OOP Project Report – Group 23

Serban Radu, Neel Lodha, Bogdan Paramon
Vasil Chirov, Suruo Zhang, Filip Cajagi

1 INTRODUCTION

Graphical User Interface (GUI) plays a vital role in the field of Computer Science, as it establishes a connection between the user and the system. It serves as the medium through which users interact with the software, incorporating various aspects of design, such as layout, graphics, text, fonts, styles, and other visible components. These elements are designed to create an accessible gateway to the application's functionality and core purpose.

The primary objective of our evaluation report is to gain a comprehensive understanding of the user experience, usability, and overall design of our application. By doing so, we aim to identify the essential criteria that must be fulfilled to ensure our development progresses in the right direction.

Moreover, the experts' feedback enabled us to pinpoint specific issues that needed to be addressed, ranging from minor usability concerns to more significant design flaws. By incorporating their suggestions and recommendations, we aim to refine our application's GUI to ensure it meets the highest standards of user experience, usability, and design.

In addition to evaluating the application's current state, the feedback from the experts will also guide our future development efforts. By understanding the key principles of effective GUI design and applying them to our application, we can continue to enhance its features and overall user experience, making it an indispensable tool for users in various contexts and situations.

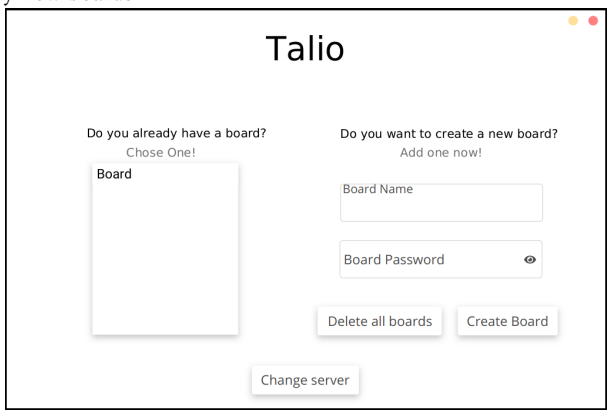
1.1 Prototype

To facilitate the evaluation process, we provided these experts with a working prototype of our application, which allowed them to explore various features and assess their effectiveness in delivering a seamless user experience. By engaging with the app and testing its functionalities, the experts were able to identify areas of improvement and provide valuable insights that would help us enhance the overall design and user experience.

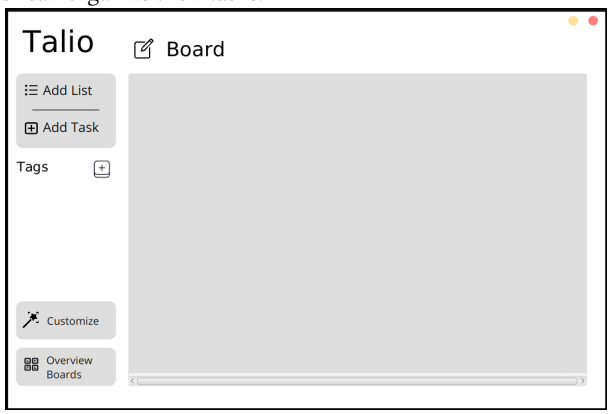
Here is a basic workflow of our app.

This is the loading page of our app, where the user can enter a server address and connect to it

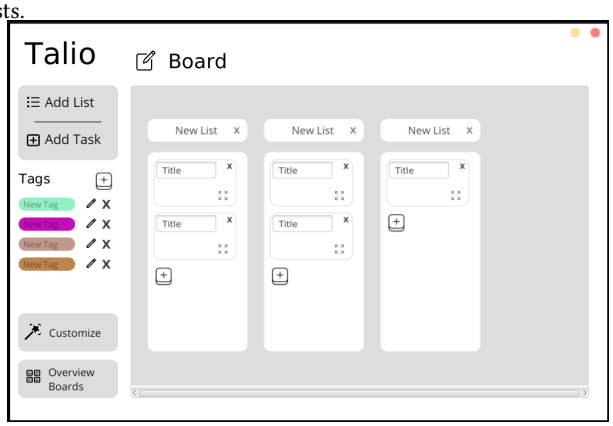
Next, they can see their workspace screen where they can join/create any new boards



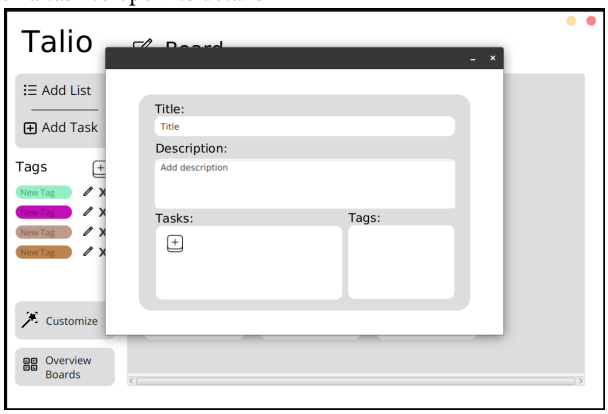
Opening a board, brings them to the board screen, where they make lists and add tasks to them. This is the main screen where the user can organize their tasks.



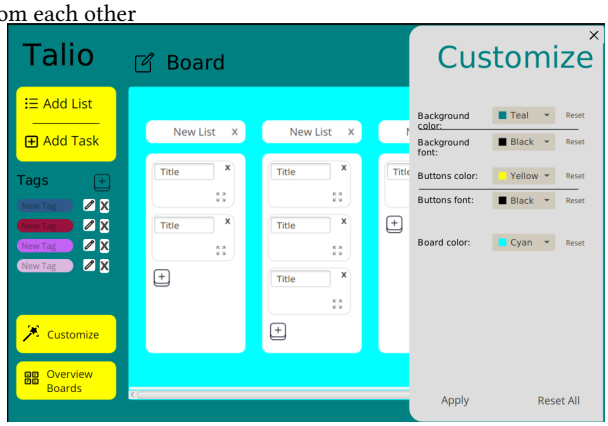
They can create tags, lists and tasks. They can also delete and rename them, as well as drag and drop the cards between different lists.



To add description or sub-tasks to different tasks they can double click a task to open its details



Finally they can customize the board's colors, to make it look the way they want and to make different boards easily distinguishable from each other



2 METHODS

2.1 Experts

We recruited a team of 6 fellow students that are currently enrolled in this course, so take into account that this report may be affected by their somewhat biased perspective, having worked on the same project and having knowledge regarding not only the requirements of the application but on the heuristics evaluation process as well. They have the experience of an above-average user, considering the fact that they have also worked on the same app. That way we can be sure that they will know what to look for and give us extensive feedback, which also follows the format we require.

2.2 Procedure

We had a brief discussion with the expert team, about the instructions of the evaluation process, as it has been showcased to us during the lecture and in the resources present in the lecture material.

Step 1: We split the experts along with an observer who would guide them throughout the evaluation process.

Step 2: Each expert was provided with a working demo of our app and was asked first to go through the app themselves.

Step 3: They were then asked to provide general feedback on the UI and if they faced any problems

Step 4: They were then asked to go through the app again, but were asked to follow certain steps such: Try creating a board, Try to create a list, try to create a task and subtasks, try to add tags to the task and save everything. At this step, they should use the app as if this app is what they use day to day.

Step 5: During this step, they were thoroughly observed by the observer and notes were taken.

Step 6: In the third step, they were asked specifically to find bugs and break the app. The observer noted down what method/steps the expert was taking to find bugs.

As advertised also in the aforementioned documentation, the experts have been asked to focus on the following heuristics:

(1) Visibility of system status.
(2) Match between system and the real world.
(3) Consistency of the graphical design.
(4) User control and freedom.
(5) Error prevention.
(6) Recognition rather than recall.
(7) Flexibility and efficiency of use.
(8) Help users recognize, diagnose and recover from errors.
(9) Aesthetics and minimalist design.
(10) Help and documentation.

In order to make the feedback we get from the experts consistent, we asked them to record all the problems they found in the following format:

1. Problem description: Write a brief description of the problem.

2. Likely/actual difficulties: Write the anticipated difficulties that the user will encounter as a consequence of the problem.

3. Specific contexts: Write the specific context in which the problem may occur.

4. Assumed causes: Write a description of what they assume to be the cause(s) of the problem.

Based on these specific reports we got from the individual experts, we were then able to categorize the problems based on their related heuristics and also identify duplicate problems, group them into one and determine the frequency at which they were reported.

2.3 Measures (Data collection)

The measurement is for the overall user experience, intuitiveness of the application and especially the GUI for somebody that is using it for the first time, as we strive for the ease of use in our development. We asked our experts to express every moment in which they felt they had to make a guess in order to know what to expect from the application's behaviour, as our goal is to make it as intuitive and easy to use as possible. Experts have also been asked to try out different screens, functions and maneuver around our application, and then report issues found along the way, while the observer was carefully writing down any meaningful observations. By gathering feedback from our experts and taking detailed notes on their interactions with the application, we gained crucial insights

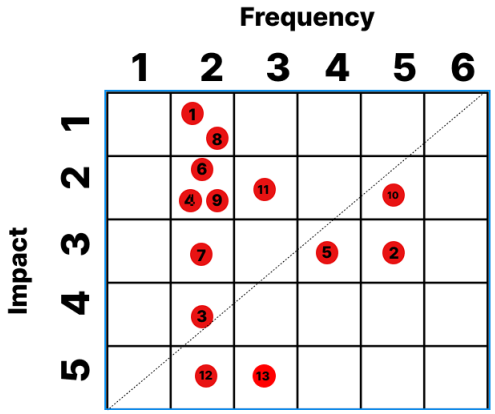
into the user experience and identified areas where our application could be improved. This information will be instrumental in guiding our future development efforts, as we strive to implement more intuitive and user-friendly features.
Furthermore, the expert feedback will help us recognize and address any inconsistencies or shortcomings in the application's design, ensuring that the GUI is as streamlined and efficient as possible. By continually refining our application based on the insights provided by our experts, we can create an exceptional user experience that caters to a diverse range of needs and preferences.

3 RESULTS

We received a lot of feedback based on the UI and UX and combined them into a list of problems with their frequency and which heuristic they target.

S.No.	Feedback	Heuristic	Freq
1	Delete all boards button is unnecessary and can lead to accidental deletions	7	2
2	Add task button does not work even if it shows an add task scene	4	5
3	Cannot easily see where drag and drop lands	8	2
4	The delete task list for the first task list does not work	2	2
5	Can't add tags and subtasks to task	4	4
6	Tag edit/delete button's background color does not change after customization	2	2
7	Multiple screens for task details can be opened which can create confusion	1	2
8	The error message shown when failing to connect to a server is not specific enough	8	2
9	The highlight in task is not obvious enough to show which task is selected and all the shortcuts are missing	1	2
10	The focus always changes to list title when saving a task title	4	5
11	Lacking customization for card, only have it for board	7	3
12	User can't share the board and also can't join the board of others	7	2
13	App hangs when user enters specific servers	7	3

We then considered how big of a negative impact each of the problems would have on the user experience and assigned each of them an impact value between 1-5 accordingly. Afterwards we plotted the issues on a priority matrix with the impact on the y-axis and frequency on the x-axis, in order to be able to prioritize them.



As it can be observed from the above priority matrix, after drawing the axis, issues 2, 5, 10, 12, 13 are the ones with very high priority when it comes to finding a solution, as they have the highest Impact + Frequency (are below the axis), closely followed by issues 3 and 7.

Now that we had a hierarchy of issues with the highest priority, we had a starting point for fixing them and also could deduce a good order of making changes.

4 CONCLUSION

4.1 Importance of feedback

Receiving feedback from experts is a vital aspect of the development process because it allows developers to gain insights and perspectives that they may not have considered. This process is especially important when creating an application, as it is crucial to understand how the end-user will interact with the app and any potential issues they may encounter. By having experts evaluate the prototype, they can provide a fresh perspective on the app's design, functionality, and usability.
Moreover, the feedback process also allows developers to refine their product based on real-world usage, ensuring that it is tailored to meet the needs and expectations of the target audience. This iterative process of receiving feedback, making adjustments, and retesting the app helps to create a more robust and polished final product. It also helps to identify potential improvements that may not have been apparent during the initial design phase. The feedback from experts can help to validate the app's concept and features, giving developers the confidence to move forward with their project. It also encourages the continuous improvement of the app, as developers learn from the insights provided by the experts and apply those lessons to future updates and iterations. The feedback process is also an essential part of creating a successful application. By engaging with experts who can provide valuable insights, developers are able to refine their app's design and functionality, creating a more user-friendly and effective product. This collaborative approach helps to ensure that the final application meets the needs of its target audience and provides a satisfying user experience.

4.2 Improvements

While it was already obvious that the application would be far from satisfactory as it is only at prototype status, this evaluation has pointed out many problems that have to be dealt with as soon as possible in order to make the user experience better, the design more enjoyable and the text-displaying more legible. Our application should provide more help regarding the result of any action done by the user, as pointed out in most of the problems. The intuition of the user should not be a thing that the developers rely on consistently, so we will try switching to an approach that provides visible updates on actions more often. Also, error handling is a very important aspect in the development of any application, and that is something that requires more work as pointed out also in problem 8. This can be achieved by:

Testing: Proper testing of all methods can ensure production code works as expected.

Trial and error: More trial and error sessions, testing our application's behaviour in unexpected situations can lead to less errors.

Error handling: More clear error messages, as well as interpreting and dissecting the error for the user can visibly improve user experience, instead of letting the client handle errors.

Diagnosing network issues: Diagnosing network / connection errors, letting user know what went wrong on the server side.

Problems in readability and sizing issues are also apparently common, and are (as expected) linked to each other, as showcased by problems 3 and 7. Sizing can be addressed via implementing full screen options or even making the window customizable while maintaining proportions automatically. Combined, all of those improvements and reinforcements should make the application more enjoyable, more consistent and more useful overall, by avoiding the reliance on user intuition and paying more attention to each possible scenario that can happen during the use of the program.

Customizability has also been pointed out very frequently in the feedback we have received from experts, with issues 6 and 7 combining for no less than 5 occurrences. As we live in an era of flexibility and we realize the importance of being able to achieve a user's preferences, we decided to take immediate action on providing the ability to customize as many components as possible, which will provide a sense of personalization that should is usually much appreciated in every area of life, but especially in software.

4.3 Changes in GUI

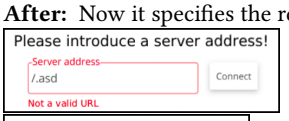
Based on the evaluation and feedback we have a lot of changes to our app so that it is more consistent and user friendly. We have made the following changes to our GUI:

Home Screen In the home screen, we fixed the errors related to invalid server address and added custom error messages (feedback 8)

Before: On entering invalid server address such as the app would just hang.

Before: On entering servers like google.com which is a valid URL but not a Talio server, it would only say invalid server.

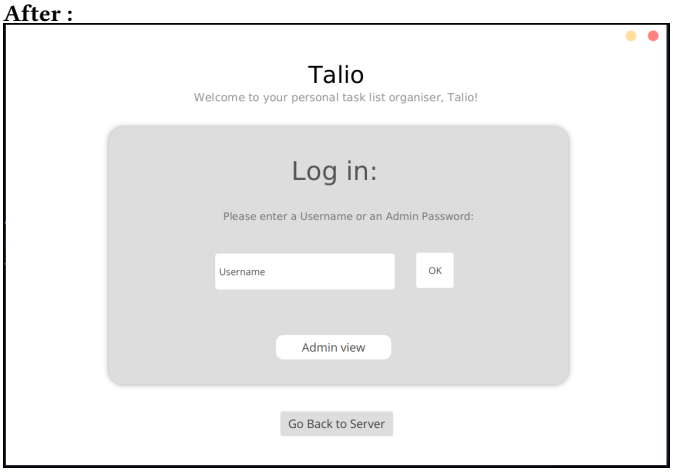
After: Now it specifies the reason of error.



User login screen We added a new screen for users to enter their username, so that they can keep track of their workspaces on any device.

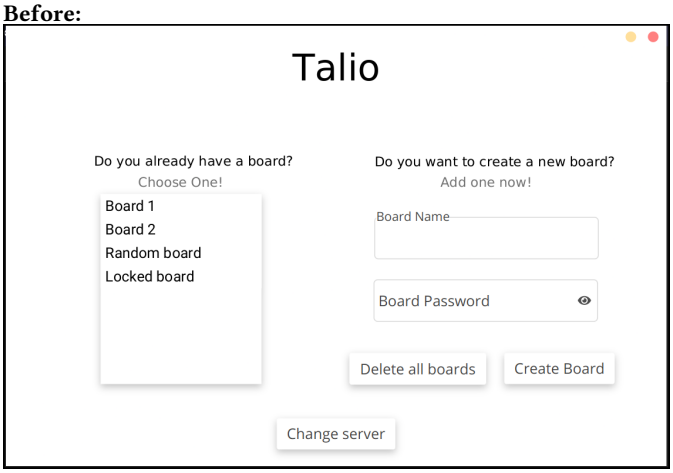
Before : No image, since this is a new screen

After :

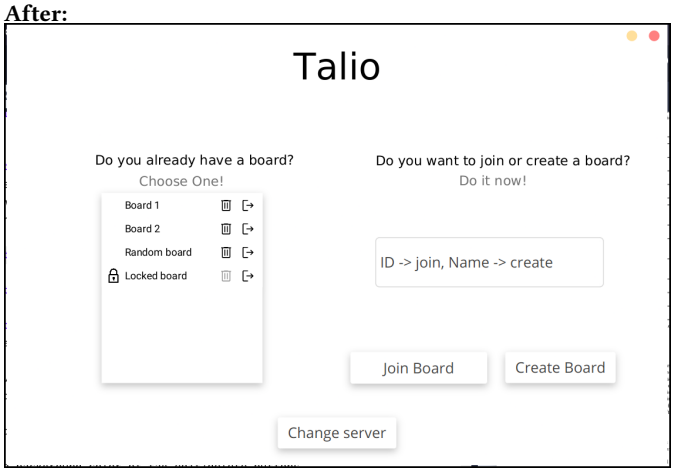


Board Overview Screen We removed the delete all boards button (feedback: 1) and removed the password field as well. Added some more icons for the user to get information regarding a specific board.

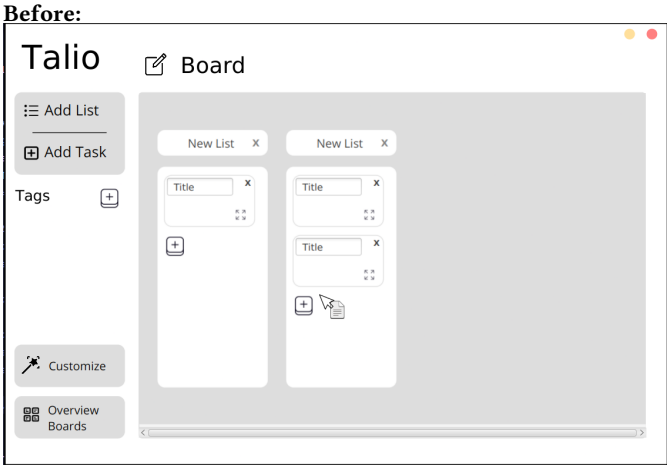
Before:



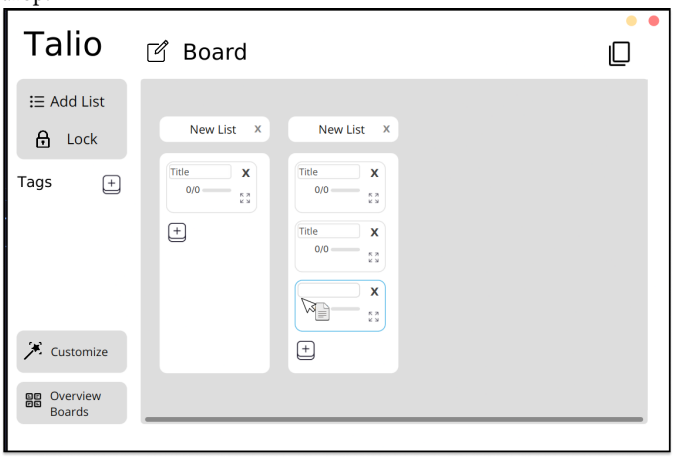
After:



Before:



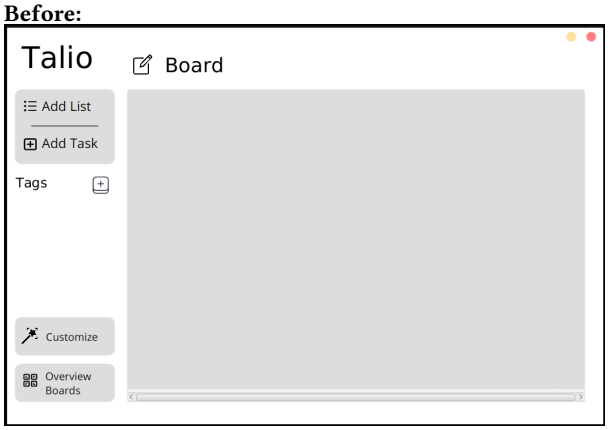
After: You can see a light blue UI hint of where the card is going to drop.



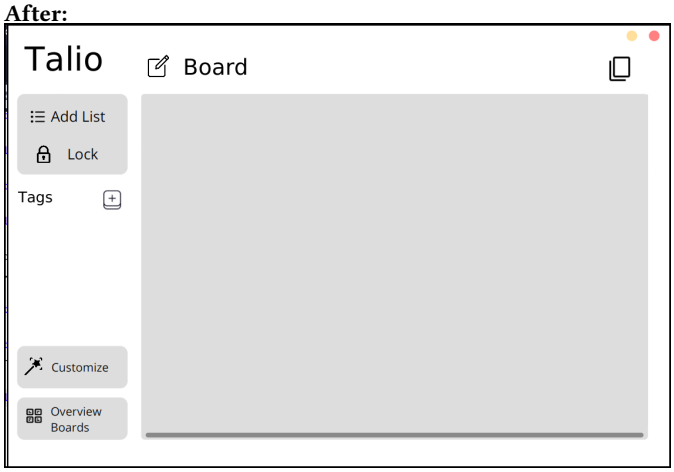
Board Screen We made a lot of changes in the board screen.

Removed the add task button and replaced it with lock/unlock button (feedback no: 4)

Before:

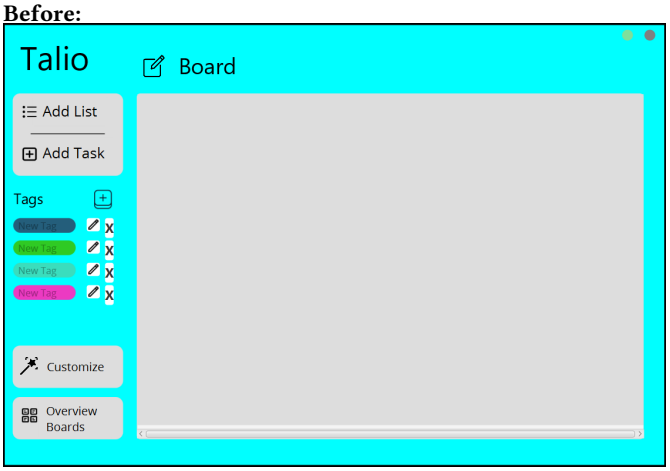


After:



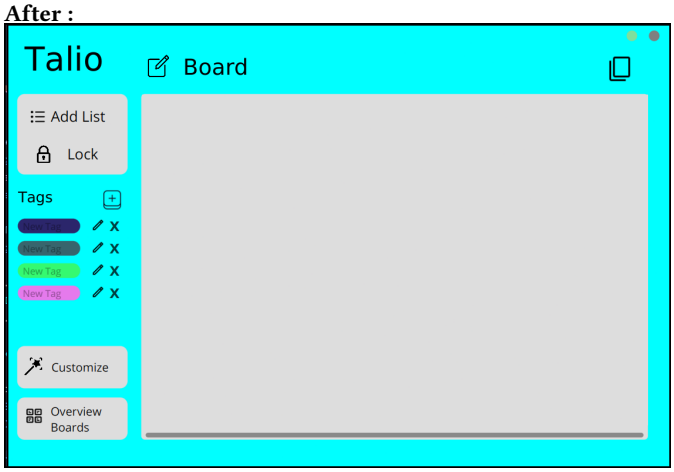
Fixed background color of tag edit/delete buttons (feedback no: 6)

Before:



Added UI hints for where the dragged task will land. (feedback no: 3)

After :



Fixed focus issues while editing titles of tasks and lists (feedback no: 10)

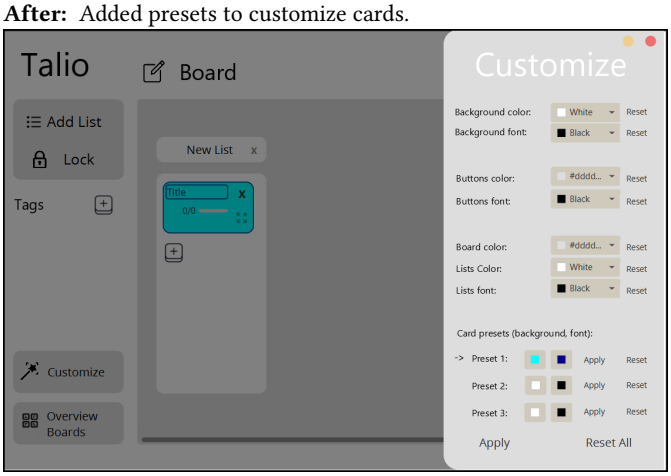
Before: The focus would randomly change to some random text field.

After: The focus does not change to some random text field. (*A change which cannot be shown by images.*)

Added customization for cards (feedback no: 7)

Before: Customizing tasks wasn't a feature, making the app not good while customizing everything else

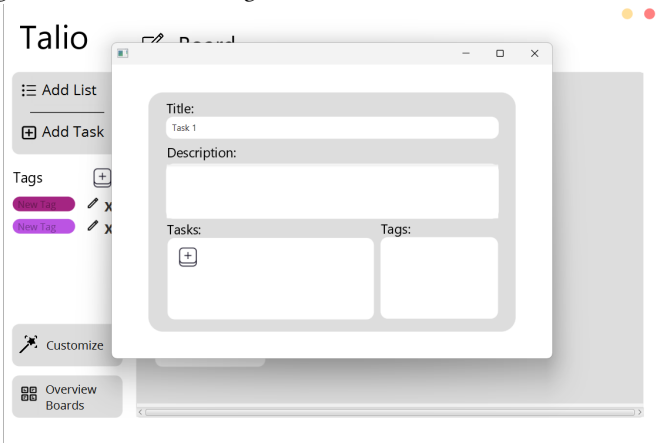
After: Added presets to customize cards.



Task details pop up

Users can now add subtasks and edit the tags for a specific task. (feedback: 5)

Before: The task details view had empty space for subtasks and tags which was a misleading.



After: Added feature to add subtasks and tags in task details view.