Assignment 3

Prototyping and expert evaluation

Team Name: Team 24

Team Members:

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Part 1: Project description and requirements

The app "**Garden Buddies**" is an all-in-one app for plant lovers and enthusiasts to manage their planting journey and share it with others.

Our app allows users to join like-minded communities where they can socialize and ask questions. Users can also create their own profile which contains details of what plants they are growing, upload images and videos of their gardens, add information such as interests, whether they are new to gardening, etc. In addition, the app will help users become better at taking care of plants - it will provide reminders (for watering, maintaining, and/or fertilizing), important facts, and knowledge regarding plant growth.

The app targets a variety of users such as homeowners who want to take better care of their plants, plant lovers looking for a community to share their interest with, or even enthusiastic first-time planters who aren't sure where to start. By incorporating a multitude of features that appeal to different audiences, the app will provide individuals with the level of functionality that they need, while introducing them to other aspects of the plant parent lifestyle that can make their hobby more enjoyable.

Here are some key features that the "Garden Buddies" app will include:

- Provide all relevant information gardeners of all experience levels would require regarding all stages of gardening such as picking a plant, taking care of it, harvesting, etc.

- Provide a user-friendly way to add plants to the app to track their growth and take notes.

- Provide optional reminders for plants added by the user. Users will be able to customize those reminders or add new ones.

- Include social features that allow users to connect with other plant enthusiasts, share photos and information, and participate in forums and discussions.

- Provide the ability to trade or sell plants, seeds, or cuttings with other plant enthusiasts. The app should provide a safe and secure process to accomplish this, along with the ability to search for plants that are available for trade or sale.

Part 2. Design alternatives

2.1. Description

Design 1

Name: Tab Navigation

Key Characteristics:

- Navigation
    - Displays options to navigate to all main screens in a tab at the bottom of the application
    - Focuses on nesting sub-views within tabs, to make the flow as concise as possible
    - Follows 'less text is better' approach to reduce clutter and provide easy navigation by commonly understood images/icons
- Marketplace
    - Provides a platform for users to purchase and sell their plants
    - Includes trade functionality to engage users reluctant to spend money on applications
    - Users can connect with sellers/traders to further discuss their transaction or gain more details regarding the plant(s) of choice
- Community
    - Allows users to connect based on common interests and/or goals
    - Users can join communities to gain new knowledge while also interacting with fellow users to share growth milestones, knowledge, tips, plants, and other socialization opportunities.
- My Plants
    - Displays the users owned plants in one location
    - Allows growth tracking and management of plants under the user's care
    - Includes reminders to notify users to take care of their plants for tasks such as watering, fertilizing, etc.

Rationale: The rationale behind this design is that users should not spend too much time traversing through many UI layers to complete a function, since we expect our users to use the app while gardening. Thus, the tab navigation style allows users to move between different screens quickly and efficiently.

Advantages:

- Familiarity: Tab navigation is extremely common in mobile apps so users will easily be able to apply their learning to this app, increasing memorability.
- Marketplace: People enjoy purchasing and selling commodities. Therefore, having a simple place to accomplish this allows more potential users.

Design 2

Name: Drawer Navigation

Key Characteristics:
- Navigation
    - Navigation between main screens is done with drawer navigation via a hamburger menu
    - Simple screens and minimal all-at-once information dumps
- Marketplace
    - Relies on horizontal scrolling to maximize vertical screen space and show both selling and trading listings at once
    - Separates trade listings from sellers to improve usability among beginner app users who may not be as tech savvy
- Community
    - Combines horizontal and vertical scrolling to reduce the barrier of browsing between different communities
    - Embraces a typical social media UI on the discover page, to increase recognition among users and create a positive mapping between their use of this app and other social media they may have
- My Plants
    - Displays relevant information such as watering and fertilizing schedules on the plant list, reducing the taps required for users to access plant details
    - Information within plant details is easily understandable, with all actions accompanied by both text and an icon
    - Uses a two-panel layout to display reminders; users can get an overview of all reminders for a plant while also being able to quickly click and modify a specific one if they wish
    - Big easy to press buttons

Rationale: Our target audience leans to a more mature age range who may not want to bother learning a complex system just to take care of their plants. The point of the app is to provide an easy way for one to keep track of his plants and find like-minded people to share thoughts with. Thus, in this design we focused on simplicity and minimalistic design without sacrificing functionality. We use a drawer for navigation to make each screen less crowded and give each UI element more space. For example, users are likely to open the plant details screen while gardening outdoors, so it has big buttons and clear information to facilitate use.

An advantage of the drawer navigation style is that the drawers can be hidden away when they aren't needed, maximizing screen real estate for the rest of the content. In addition, each screen becomes less intimidating for newcomers to approach with the drawers hidden, compared to a screen with buttons permanently scattered everywhere.

Overall Design Approach

Before starting on the official prototypes in Balsamiq, our team spent a day or two individually coming up with ideas. This involved rough sketches on paper, drawing on our iPads, and sometimes even using the other apps on our phones to see what we liked and didn't like about them. During this process, we kept inter-team communication to a minimum, to prevent each other from influencing the individual brainstorming process. Eventually, we gathered as a team and shared our brainstorming results. A key takeaway from this exercise was the realization that our design is heavily influenced by our daily interactions with the things around us. Maaz plays video games often, so he made a mental comparison to the PlayStation game store while thinking about his prototype. Meanwhile, Tatheer used to work on a Point of Sale application as an intern, so her ideas heavily revolved around commerce concepts. In the end, we reached consensus on our two prototype alternatives through discussion and iteration among the team. Some of our learnings from our design process were about the value of compromise, and the importance of keeping the end user in mind when designing an application. Designers may have personal opinions on what the look of an application should be, but the final decision should always be based on the path that would be most beneficial to the users.

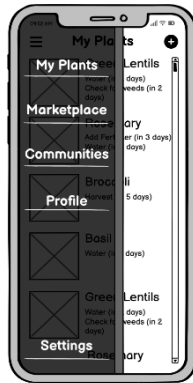## 2.2. Designs

Balsamiq URL for both designs: https://balsamiq.cloud/sosyfrn/pm4wxqu
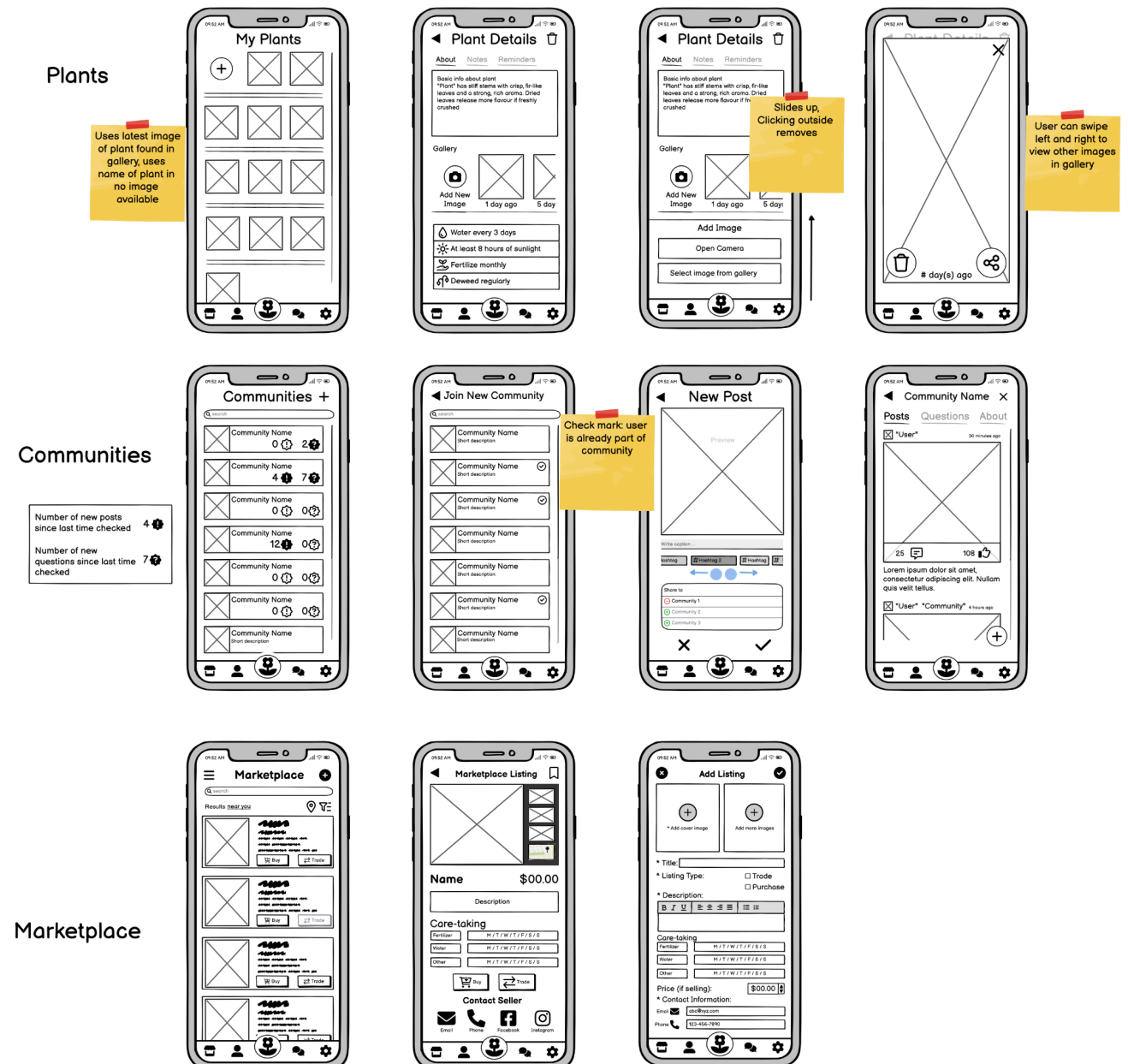
Design 1

Some more minor screens for design 1 are available through the Balsamiq URL but weren't included here due to lack of space.
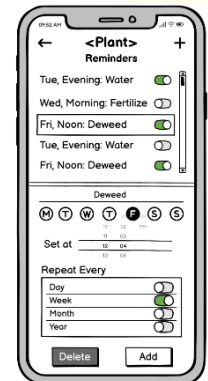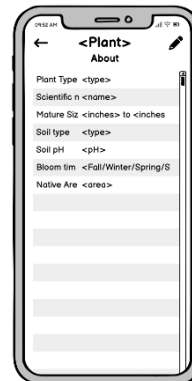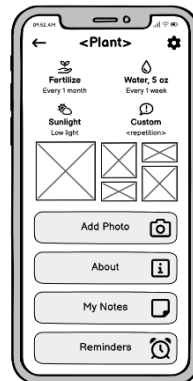
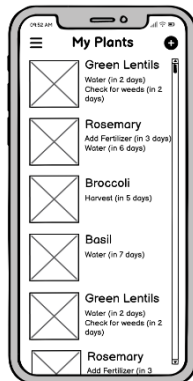# Design 2

Burger Menu

Design 2

Big easy to press buttons, and simple ui (disadvantage: more screens for same info)
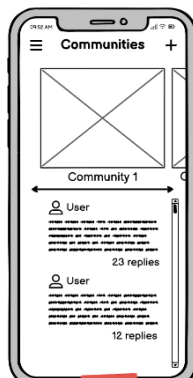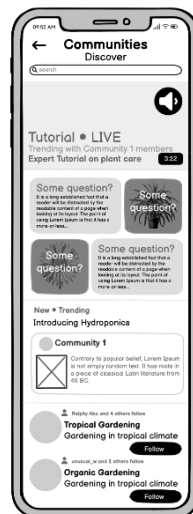
Two panel selector

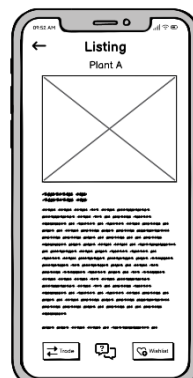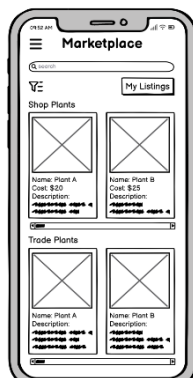**Plants**

Communities

Swipe left/right to move between communities,

**Questions and Posts are shown together.**

Marketplace

Simple

Part 3: Choose a prototype

We ended up going with Design 1 as our final prototype. Although both alternatives had their pros and cons, the main selling point for Design 1 was the team's agreement on the ease of use of the tab navigation over the hamburger menu from Design 2. We liked the discoverability that the tab navigation provided, although the hamburger menu allowed for a cleaner look. Other characteristics that led to this choice were the nested tabs within the plant details ("About", "Notes", "Reminders"), which allowed us to fit closely related information in one screen, while still maintaining an organized appearance. However, during our discussion, there were areas of the app (eg. the community screen) that certain team members felt were better modeled in Design 2. We approached this difference of opinion by holding a vote among the team, and discussing which layout would be best suited for our target audience. We were able to reach consensus by deciding to stick with Design 1 for now, but being open to reevaluating parts of Design 2 to incorporate into the final designs.

Part 4: Storyboard

URL for larger image: https://share.balsamiq.com/c/bP81GiJykzNXGjKcbGADCY.png
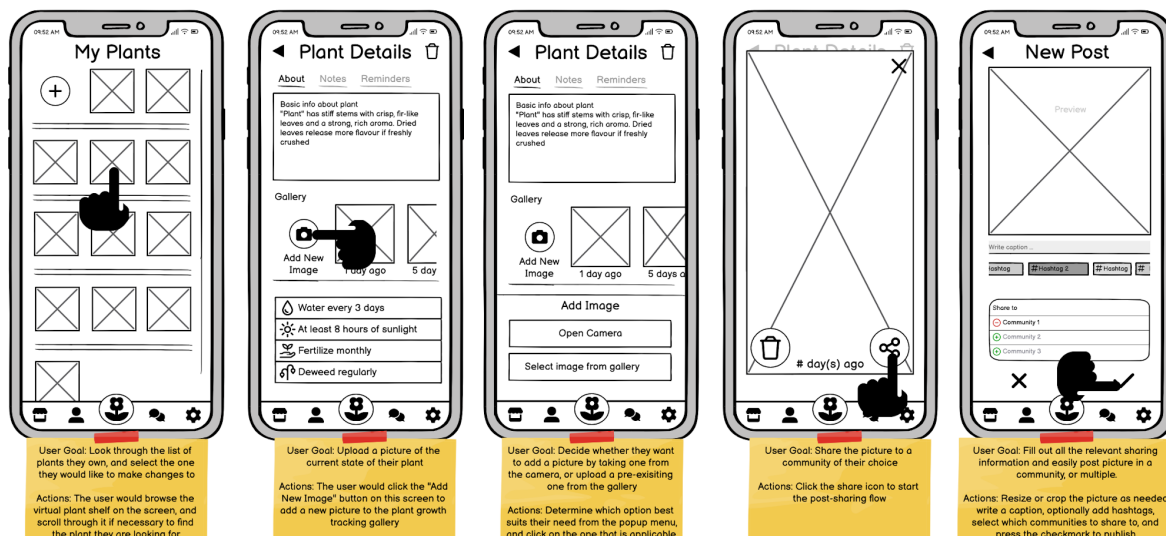
Part 5: Heuristic evaluation

5.1. Planning the heuristic evaluation

1. We prepared low-fidelity prototypes while ensuring that all screens and elements are representing intended design. Additionally, task flows and interactions are clearly displayed and functionality is ensured.

2. We conducted a walkthrough of the application. As a result, we found some broken links within the app, and certain screens that were missing back buttons to exit the flow. We made these tweaks before proceeding with further steps.

    a. The roles designated were:

        i.   Maaz: Computer

        ii. Tatheer: Observer

        iii. Mohammed: User

3. We have scheduled the heuristic evaluation on March 16, 2023 at noon. Additionally the following aspects are ensured to have a successful and thorough evaluation

    a. The format used is a table with column headings of **No.**, **Heuristic**, **Issue Description**, **Priority Rating**, and **Severity rating**. It will look like:

No.	Heuristic	Issue Description	Priority Rating	Severity Rating

    b. Nielsen's 10 Usability Heuristics will be provided to all evaluators.

4. We will compile and discuss findings after completing the evaluation.

    a. Consolidation of the findings will also be completed during this session.

5.2. Conducting the heuristic evaluation

Individual Assessments

Individual Assessment 1

No.	Heuristic	Issue Description	Priority Rating	Severity Rating
1	Help users recognize, diagnose, and recover from errors	In the marketplace listing screen, the grayed-out Trade button should provide some feedback to the user when they interact with it explaining	Low priority	(2) Minor usability problem

		why it's disabled for this listing.		
2	Recognition rather than recall	In the marketplace screen, a user who has added a listing is supposed to remember that to view their own listings, they must press the hamburger icon to access the "My listings" button hidden underneath.	Medium priority	(2) Minor usability problem
3	Error Prevention	In the Add Listing screen of the marketplace, the price input box should be disabled if the purchase checkbox is not checked since setting a price for a listing that is not for sale does not make sense. Also, users must not be allowed to uncheck both trade and purchase check boxes.	High Priority	(3) Major usability problem
4	Aesthetic and minimalist design	In the Add Listing screen of the marketplace, there is an optional form to provide care-taking information for the listing that could be removed to simplify the	Low priority	(2) Minor usability problem

No.	Heuristic	Issue Description	Priority Rating	Severity Rating
		design. Users can clarify this information in the description form.		
5	Error prevention	Tab navigation buttons and main content buttons at the bottom of the screen are sometimes too close and may result in miss-taps.	High priority	(3) Major usability problem

Individual Assessment 2

No.	Heuristic	Issue Description	Priority Rating	Severity Rating
1	Error prevention	"Back" button on the Add Post screen doesn't warn that clicking on it will discard your drafted post without the ability to recover it.	Medium priority	2 - Major usability problem
2	Consistency and standards	The bumps, likes, and checkmark icons within the community screens are not self explanatory. It is not immediately evident what their differences are.	Low priority	2 - minor usability problem
3	Consistency and standards	Using an exclamation icon to represent "new posts" on the Community overview is confusing and seems like a warning	Low priority	2 - minor usability problem

No.	Heuristic	Issue Description	Priority Rating	Severity Rating
		instead.		
4	Flexibility and efficiency of use	Results on the "Join New Community" page do not have the option to be filtered or sorted by user preferences, with no indication of the current sorting.	Low priority	2 - minor usability problem
5	Recognition rather than recall	Browsing through the plant growth tracking gallery does not display arrows to navigate, requires user to swipe to find other pictures.	Medium priority - Not breaking usability but might make app features less discoverable if not fixed	2 - major usability problem
6	Aesthetic and minimalist design	Add post screen has both a back button and an X to exit the view. Both seem to accomplish the same result.	Medium priority - not breaking user flow but key user screen in the app which could lead to confusion	2 - minor usability problem

Individual Assessment 3

No.	Heuristic	Issue Description	Priority Rating	Severity Rating
1	Recognition rather than recall	The home screen 'My Plants' has the images of the plants on the shelf only and not their names. Users will have to rely on their memory to recognize.	High	3

2	Visibility of system status	It is unclear to the user if they are editing or adding a plant to their shelf.	Low	2
3	Error prevention	Tab navigation menu is constricted in space and causes accidental mis-taps for user	High	3
4	User control and freedom	Pressing "back" on the growth log picturing sharing flow takes you to the Communities home screen, instead of growth log main screen view	High	3
5	Aesthetic and minimalist design	Information about plant care stays visible on plant details screen even when switching from "About" to "Reminders" view	Medium - Not breaking functionality but takes away from the app's key feature (setting custom reminders)	2
6	Consistency and Standards	The image preview screen in the plant details component defaults to sharing the image within the app's community section whereas it should provide user with a prompt for them to decide their sharing outlet (external or internal)	Medium - Does not break functionality, just unconventional to resort to internal sharing only	2

Consolidated Assessment

We found that there are many minor and major issues that we must address in an improved design. All 3 evaluators complained about the tab navigation menu being too close to other UI elements potentially causing mis-taps. A potential solution is restricting the content of the main UI from getting too close to the tab nav and adding a space margin for the tab nav. Moreover, the UI elements aren't consistent with platform conventions. Using more self explanatory icons custom crafted or adding help tooltips to explain is required. There are also some high priority usability issues that must be addressed to prevent problems from occurring such as adding confirmation dialogs, loading screens, and error messages where necessary. Lastly, the intention to be helpful for the user has led to some screens getting cluttered with redundant actions, or tasks that could be nested within sub-views, so reviewing what the most critical aspects of each screen are would be a good next step in improving the usability of the app.

Part 6. Workload distribution and summary

- **Part 1**: Repeated from A1
- **Part 2**: Design alternatives
    - **2.1** Descriptions: Maaz, Tatheer
    - **2.2** Designs: All
- **Part 3**: Choosing a prototype: All
- **Part 4**: Storyboard: Tatheer
- **Part 5**: Heuristic evaluation
    - **5.1** Planning the heuristic evaluation: Maaz
    - **5.2** Conducting the heuristic evaluation: All
        - Consolidating evaluations: Mohamad