are gardeners that are just starting or users that are not familiar with mobile technology. We also wanted to take in mind the expert users as well. They are most like the users that want information to be found fast. As a group we feel that this conceptual grouping captures an aspect from our initial research. For example, had an idea dealing with how we can personalize the list of results. This would satisfy the needs of an expert user because they know what plants will go well with their existing garden and could use filter categories to get a refined list of results. This idea is also for beginners as well because they could use the filters to get easy to maintain plants. As a team we believe that the design ideas from this grouping will be easy for the users to digest because we took a user centric approach.

### **Plant environment / Health monitoring**

This conceptual grouping deals with ideas we had about being able to gather information about a plant. We believe that this ties into the requirement for our users to be about to find out information about a plant. For example if the user is buying a plant and wants to know more information about the plant. They can lookup this information and consume that information in a meaningful manner. Our ideas in the grouping comprised of some ideas for symbol based communication and some ideas based on. For example, a sun that has various stages of filled-ness would represent the amount of sunlight required by a plant. Ideas with this manner of thinking can address issues that were brought up in the previous interview. There was an emphasis on replacing large text with contain that was easier to breakdown and extract the meaning. With we can fine tune the information so it can fulfil the needs of the users without being too complex.

### **Tutorial / Learning**

This conceptual grouping deals with ideas about teaching the user and methods that the user can learn and retain this information. We came up with ideas about what kind of information is easier to view and retain. From the brainstorming we all thought that video information would be easier to view and retain. The team also came up with a futuristic idea about virtual reality tutorials that are interactive. All these related to the problem we had before dealing with

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beginner level gardeners. As a beginner there is a lot of information that is needed to be learnt before being able to start. Our first thought was to include a bunch of text that would explain to the user what to do. However, we discussed that this would make the user turn tail away from our application. Which would make the idea unpalatable to the user. So, we ended up with a video based tutorial system. This way it can be more enjoyable to the users. The virtual reality idea is good in theory because it would help users learn in an interactive way but is limited to hardware.

### **Sorting UI**

This conceptual grouping deals with ideas based on possible interfaces for sorting through plants that the user might like. The main reason for this group is because there were ideas based on a swiping interface. This group would deal with the requirements of having a simple and clutter free interface. However there was an issues with the amount of information that could be gathered from this type of interface. Although this would be very palatable for the user, the team also discussed other interfaces that could achieve the same functionality while providing more information. This back and forth of idea is good from a design standpoint because it's making sure that we the right idea and not making an idea better. So with this method of thinking we can have a design that is more attuned to the user.

### **Stores and Services**

This conceptual grouping deals with ideas about acquiring the plant after finding out more about it. For example, one of our ideas from this group was to have a list of stores and pricing with a quick method to contact the store. During our previous interview, there was an issues that was brought up about gathering information from other plant vendors. As a team we took this into account when coming up with these ideas. From this grouping we can come with ideas that can address the lack of ability to compare information from other stores. There was also an idea about a Uber like service for a people with disabilities that render them housebound. The service allows the users to make a delivery request for a plant. Afterwards the plant will be brought to them. This is another way that we are making sure to accommodate the needs of our users.

### **Convenient plant identification**

This conceptual grouping deals with ideas about having a quick and easy solution to identifying plants. In the group we discussed a possible idea for this problem. The ideas in this group revolved around the idea of being able to take a picture of the plant and then getting information about. This helps users that are not very familiar with plants and have limited knowledge of plant names. Another issues that this solves is regarding safety. For example, if a child eats a plant either by accident or just because they felt like it. This idea will allow the parent to quickly identify the plant and any information regarding edibility. We also discussed that the interface of this has to be easy to use therefore the feature and application be comes easier to approach and retain.

***Please refer to Appendix 1.1 - 1.7 for photographs of groupings and session***

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## Sketches

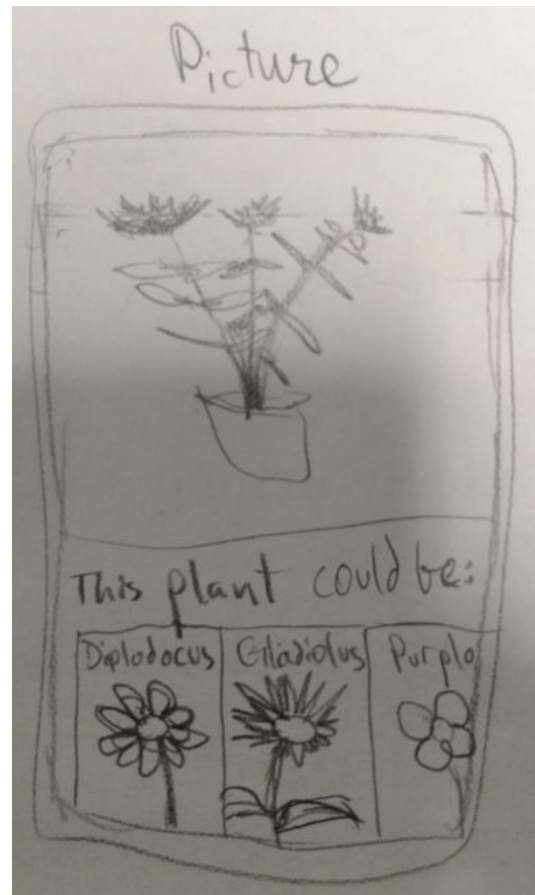
### Sketch #1

#### Description

The main part of this feature is a picture of some plant, which the user will take. That picture will be used by the app to evaluate the species and / or similarities with other plants, and will recommend a list of plants - with their images - for the user to scroll through and with any luck find the plant that they took a picture of. Tapping one of the plants in that list returns an information page for that plant (see Sketch #3) which can be used for actual gardening purposes such as to understand how much sun/shade, water, soil, etc. it needs. Of course the home button and multi-tasking button will still perform the same tasks, but the back button should return to the picture-taking screen.

#### Justification

During our User Research, we found during the survey that aesthetics are a driving part of what can make someone be invested in gardening. Moreover, other people's gardens can inspire a gardener with new ideas or else with simply the motivation to add more to their own garden. Furthermore, we learnt that being able to communicate using only the visual aspects of a plant without initially worrying about price, physical limitations, and so on would be a big boon for people keen on getting a particular plant for their garden. Thus, we decided that our tool should have the ability to take a picture of any plant in the real world and correctly identify - or at least reach a good approximation - of that plant's name and information. This way, there is a natural interaction between a gardener and gardens that are not even their own. This is a way for gardeners who are invested in their hobby or trade to be constantly engaging in a proactive manner to see what they can add to their garden.





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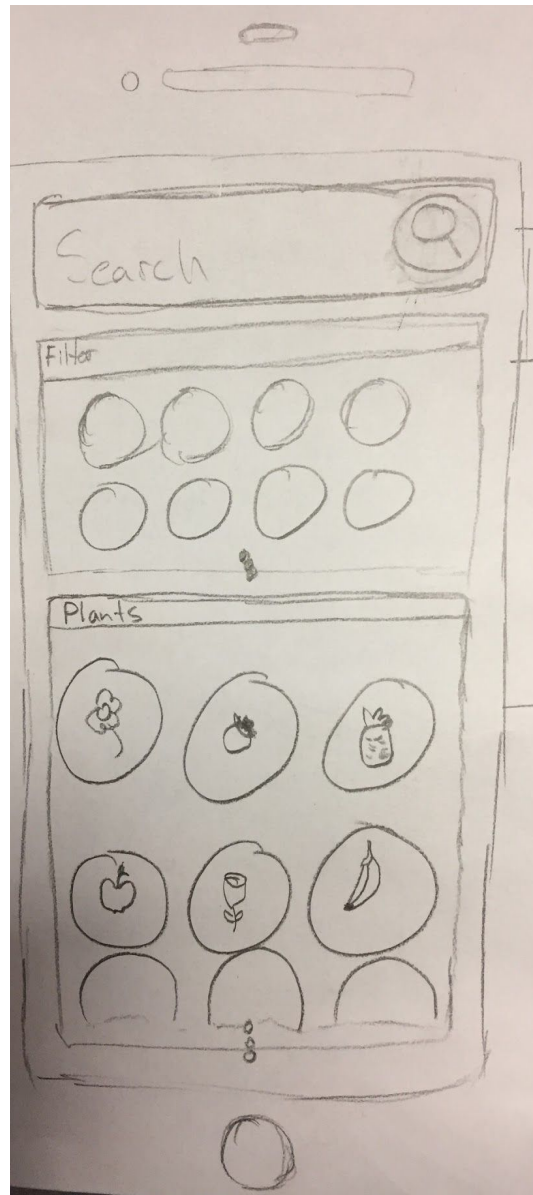
## Sketch #2

### Description:

The picture shows the interface for searching plants. There are three main components on this screen. First we have a search bar, which lets people search plants when they know the name. Second there are selectable filters to fine tune the results. These filters are based on but are not limited to level of maintenance, amount of sunlight needed, whether the plant is an indoor one or an outdoor plant. Last, this is the area where the results are in quick view format. This means that the user is presented with just pictures of the plant. Selecting the plant will bring up a description. Both the filters and the list of plants are scrollable. When the user selects categories from the list of filters checks will appear on the category.

### Justification:

Our application is targeted towards gardeners. Since there are beginners, experts, and everything in between, the user interface has to reflect their needs. If we look at beginner level gardeners. They would feel more comfortable with a simple interface. This interface should be minimalistic but also have functionality. Our interface has no big blocks of text and we used simple navigation methods such as tapping to select, and scrolling. Beginner level Gardeners can simply scroll through the list of plants or they can filter the list by selecting from the filter categories. If they know the name of the plant they are just search by name. An example of where this would come in handy is when the user is shopping for plants. When the garden shop-keeper is too busy to answer the user's questions about the plant, they can just look up the the information on the application. Experts can use the filters to find plants that will go well with their existing plans.



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## Sketch #3

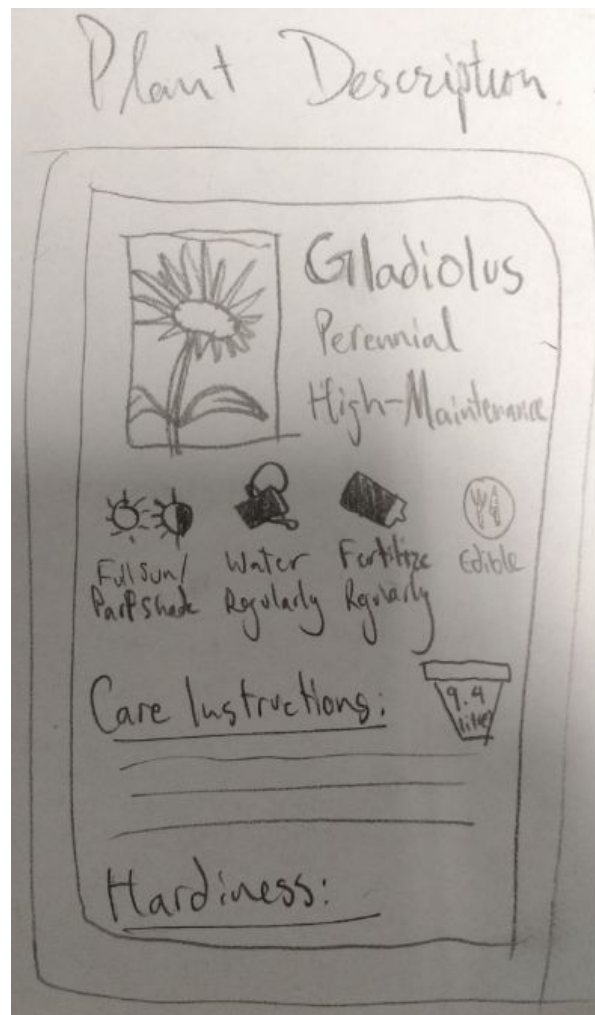
### Description

This feature centers on one specific plant per page, which will display information varying from the amount of sunlight the plant should receive in order to grow healthily, to the amount of water, fertilizer and soil required, and even if the plant is edible (as sometimes even amateur users will grow potatoes and such in their backyards). Below that are more detailed instructions for taking care of the plant which would summarize the most important steps, as well as details on its how hardy the plant is (e.g. in snow, in chinooks). Before the section on how to take care of the plant, there is the curated YouTube playlist for planting this specific plant would be located via a link. This page also links to nearby stores that stock this particular plant, from which the user would be able to contact those shops for their services. The top of the page contains a picture of the plant, its name and most generic type (perennial, decorative, etc.), and the amount of maintenance required.

### Justification

We wanted people to be able to quickly pick out the plant they wanted, as multiple task descriptions were about finding if a plant had a certain quality. We decided that, like the information cards that we found during User Research, it would be best to qualify that information using simple and easy-to-understand graphics which would be supplemented with more detailed text excerpts, and of course the video tutorials. We also decided that since people will be judging which plant they want based on looks, the picture should take up a sizable amount of the screen, and its name should be subtitled by the amount of maintenance the plant needs. The latter point is especially significant for a point we found during our interview, as some people do not have the time to invest heavily into building a beautiful garden but still want equivalent results. These settings will provide an easy way for the user to quantify if a particular plant is worth the effort being put into it, and ultimately if they do think that they want that particular plant, they can go to pick it up at the nearest store with the cheapest price.

However, the detailed text segments we have would go against our principle of using mainly images, and not relying on text-heavy interfaces.



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## Storyboard

### Description

The storyboard is around the task description in which Joey Tribbiani wants to get more information about his plants but discovers that there are no information cards that came with the plants. This story illustrates how Joey discovers this app called *Timber*, since his phone is always on him since he likes to get “information about things in a moments notice”. Similarly, he’s “not very handy with technology” and the option to search for a plant based on a photograph appeals to him. Joey then aims his phone at the plant and takes a clear shot. He is then immediately shown options of plants that are similar to the photograph, and selects one that looks most like his, in fact it is the exact same plant. Once he selects the plant he’s given an in-depth description of his plant, a *Chinese Evergreen*. From the description, he is able to get the necessary information, i.e. when to water, amount of sunlight, and maintenance level because of the simplistic and visual design of the user interface. Joey had a pleasant experience so much that he’s going to recommend it to his friend Monica, and is going to use this method to gather information on all of his other plants.

*Please refer to following page for the actual storyboard.*

## Video Prototype

*Please refer to video titled “Timber - Video Prototype” on the Slack #general channel.*

## Task-Centered System Walkthrough

### Task Description #1: Ross Geller needs to look up if the plant is low-maintenance

Change made to task description, is related to his occupation as suggested in the feedback from the previous deliverable. New description, “Ross Geller, a Paleontologist by background, but now a CEO of an IT startup in Calgary...”

### Walkthrough

Task step	Knowledgeable? Motivated? Believable	Comments/suggested fixes
Go to app store on phone (assuming application isn’t already downloaded on their device)	Yes, to all three.	Considering that Ross “usually looks up information on the internet before he makes a purchase” and is the CEO of an IT startup, he is definitely knowledgeable, he wants to get a plant so he is definitely motivated, and lastly, this is believable due to his IT background he’s most likely downloaded apps before.



Comes across and downloads <i>Timber</i>	Yes, to all three.	Same comment as above.
Open application	Yes, to all three.	Same comment as above.
Select “Select via Options”	Yes, to all three.	Even if he is not completely knowledgeable of what each of the two options do, he definitely doesn’t want to take a picture so he selects the other option.
Searches by typing in keywords like “filtering” and “purifying”	Yes, to all three.	<p>Since it’s right on top of the UI, and as explained earlier he has some IT knowledge, therefore he is knowledgeable about this feature in the system.</p> <p>He knows what he’s looking for so he just types his preferences to not waste any time, this is very believable which results him being motivated to complete this action.</p>
Scrolls through the search results and selects plant	Yes, to all three.	<p>Due to his IT background and experience with searching online, he has knowledge about scrolling to get more results.</p> <p>Since he is looking for a specific plant this task is definitely believable and will motivate this action.</p>
Reads description of plant and understands it	Yes, to all three.	<p>Ross has some experience with gardening before, so the symbols are not an unfamiliar sight, thus he is knowledgeable about how the UI is laid out.</p> <p>Since he is looking for a specific plant, him reading and understanding the description of the plant is believable and motivates his actions.</p>
Scrolls down description UI and sees sold at locations nearby	Yes, to all three.	<p>As mentioned before, he has knowledge about scrolling down to get more information.</p> <p>Since, he is a busy person, it is believable that he would be interested in seeing where the plant is sold, to be efficient and schedule to pick it up whenever he can, this motivates this action.</p>
Goes to store and picks up plant	Yes, to all three.	<p>Since he knows that there is a store that sells this plant, he has knowledge.</p> <p>It is believable that he picks up the plant because he is motivated to search via an app to find a plant that fit his preferences.</p>

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## Interruptions, errors, and exceptions

Task step	Knowledgeable? Motivated? Believable	Comments/suggested fixes
<b>1. Event: Interruptions</b>		
Deal with lack of internet access	Knowledge high. Motivation low. Believable high.	<p>Ross is aware when there is a disconnected wireless connection. Therefore, he is unable to download the application to begin with.</p> <p>He fixes this by changing locations and trying to locate a better signal location. Or, assuming he's at home, he restarts his router and fixes the connection, or uses his data if he can.</p>
Deal with phone on a low-battery	Knowledge high. Motivation medium. Believable high.	<p>The mobile device warns him that his device has low battery. He fixes this by using another application compatible device, or simply letting the current device charge for a little bit before proceeding with the task at hand.</p> <p>But since he is a busy person, he might find another application or just go on a computer and use a website.</p>
Cannot find a plant	Knowledge low. Motivation low. Believable high.	<p>If the application cannot find a plant based on his preferences, how will Ross know, that this is actually the case or he just misspelled something. Will the system, give him suggestions on refining his search, or he misspelled something?</p> <p>But since he is a busy person, he might find another application or just go on a computer and use a website.</p> <p><b>Possible solution:</b> Suggest plants remotely close to their search preferences. Do not display "No search results found." ever.</p>
Cannot find the plant in a store nearby	Knowledge low. Motivation low. Believable high.	<p>If Ross cannot find a store nearby that sells the plant, can he expand his search to a greater area? Does the system provide him with the stores contact information, to verify the application's information?</p>

		<p>But since he is a busy person, he might find another application or just go on a computer and use a website.</p> <p><b>Possible solution:</b> If we were to scope this application out, we could include online retailers to fix this issue.</p>
<b>2. Errors: Searching for a plant</b>		
Doesn't know you can search with just keywords	Knowledge low. Motivation low. Believable high.	<p>Unless otherwise stated, it is a habit to search in sentences rather than words. He fixes this by, perhaps not using the search bar but rather just selecting from the listed preferences, and having to go through a greater and not targeted list of plant results.</p> <p>But since he is a busy person, he might find another application or just go on a computer and use a website.</p> <p><b>Possible solution:</b> Grey-ed out example of search in the search bar.</p>
Doesn't know you don't have to type in the search bar to look for a plant	Knowledge low. Motivation low. Believable high.	<p>Unless otherwise stated, Ross assumes that he has to type something in the search bar before searching. He might find another application or just go on a computer and use a website.</p> <p><b>Possible solution:</b> Have a 'OR' in between the search bar, the filter circles, and the quick suggestions section to suggest you can do search a multitude of ways.</p>

### **Task Description #2: Monica Geller looks up how much sunlight the plant needs**

<b>Task step</b>	<b>Knowledgeable? Motivated? Believable</b>	<b>Comments/suggested fixes</b>
Go to app store on phone (assuming application isn't already downloaded on their device)	Yes, to all three.	Monica has experience with technology, so she has the knowledge. She is looking for a plant to elevate the mood of her environment therefore her downloading an application is believable and she is also motivated to perform this action.

Comes across and downloads <i>Timber</i>	Yes, to all three.	Same comment as above.
Open application	Yes, to all three.	Same comment as above.
Select “Select via Options”	Yes, to all three.	<p>Since Monica doesn’t have any existing plants, it is believable that she selects this options and it motivated to do so as well.</p> <p>Moreover, she has the knowledge to have a vague idea of what each option entails.</p>
Selects preferences in “Filter” pane. Selects “Minimal sunlight”	Yes, to all three.	<p>Monica knows that she can’t be successful at gardening a plant if it requires constant sunlight.</p> <p>Therefore, it is believable that when she sees the option for minimal sunlight in one of the circles in the filter pane she is motivated to go through with this task.</p>
Searches based on selected preferences	Knowledge low. Motivation medium. Believable high.	<p>Since Monica is gardening for the first-time she doesn’t really know what else to look for when searching for a plant based on her environment.</p> <p>Moreover, she has experience with technology so it is believable that she may be motivated to perform some trials and errors and see if the search results are to her liking.</p> <p><b>Possible solution:</b> Ask the user of their level of experience as a gardener as part of the search criteria and show them an interface specific to their level of knowledge around gardening.</p>
Scrolls through the search results and selects plant	Yes, to all three.	<p>Due to her experience with technology, she has knowledge about scrolling to get more results.</p> <p>Since she is looking for a specific plant, something that will have a natural element feel, this task is definitely believable and will motivate this action.</p>
Reads description of plant and understands it	Knowledge low. Motivation high. Believable high.	<p>Since Monica is gardening for the first time, she doesn’t completely understand what all of the symbols or language mean.</p> <p><b>Possible solution:</b> Pop-up bubbles that explain what each symbol and sections means in a manner to beginners can comprehend.</p>

Scrolls down description UI and sees sold at locations nearby	Yes, to all three.	<p>As mentioned before, she has knowledge about scrolling down to get more information.</p> <p>Since her strategy to lighten up the environment is to bring natural elements such as plants into the environment, it is believable that she would be interested in seeing where the plant is sold.</p> <p>She is new to town and still unaware of her surrounding this motivates this action to look for availability of the plant in stores nearby.</p>
Goes to store and picks up plant	Knowledge low. Motivation high. Believable high.	<p>Since Monica is new to town she doesn't really know where the stores are located and how to reach them.</p> <p>However, it is believable that her being experiences with technology perhaps uses a map app to provide her with directions to the store that has her choice of plant(s) available.</p> <p><b>Possible solution:</b> Have an integrated map within the application to make it convenient to the user to visualize the stores proximity, and possible routes to it.</p>

### Interruptions, errors, and exceptions

Task step	Knowledgeable? Motivated? Believable	Comments/suggested fixes
<i>1. Event: Interruptions</i>		
Deal with lack of internet access	Knowledge low. Motivation low. Believable high.	<p>Monica is aware when there is a disconnected wireless connection. Therefore, she is unable to download the application to begin with. Moreover, since she just moved into her new apartment there is a chance that she might not even have a wireless network set-up for her use yet.</p> <p>As a result, her motivation lacks, and she is no longer 'motivated' to perform the actions listed above.</p>
Deal with phone on a low-battery	Knowledge high. Motivation high. Believable high.	The mobile device warns Monica that her device has low battery.



		She fixes this by using another application compatible device, or simply letting the current device charge for a little bit before proceeding with the task at hand.
Cannot find a plant	Knowledge low. Motivation low. Believable high.	<p>If the application cannot find a plant based on her preferences, how will Monica know, that this is actually the case or she just misspelled something. Will the system, give her suggestions on refining her search, or if she misspelled something?</p> <p>But since she is experienced with technology, she might find another application or just go to a store and have the Garden Centre employees help her out.</p> <p><b>Possible solution:</b> Suggest plants remotely close to their search preferences. Do not display “No search results found.” ever.</p>
Cannot find the plant in a store nearby	Knowledge low. Motivation low. Believable high.	<p>If Monica cannot find a store nearby that sells the plant, can she expand his search to a greater area? Does the system provide her with the stores contact information, to verify the application’s information?</p> <p>However, since she is new to town, she might get frustrated because she is a first-time gardener and new to town, and go in a different direction to solve her ‘dark’ apartment problem.</p> <p><b>Possible solution:</b> If we were to scope this application out, we could include online retailers to fix this issue.</p>
<b>2. Errors: Searching for a plant</b>		
Doesn’t know you can search with just keywords	Knowledge low. Motivation low. Believable high.	<p>Unless otherwise stated, it is a habit to search in sentences rather than words. Monica may fix this by, perhaps not using the search bar but rather just selecting from the listed preferences, and having to go through a greater and not targeted list of plant results.</p> <p><b>Possible solution:</b> Grey-ed out example of search in the search bar.</p>
Doesn’t know you don’t have to type in the	Knowledge low. Motivation low. Believable high.	Unless otherwise stated, Monica assumes that she has to type something in the search bar before searching.

search bar to look for a plant		<p>If the search process becomes too frustrating, because she is a first-time gardener and new to town, she might just look for another technology to her problem, or abandon the idea of getting a plant all together.</p> <p><b>Possible solution:</b> Have a ‘OR’ in between the search bar, the filter circles, and the quick suggestions section to suggest you can do search a multitude of ways.</p>
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**Task Description #3: Phoebe Buffay needs to see if the plant that they're looking up is sold nearby**

Task step	Knowledgeable? Motivated? Believable	Comments/suggested fixes
Go to app store on phone (assuming application isn't already downloaded on their device)	Yes, to all three.	Phoebe likes application, so she has the knowledge. She is looking to buy a plant therefore her downloading an application is believable and she is also motivated to perform this action because she is an avid gardener.
Comes across and downloads <i>Timber</i>	Yes, to all three.	Same comment as above.
Open application	Yes, to all three.	Same comment as above.
She looks up the plant using Timber and has decided on one (This is assuming either she just the identify by photo or a manual lookup)	Yes, to all three.	She has knowledge on mobile application. The main screen only has two options on it. This helps to minimize the amount of user errors. She is also motivated because we wants buy the plant.
She scrolls down the plant description page to the	Knowledge medium. Motivation high. Believable medium.	Phoebe might not know that the plant description page has more content to it. However she is not the type of person that will give up easily. This is believable because she can try different navigation

locate plant section		methods they she uses on other application to navigation the plant description page.
She looks as the list of stores that sell the plant.	Yes, to all three.	Once she has gotten to this point, Phoebe just has to look at which store from the list she wants to go to.

### **Interruptions, errors, and exceptions**

<b>Task step</b>	<b>Knowledgeable? Motivated? Believable</b>	<b>Comments/suggested fixes</b>
<i>1. Event: Interruptions</i>		
Deal with lack of internet access	Knowledge low. Motivation low. Believable high.	Phoebe is aware when there is a disconnected wireless connection. Therefore, she is unable to download the application to begin with. Phoebe has to interest or knowledge about this type of technology.  As a result, her motivation lacks, and she is no longer 'motivated' to perform the actions listed above.
Deal with phone on a low-battery	Knowledge high. Motivation high. Believable high.	The mobile device warns Phoebe that her device has low battery.  She fixes this by using another application compatible device, or simply letting the current device charge for a little bit before proceeding with the task at hand.
Cannot find a plant	Knowledge low. Motivation low. Believable high.	If the application cannot find a plant based on either identifying by photo or manual lookup , how will Phoebe know? This might be a case of a human error. Will the system, give her suggestions on refining her search, or if she misspelled something, or she took a picture of something that's not a plant?  But since she is experienced with mobile applications only, she might just go to a store and have the Garden Centre employees help her out.  <b>Possible solution:</b> Suggest plants remotely close to their search preferences. Do not display "No search results found." ever.

Cannot find the plant in a store nearby	Knowledge low. Motivation low. Believable high.	<p>If Phoebe cannot find a store nearby that sells the plant, can she expand his search to a greater area? Does the system provide her with the stores contact information, to verify the application's information?</p> <p>However, since she is free spirited individual, she might just lose interest in the plant. Therefore losing motivation and just accepting the fact they don't sell that plant.</p> <p><b>Possible solution:</b> If we were to scope this application out, we could include online retailers to fix this issue.</p>
<i>2. Errors: Searching for a plant / nearby stores</i>		
Doesn't know you can search with just keywords	Knowledge low. Motivation low. Believable high.	<p>Phoebe is limited to knowledge about mobile application. This knowledge does not extend to website knowledge. She might not understand that it is possible to search within a application.</p> <p><b>Possible solution:</b> Pop up tutorial for how to use the search interface. This is dismissable after the first walkthrough of the interface.</p>
Doesn't know you can scroll on the plant description page	Knowledge low. Motivation low. Believable high.	<p>Unless otherwise stated, Phoebe assumes there is no more information about the plant other that the information presented currently.</p> <p>If she remains at the top of the scrollable plant description she might not get frustrated and leave the task for another time.</p> <p><b>Possible solution:</b> Have a grey tinting and blurring near the bottom of the page. This would suggest there is more the the page below.</p>

#### Task Description #4: Rachel Green needs to see if their plant is edible or not

Task step	Knowledgeable? Motivated? Believable	Comments/suggested fixes
Go to app store on phone (assuming	Yes, to all three.	Rachel uses her phone on a daily basis, so she has the knowledge about technology. She is looking to find information about edibility of a plant

application isn't already downloaded on their device)		therefore her downloading an application is believable and she is also motivated to perform this action because it is for her child's safety.
Comes across and downloads <i>Timber</i>	Yes, to all three.	Same comment as above.
Open application	Yes, to all three.	Same comment as above.
Select "Take picture"	Yes, to all three.	<p>Since Rachel have existing plants, it is believable that she selects this options and it motivated to do so as well because it is easy to perform.</p> <p>Moreover, she has the knowledge to operate her phone's camera.</p>
Scrolls through the results and selects plant that matches the picture	Yes, to all three.	<p>Due to her experience with technology, she has knowledge about scrolling to get more results. She also has the skills to match the plant from the picture she took to the plants form the results.</p> <p>Since she is looking for a specific plant, this task is definitely believable and will motivate this action. Again because this is regarding the safety her child.</p>
Reads description of plant and understands it	Knowledge low. Motivation high. Believable high.	<p>Since Rachel just wants to know if the plant is edible, she doesn't completely understand what all of the symbols or language mean.</p> <p><b>Possible solution:</b> Pop-up bubbles that explain what each symbol and sections means in a manner to beginners can comprehend.</p>

### **Interruptions, errors, and exceptions**

<b>Task step</b>	<b>Knowledgeable? Motivated? Believable</b>	<b>Comments/suggested fixes</b>
<i>1. Event: Interruptions</i>		
Deal with lack of internet access	Knowledge low. Motivation low. Believable high.	Rachel is aware when there is a disconnected wireless connection. Therefore, she is unable to download the application to begin with. She might not understand technology besides her phone.



		As a result, her motivation lacks, and she is no longer 'motivated' to perform the actions listed above. She might look into a alternative method of gathering information.
Deal with phone on a low-battery	Knowledge high. Motivation high. Believable high.	The mobile device warns Rachel that her device has low battery.  She fixes this by simply letting the current device charge for a little bit before proceeding with the task at hand or by looking for an alternative method since she is a busy individual.
Cannot find a plant	Knowledge low. Motivation low. Believable high.	If the application cannot find a plant based on identifying by photo, how will Rachel know? This might be a case of a human error. Will the system, give her suggestions on refining her search, or if she misspelled something, or her picture of the plant is blurred?  But since she is also dealing with a toddler, she might just go to a store and have the Garden Centre employees help her out or ask a friend.  <b>Possible solution:</b> Suggest plants remotely close to their search preferences.
Toddler is distracting her from the task	Knowledge high. Motivation low. Believable high.	She has a toddler that is a hand full. Rachel cares about the wellbeing of her child, therefore is motivated to actively monitor her child. If while using the application she gets distracted and turn her attention to her toddler. It is believable that she will lose focus and leave the task. Therefore he lost motivation to complete the task for the time being.
<b>2. Errors: Searching for a plant</b>		
Doesn't know you can search with just keywords	Knowledge low. Motivation low. Believable high.	Rachel is limited to knowledge about how her phone works. This knowledge does not extend to application knowledge. She might not understand that it is possible to search by keywords within a application, because she has the plant in front of her and she want the information fast.  <b>Possible solution:</b> First time user tutorial to cover the basic function of the application.

### Task Description #5: Joey Tribbiani need to look at the description of a plant

Task step	Knowledgeable? Motivated? Believable	Comments/suggested fixes
Go to app store on phone (assuming application isn't already downloaded on their device)	Knowledge low. Motivation high. Believable high.	Joey has likes using his phone, so he has the knowledge on that. However it might not transfer over to mobile applications. He is looking for information about a plant therefore him downloading an application is believable and he is also motivated to perform this action because he want to find out more about this plant.
Comes across and downloads <i>Timber</i>	Yes, to all three.	Same comment as above.
Open application	Yes, to all three.	Same comment as above.
Select "Select via Options" Or "Take picture"	Knowledge low. Motivation high. Believable high.	<p>Since Joey likes to try things, it is believable that he will selects and try both options to see which one is better and he is motivated to do so as well.</p> <p>Moreover, he likes to take pictures and knows how to operate the camera on his phone. However , due to his lack of knowledge when it come to applications. Joey might have difficulties using the search interface.</p>
Taking a picture of the plant. (Assuming that Joey will loss his interest in the search via options. Joey will use this since it is much simpler.)	Yes, to all three.	Since Joey is a expert when it comes to taking pictures, he is knowledge in this sense. He is also motivated because he want to find more information about a plant. It is believe because this is a simple task that can be completed quickly.
Scrolls through the search results and selects plant	Knowledge low. Motivation high. Believable high.	Due to his lack of experience with technology, he is not that knowledgable about scrolling to get more results. However since there are pictures he might draw upon knowledge from scrolling through his own pictures to complete this task. It is believable since this is a natural and intuitive form of navigation.

Reads description of plant and understands it	Knowledge low. Motivation high. Believable high.	<p>Since Joey want to know information about this plant, he doesn't completely understand what all of the symbols or language mean. This is due to that fact that he is not a gardener. He is still motivated, therefore he will try to learn the meanings of the symbol or language</p> <p><b>Possible solution:</b> Pop-up bubbles that explain what each symbol and sections means in a manner to beginners can comprehend.</p>
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### Interruptions, errors, and exceptions

Task step	Knowledgeable? Motivated? Believable	Comments/suggested fixes
<i>1. Event: Interruptions</i>		
Deal with lack of internet access	Knowledge low. Motivation low. Believable high.	<p>Joey is aware when there is a disconnected wireless connection. Therefore, he is unable to download the application to begin with. He has a lack of understand with this type of technology.</p> <p>As a result, his motivation lacks, and he is no longer 'motivated' to perform the actions listed above. Due to frustration he might look for alternative method of gathering information.</p>
Deal with phone on a low-battery	Knowledge high. Motivation high. Believable high.	<p>The mobile device warns Joey that he device has low battery.</p> <p>He fixes this by simply letting the current device charge for a little bit before proceeding with the task at hand.</p>
Cannot find the plant	Knowledge low. Motivation medium. Believable high.	<p>If the application cannot find a plant based on identifying by photo, how will Joey know? This might be a case of a human error. Will the system, give him suggestions on refining his search, or if he took a picture of something that is not a plant, or his picture of the plant is blurred?</p> <p>But since Joey likes to take pictures, he might try a bit more before losing motivation to continue the task.</p>

		<b>Possible solution:</b> Suggest plants remotely close to their search preferences.
<i>2. Errors: Searching for a plant</i>		
Doesn't know you can scroll through search results	Knowledge low. Motivation low. Believable high.	<p>Joey is limited to knowledge about how his phone works. This knowledge does not extend to application knowledge. He might not understand that it is possible to scroll through search results within a application.</p> <p><b>Possible solution:</b> First time user tutorial to cover the basic function of the application.</p>

### Task Description #6: Ross Geller needs to look up if the plant is low-maintenance

Task step	Knowledgeable? Motivated? Believable	Comments/suggested fixes
Go to app store on phone (assuming application isn't already downloaded on their device)	Yes, to all three.	Ross has experience with using the internet, so he has the knowledge about searching for things. He is looking for a plant that are suitable for his home therefore downloading an application is believable and he is also motivated to perform this action.
Comes across and downloads <i>Timber</i>	Yes, to all three.	Same comment as above.
Open application	Yes, to all three.	Same comment as above.
Select "Select via Options"	Yes, to all three.	<p>Since Ross doesn't want to waste time, it is believable that he selects this options and it motivated to do so as well.</p> <p>Moreover, he has knowledge about searching on the internet. This will make using the application easier.</p>
Selects preferences in "Filter" pane. Selects "Low maintenance"	Yes, to all three.	<p>Ross knows that he wants plants that he can just buy and put in his home. He doesn't have much time to spend tending to his plants .</p> <p>Therefore, it is believable that when he sees the option for plants that are low- maintenance in one</p>

		of the circles in the filter pane he is motivated to go through with this task.
Searches based on selected preferences	Knowledge medium. Motivation medium. Believable high.	<p>Since Ross has experience with gardening and knows exactly what he is looking. He has some knowledge about using the filters option.</p> <p>Moreover, he has experience with using the internet to get information so it is believable that he may be motivated to perform some scrolling and see if the search results are to his liking.</p> <p><b>Possible solution:</b> Ask the user of their level of experience as a gardener as part of the search criteria and show them an interface specific to their level of knowledge around gardening.</p>
Scrolls through the search results and selects plant	Yes, to all three.	<p>Due to his experience with the internet, he has knowledge about scrolling to get more results.</p> <p>Since he is looking for some specific plant, this task is definitely believable and will motivate this action.</p>
Reads description of plant and understands it	Knowledge medium. Motivation high. Believable high.	<p>Since Ross has gardened before he will understand some of the symbols and languages. He is motivated because he likes to use the internet gather information. It is also believable because this is a common task got Ross.</p> <p><b>Possible solution:</b> Pop-up bubbles that explain what each symbol and sections means in a manner to beginners can comprehend.</p>

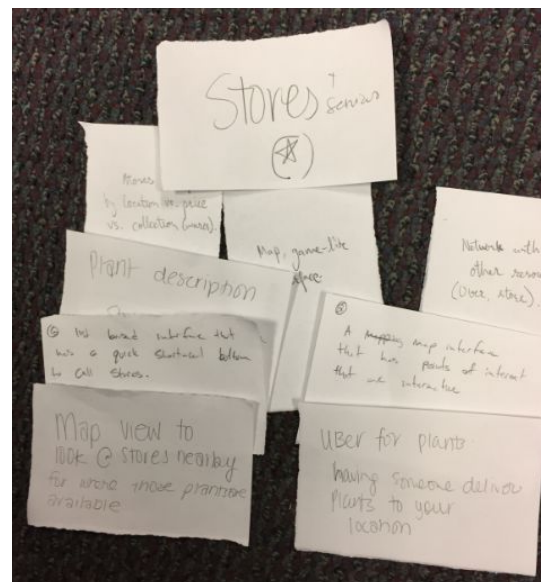
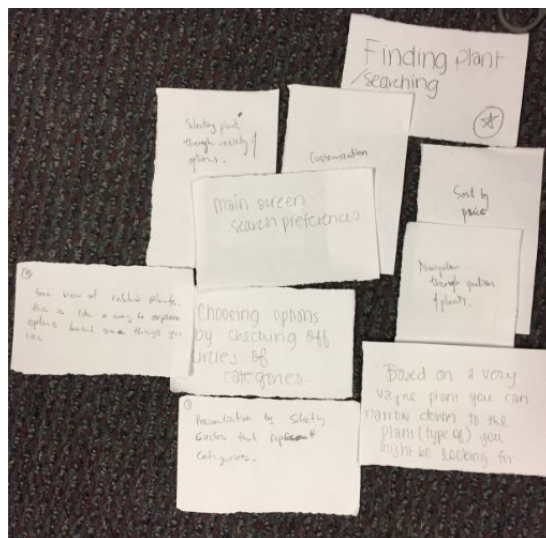
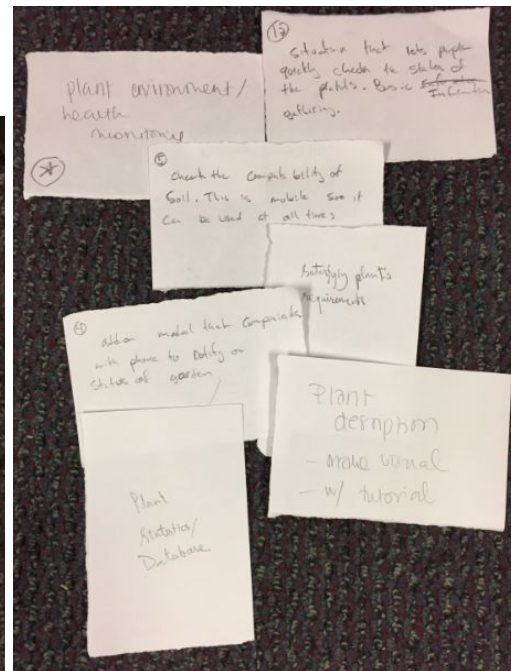
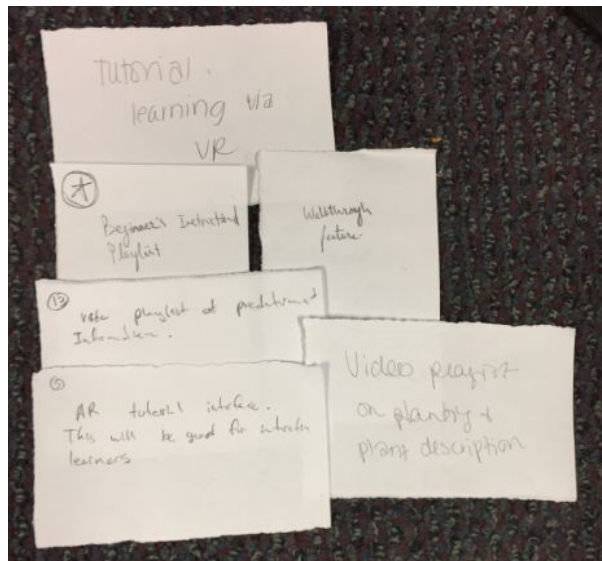
### Interruptions, errors, and exceptions

Task step	Knowledgeable? Motivated? Believable	Comments/suggested fixes
<i>1. Event: Interruptions</i>		
Deal with lack of internet access	Knowledge high. Motivation low. Believable high.	Ross is aware when there is a disconnected wireless connection. Therefore, he is unable to download the application to begin with. Since he has IT knowledge he can fix this issue. However, he is not motivated to do so because it time consuming.



		As a result, his motivation lacks, and he is no longer 'motivated' to perform the actions listed above.
Deal with phone on a low-battery	Knowledge high. Motivation high. Believable high.	The mobile device warns Ross that his device has low battery.  He fixes this by using another application compatible device, or simply letting the current device charge for a little bit before proceeding with the task at hand.
Cannot find a plant	Knowledge Medium. Motivation low. Believable high.	If the application cannot find a plant based on his preferences, how will Ross know? This could be a case where there are no plants that fulfil his needs. Will the system, give him suggestions on broadening his search, or if he misspelled something?  But since he is experienced with searching on the internet, he might find another application or just go to a store and have the Garden Centre employees help him out as an alternative method.  <b>Possible solution:</b> Suggest plants remotely close to their search preferences. Do not display "No search results found." ever.
<i>2. Errors: Searching for a plant</i>		
Doesn't know you can search with just keywords	Knowledge medium. Motivation low. Believable high.	Unless otherwise stated, it is a habit to search in sentences rather than words. Ross may fix this by, perhaps not using the search bar but rather just selecting from the listed preferences, and having to go through a greater and not targeted list of plant results.  <b>Possible solution:</b> Grey-ed out example of search in the search bar.

## Appendix

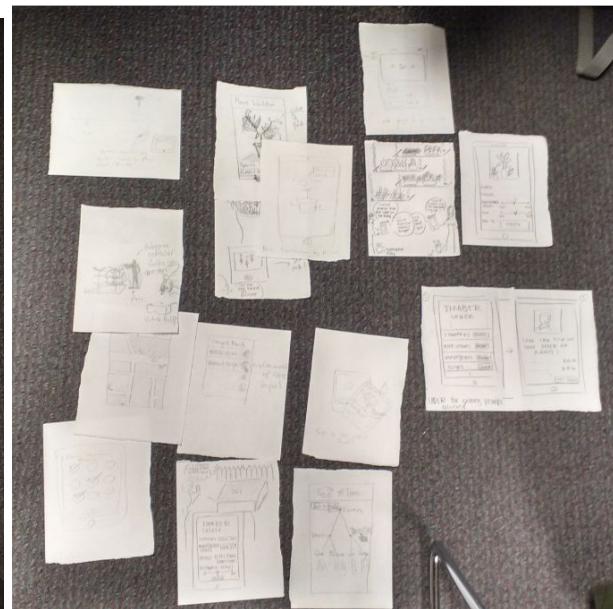
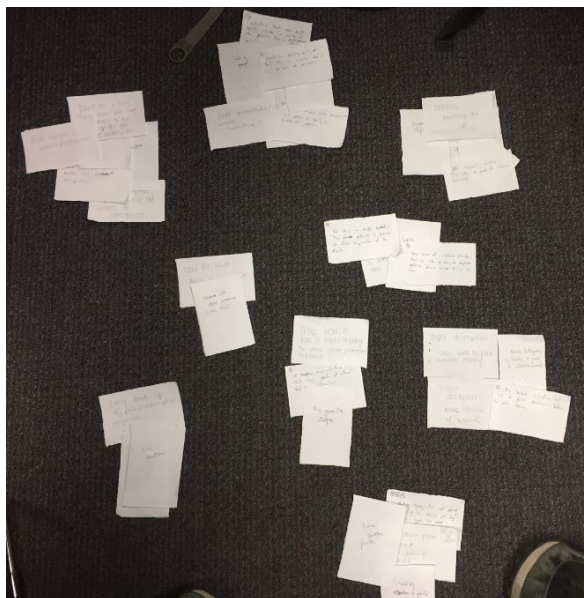
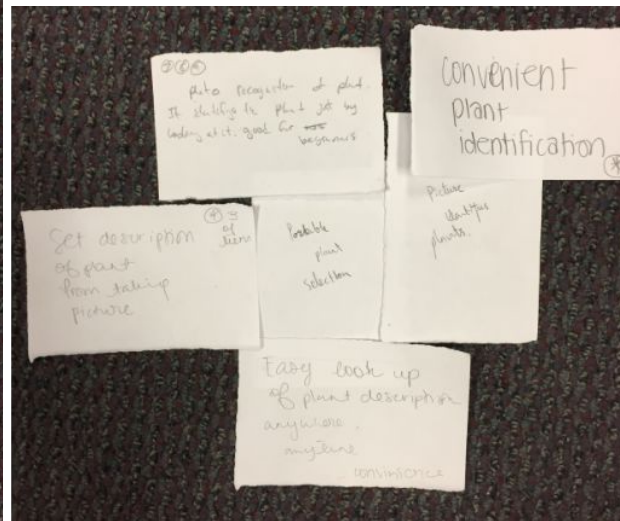
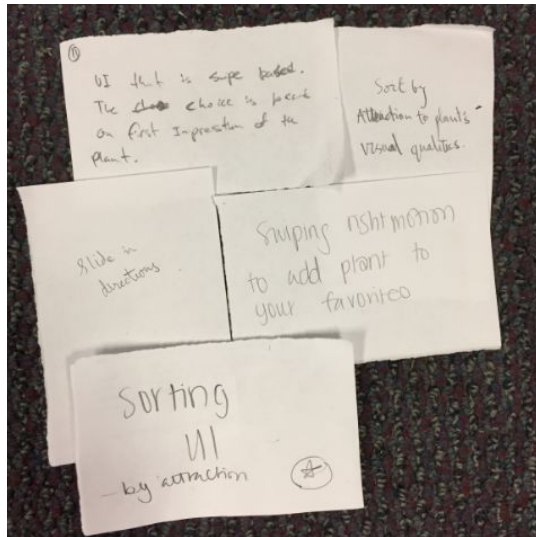


**1.1 Top-left:** Affinity Diagramming Session Groupings - Beginner instructional playlist

**1.2 Top-right:** Affinity Diagramming Session Groupings - Plant environment or plant health monitoring

**1.3 Bottom-left:** Affinity Diagramming Session Groupings - Finding/searching for plant idea

**1.4 Bottom-right:** Affinity Diagramming Session Groupings - Stores Idea



- 1.5 Top-left:** Affinity Diagramming Session Groupings - Sorting UI by attraction idea
- 1.6 Top-right:** Affinity Diagramming Session Groupings - Convenient plant identification
- 1.7 Bottom-left:** Affinity Diagramming Session Groupings
- 1.8 Bottom-right:** Sketching Brainstorming Session

**Note:** Also included, physical copies of each of the sessions and video prototype sketches in the back pocket of the team binder.