OOP Project Report – Team 66

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1 INTRODUCTION

A heuristic usability evaluation is a method used to assess the usability of a product from a user's perspective, based on the set of usability heuristics; for the purposes of this project we have used Jakob Nielsen's set of rules. Such evaluation helps in identifying pre-existing usability issues of the product and provides solutions that can help ensure that all the user's needs are met.

This is a report on the heuristic usability evaluation that we conducted for the Talio app, a personal task-list organizer. The objective of this evaluation is to identify usability problems in our product and to acquire suggestions for improvements that can lead to a better user experience.

The application consists of a task-list organizer with a client-server architecture. When opening the application, the user is met with a screen where they can choose a server to connect to [FIG 9]. After that the user can specify the desired username [FIG 10] and get to the homescreen where they can join someone else's board with a unique key, see their list of boards or create a new board [FIG 11]. Either of the options will take them to a screen of the board where they can change its title, add new lists to the board, delete the board or edit it. Inside a list, the user can change its title and add, edit or remove cards [FIG 13, 14]. When pressing a card, a new window will pop-up with its details: title, description, list of tasks with progress bar and tags [FIG 15]. The ability to drag-and-drop cards between lists is also a feature of the application.

2 INTRODUCTION

2.1 Experts

In order to conduct this evaluation, we recruited another team of six students from the OOP Project to be our experts. Since they are in their first year of their Bachelor of Computer Science and Engineering, their level of expertise is low, but we made sure they were familiar with how to conduct a proper Heuristic Usability Evaluation.

2.2 Procedure

Our procedure was straightforward for the purpose of being as efficient as possible while also maintaining the quality of the evaluation we would receive and give.

At first, our team met up with the experts in person in order to communicate better with each other. Therefore, this would allow us to talk extensively about the whole procedure and we could fully understand the problems they found and the suggestions they provided.

Subsequently, each expert was accompanied by one team member to a quiet environment in order for them to examine the prototype individually while the team member documented their respective feedback. We felt that this was the best approach to find the most usability issues in our product and to receive different

suggestions for improvement since each expert could report back a different set of problems that would be combined by us later on.

After ensuring that each expert was offered the possibility to conduct a thorough individual assessment of the product, each team member explained to the expert what the process would look like and the ten heuristics they would use to provide feedback. Then we presented them with the wireframe of the application [FIG 1]. We showed them how everything works, what all the buttons do and how the product should work in a final stage. During this process, each expert compiled their respective feedback. Following the completion of this step, a demo [FIG 3-8] of the working application was presented to the evaluators, giving them the opportunity to explore its functionalities. This way they could get a feel of what the product would actually look like at the end and provide more useful suggestions about the usability of this project. We asked the evaluators to go through the demo in at least three iterations, each time approaching it differently in order to maximize the potential of finding more problems. During the entire process, each team member made sure to provide just enough hints so the experts would not get stuck completely when using the demo. We've collected the results and analyzed them later.

2.3 Measures

Each expert would tell the respective team member what problems they have found verbally while the observer would write down the provided feedback verbatim, without interpreting the comments. This method made the process of standardizing the results harder, however it allowed us to better understand the specifics of each problem.

Once the evaluation was done, we allowed the experts to communicate about their findings. We gathered the provided feedback and we arranged a meeting with the objective of sorting all the problems that were found. We analyzed each problem one by one and we organized them based on their importance, the frequency with which the issue occurs, the heuristics and the gravity of the problem.

The provided feedback consists of interface improvements that can be added to the application and problems found in the demo. Our experts were focused on all aspects of what makes an application usable, but they were sure to make it clear that some heuristics had a greater weight than others. For example, the experts insisted the most on the following three heuristics: Visibility of system status, User control and freedom, Recognition rather than recall.

The meeting we had with the experts was successful and we made efficient use of our time with them. At the end we filtered the feedback to eliminate duplicates and rearrange them. From this, we remarked that all of our experts found at least one issue that was not found by the others.

3 RESULTS

The outcome of the evaluation we got were mostly design flaws on the user interface and user friendliness, several defects on the functionality side and some user assistance suggestions. We decided to classify them based on the 10 usability heuristics and prioritize them by severity of the issue and the frequency of occurrence. Each issue is given 1 to 5 on the severity and 1 to 5 on the frequency, and if two problems have the same score, the more important one is chosen based only on the severity. Each problem will have a "Score:" followed by the score calculated by the team, e.g. "Score: 7" if it has 4 for frequency and 3 for severity.

Here are the 10 usability heuristics used in this report:

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

Each point will have a "#" at the end followed by the number of the heuristics into which it falls, e.g. "#5" if it is connected to Error prevention. The results:

(1) Score: 9 - Users can't use the scroll bar to go through boards when the app is resized. - #1
(2) Score: 8 - Users can't connect as admin. - #5
(3) Score: 7 - User is auto focused on the first list in the board when adding a new card to any list. This issue highly affected the users ability to focus on their current task by interrupting their workflow. - #1
(4) Score: 7 - Card list is not scrollable, but cards get smaller. The user can only scroll on the entire page, not on individual lists. - #1
(5) Score: 6 - Users can't change the default prompts. - #3
(6) Score: 6 - Users can't create or edit tags. - #1
(7) Score: 6 - Users can't see all his boards in one place. - #3
(8) Score: 6 - Users can't use keymapping for more productivity. - #7
(9) Score: 5 - Users can't keep track of how many tasks in a card list they have created. - #6
(10) Score: 5 - Users can't use already existing tags. - #7
(11) Score: 5 - When attempting to change the name of a card using its dedicated menu, the text area should contain the current name. - #4
(12) Score: 5 - Users can't delete boards efficiently. - #7
(13) Score: 5 - There is no menu or description explaining the usability of the app. - #10
(14) Score: 5 - Users can't disconnect from the Start page. - #4
(15) Score: 4 - When changing the name of a card, the board closes. - #7
(16) Score: 4 - Users must first write the key for the board and then write the password in a new window, instead of writing everything in one window. - #8

(17) Score: 4 - App text and window is too small for visually impaired people. - #8
(18) Score: 4 - When many cards are added, the "+" button sticks to the bottom of the list. - #8
(19) Score: 4 - Users can't make the app bigger or smaller when resizing the window. - #7
(20) Score: 4 - User must write the whole server address in order to join the default server. - #6
(21) Score: 3 - The name of the card can't be changed with clicking on it. - #7
(22) Score: 3 - List name could be changed when clicked on is not noticeable. - #7
(23) Score: 3 - The change button when changing the name of a list doesn't close the pop up. - #4
(24) Score: 3 - User can't get a board overview. - #3
(25) Score: 3 - Disconnect button isn't recognizable. - #8
(26) Score: 3 - Text in cards is too big for the card. - #8
(27) Score: 3 - When text and background are the same color they are hardly recognized. #8
(28) Score: 2 - The button for adding cards is too big in comparison with the actual cards. - #8
(29) Score: 2 - "Add new card list" button is too big in comparison with the app size. - #8
(30) Score: 2 - Drop down menu is wasted with only two buttons. - #8
(31) Score: 2 - Drop down menu options are too overladen. #8
(32) Score: 2 - Button icons aren't really recognizable. - #8
(33) Score 2 - User can't really identify the app by the icon. - #8

4 CONCLUSIONS & IMPROVEMENTS

From all the information we've gathered and based on the results of the report, we can conclude that heuristic usability evaluation is a useful method for finding flaws in the design of our project. Some of the problems found by the experts were things that we would have never considered otherwise. This evaluation helped us imagine what would the user like to see in our product and what are its expectations. It also showed us how important it is to take into consideration the opinions of the people that will use the application, since they will encounter all these problems and their experience will be based on these issues.

We'll take into consideration the results that were found while working on the product. We'll also look at the suggestions given by the experts and change the things they were not satisfied with. Since we saw how important the user's feedback is, we'll be more careful when working on the application.

We've managed to modify most of the things found in our results. One of the first feedback we acted upon was removing the autofocus [FIG 6] on the first list when adding a card to any list on the board. This was a problem for the user, since their workflow would have been interrupted and it would have been tedious to scroll through a lot of lists on the board each time an action was made or a button was pressed. With this fix the user can work uninterrupted and they can also see the card being created, which improves visual feedback.

Another issue we touched upon was being able to see the current name of a card, when attempting to change its name [FIG 8]. This

was an issue because if the user lost focus while changing the name of a card, they had to close the tab and find again the card they wanted to modify. This change improves the users ability to make small edits to a cards or list name, not having to type the entire name again. It also suggests the purpose of the text area which improves overall usability of the menu.

Users are now able to scroll through all boards after resizing the app. This was the most important issue as one could not go to a board of his choice after resizing the app to his liking. Other visual changes are the ability to scroll through cards in a card list after resizing, being able to see all the boards in one place [FIG 11], seeing the progress on the tasks of a card [FIG 14], to be able to disconnect from the start page if user has joined the wrong server [FIG 11], when adding cards, spotting that the list name could be changed with clicking on it is now easier, the color of the background of the card lists and the cards is differentiable [FIG 14], the app has an icon for recognizability [FIG 14] and the entire application is now resizable and has bigger buttons, so people can see and use the app without straining their eyes.

The fixes on the functionality and user experience are the following: after a user has logged in the app, he is able to try to log in as admin from his profile [FIG 11]. If the server admin gives the password, the user is able to see all the boards created on the server and delete them. Users also can delete his own boards easily even if he is not logged as an admin [FIG 11]. Users are now able to add new tags [FIG 19] to the board and edit already existing ones [FIG 19]. The tags that are added to the card are now highlighted in the overview of a card [FIG 14]. There is also a button for joining the default server. [FIG 9] An overview of the card details now appears when a card is double-clicked, where the user can change the title, description, subtasks and tags of the card [FIG 15].

The final application turned out better than we expected. The feedback by the experts was incredibly valuable. The experience feels smooth and more intuitive.
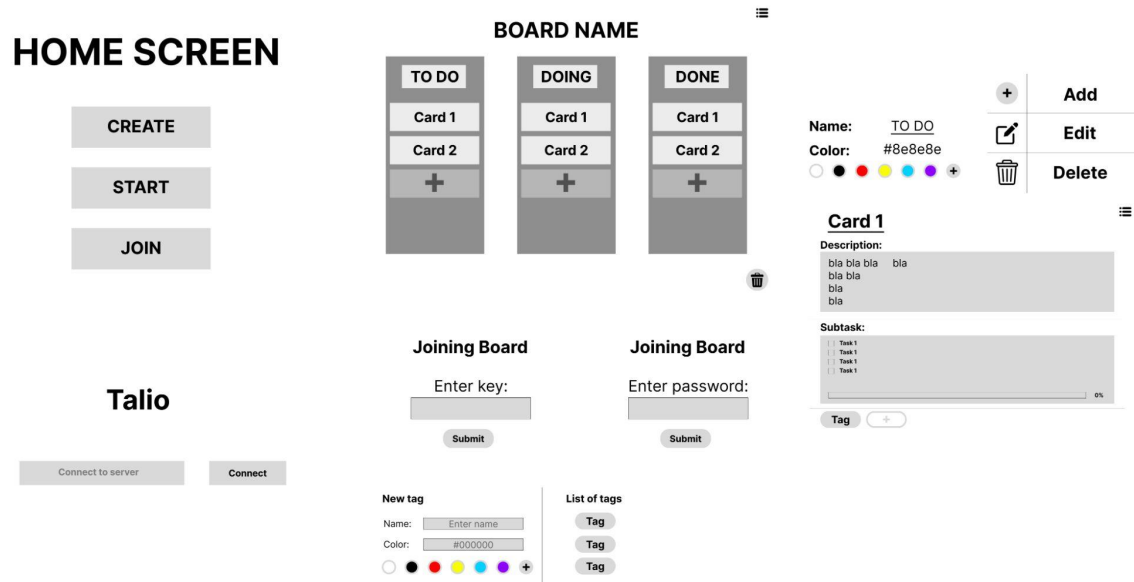
APPENDIX

FIG. 1 Wireframe of the application that was showed to the experts of the evaluation
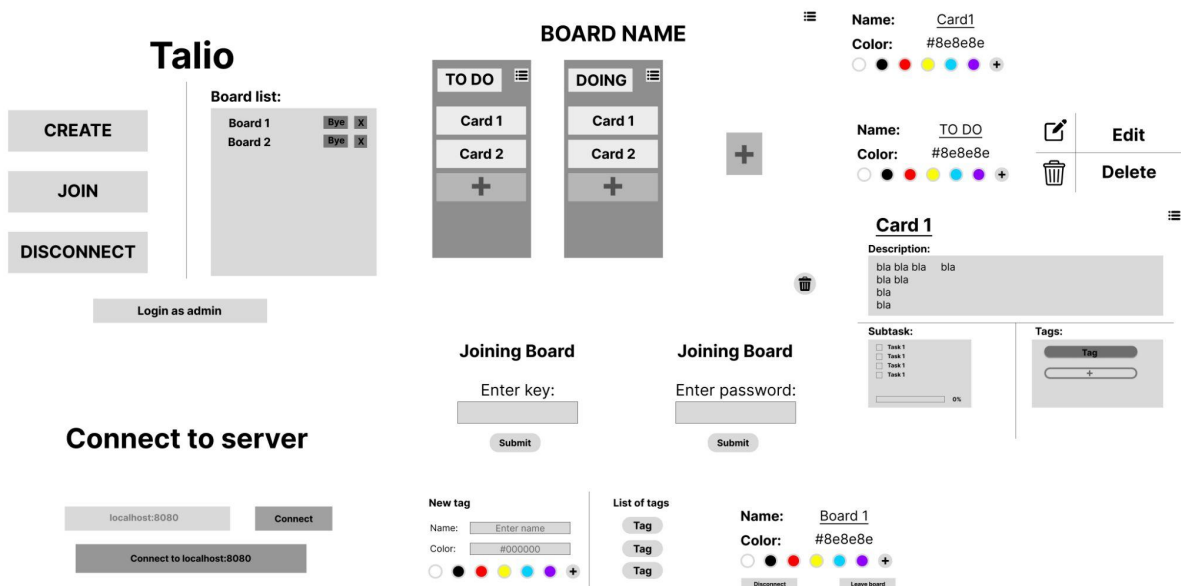

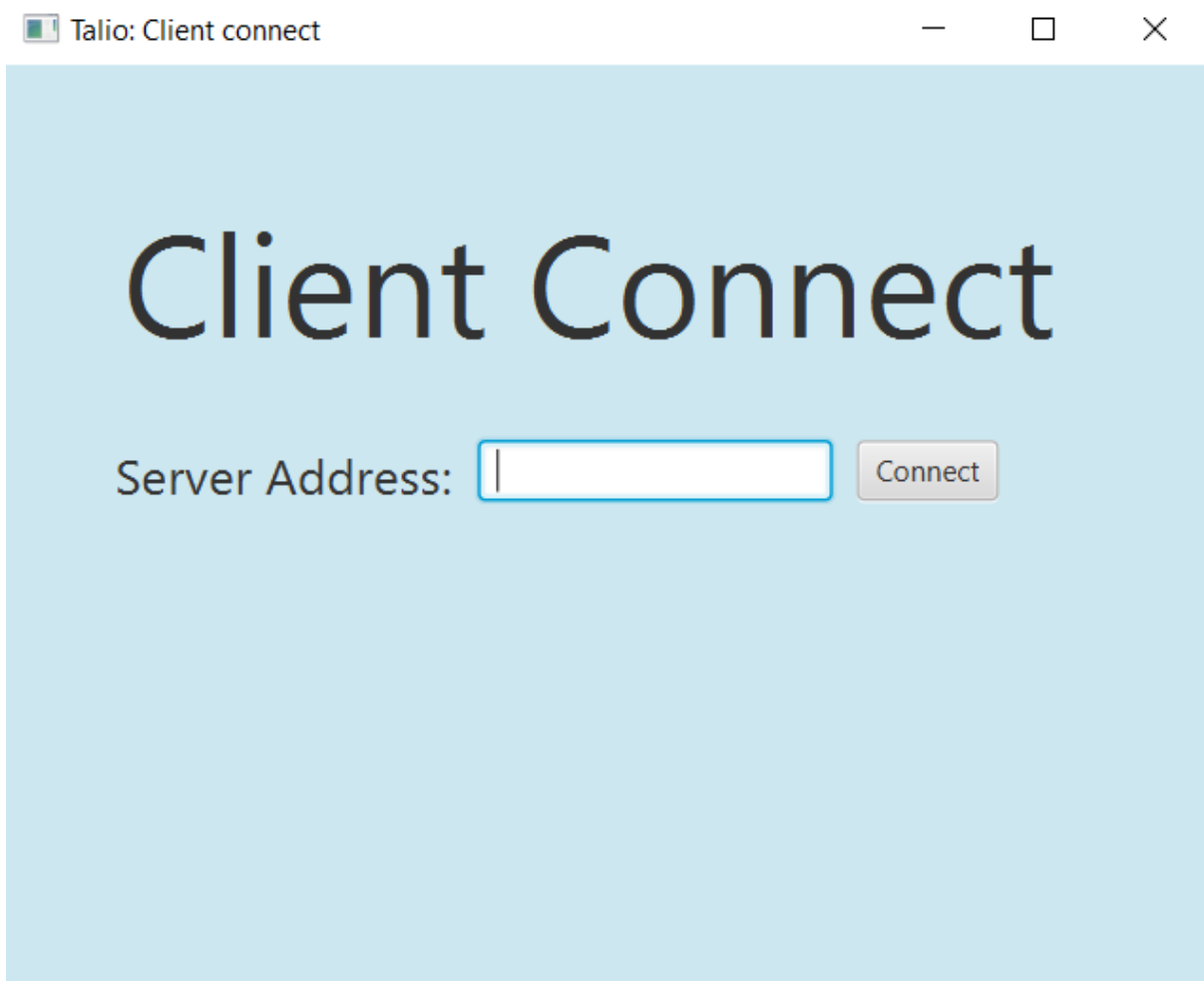**FIG. 2** Wireframe of the application that was changed after the evaluation
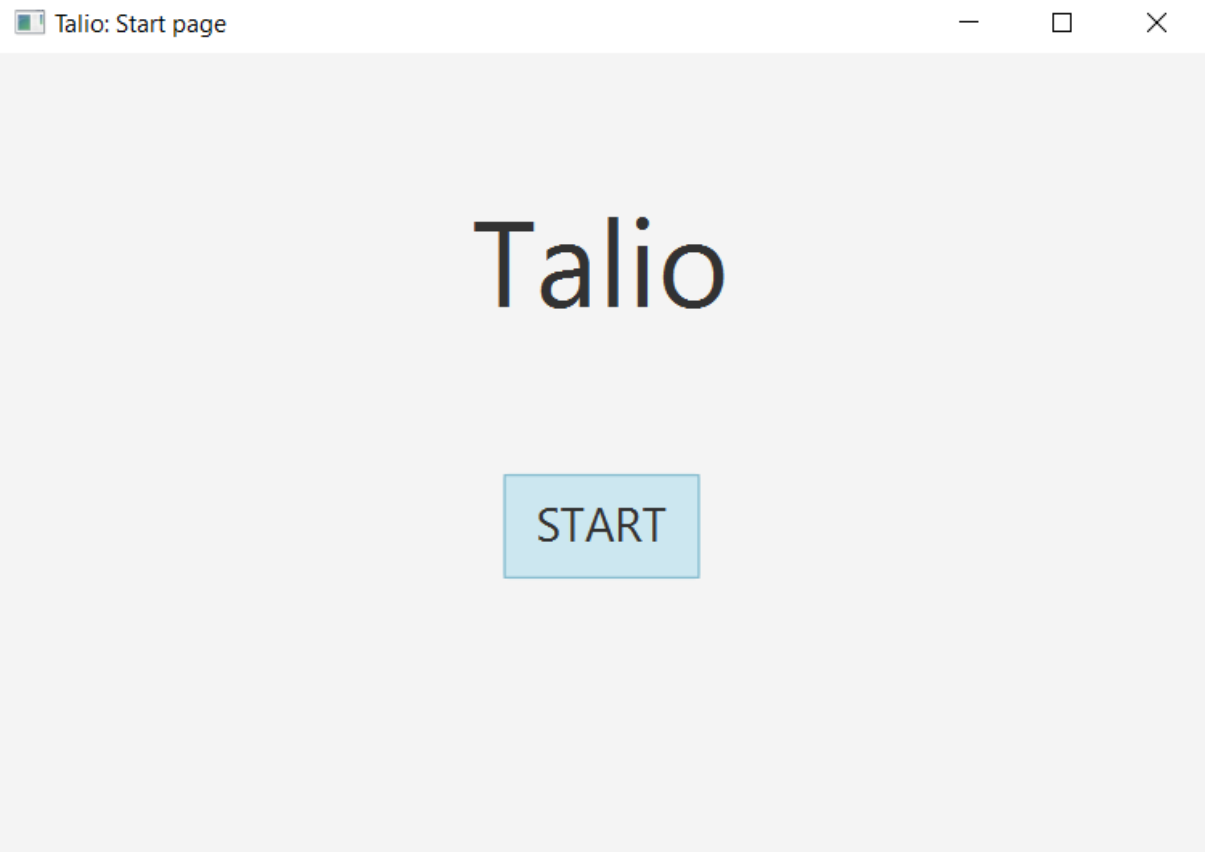
FIG. 3 The connection screen before the evaluation.

Talio

START

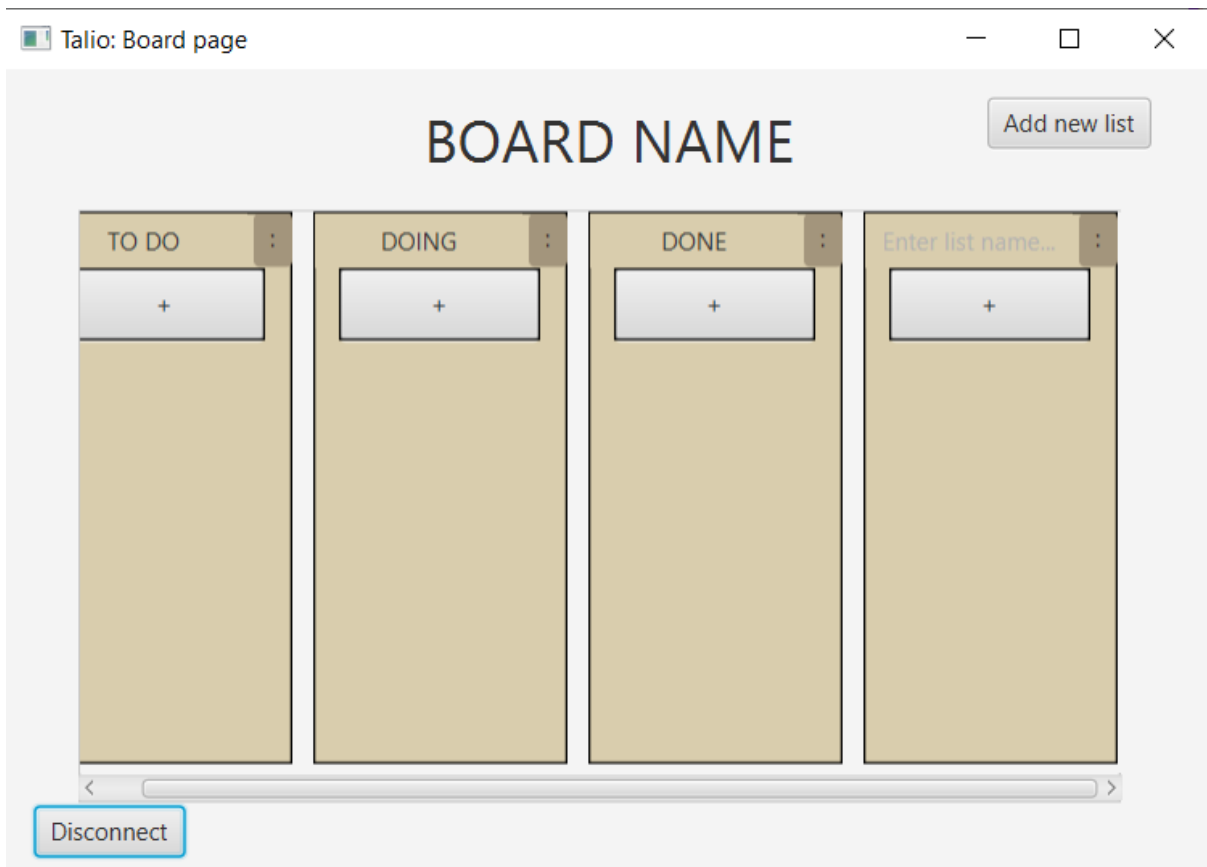**FIG. 4** The start page before the evaluation.
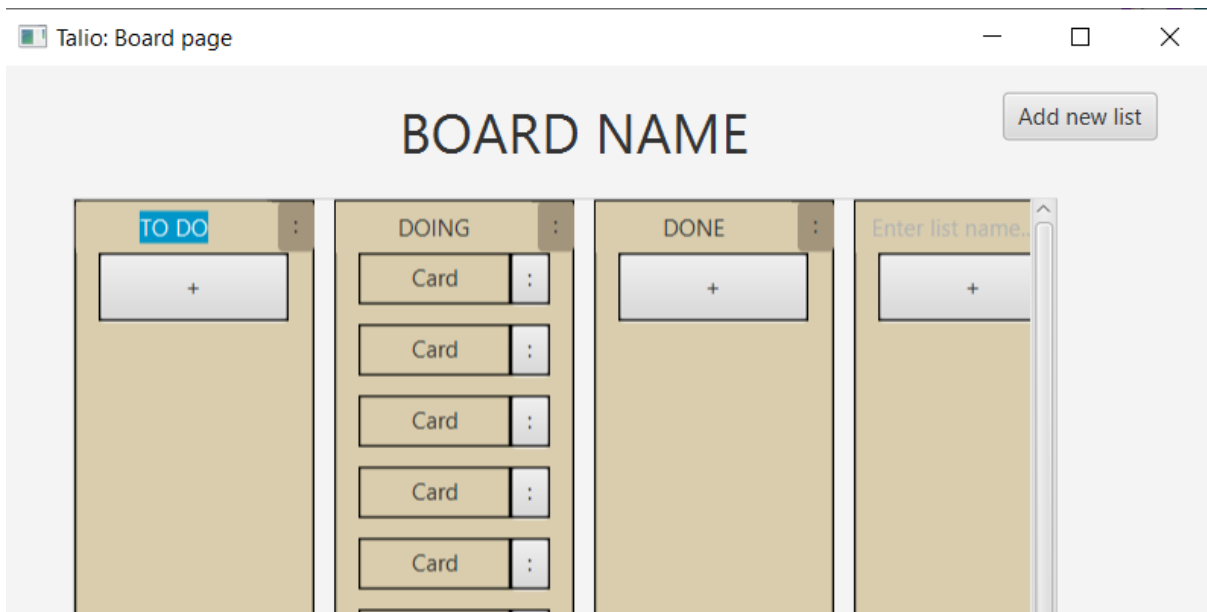
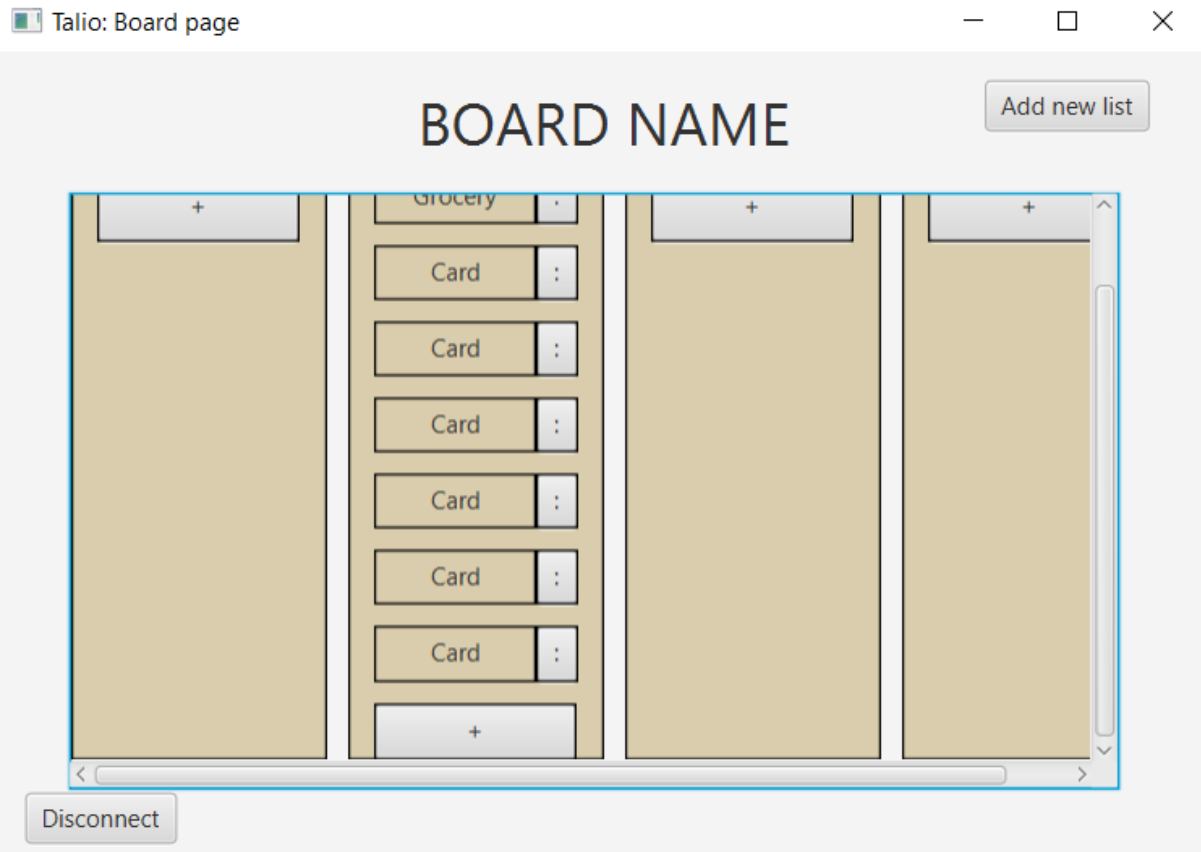**FIG. 5** The board overview screen before the evaluation.

FIG. 6 Autofocus bug.
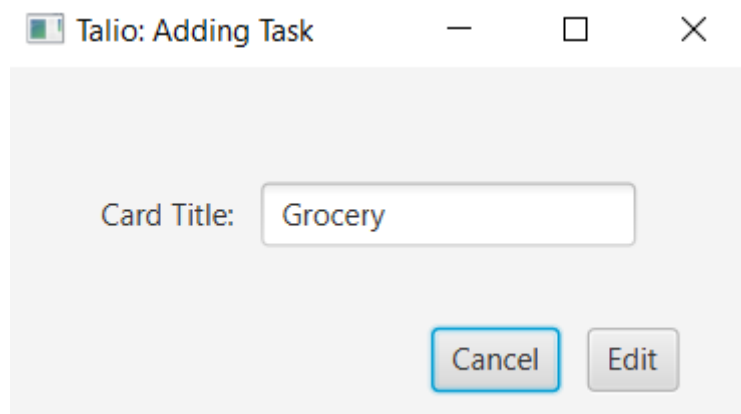
FIG. 7 One shared scrollbar for all lists.

FIG. 8 Card editing window.

FIG. 9 The connection screen now.
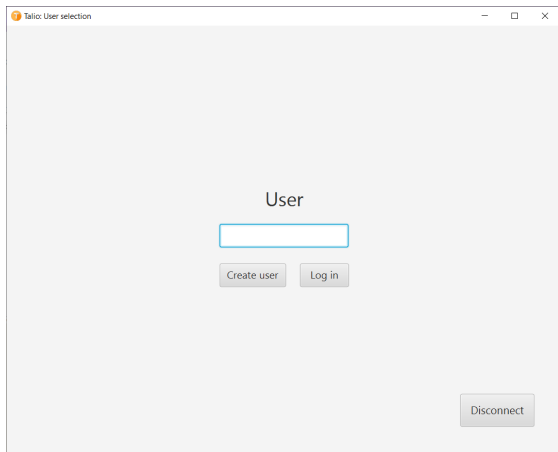
FIG. 10 User selection screen.
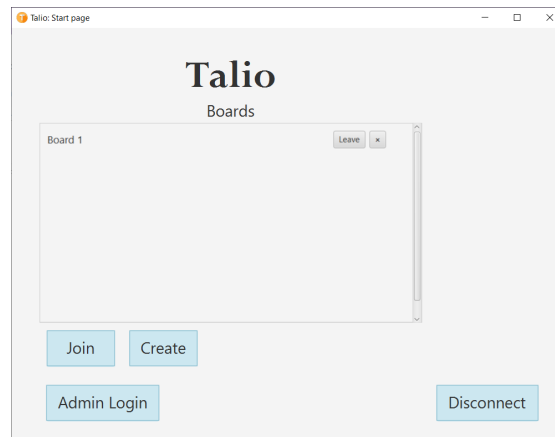
FIG. 11 Board selection screen.
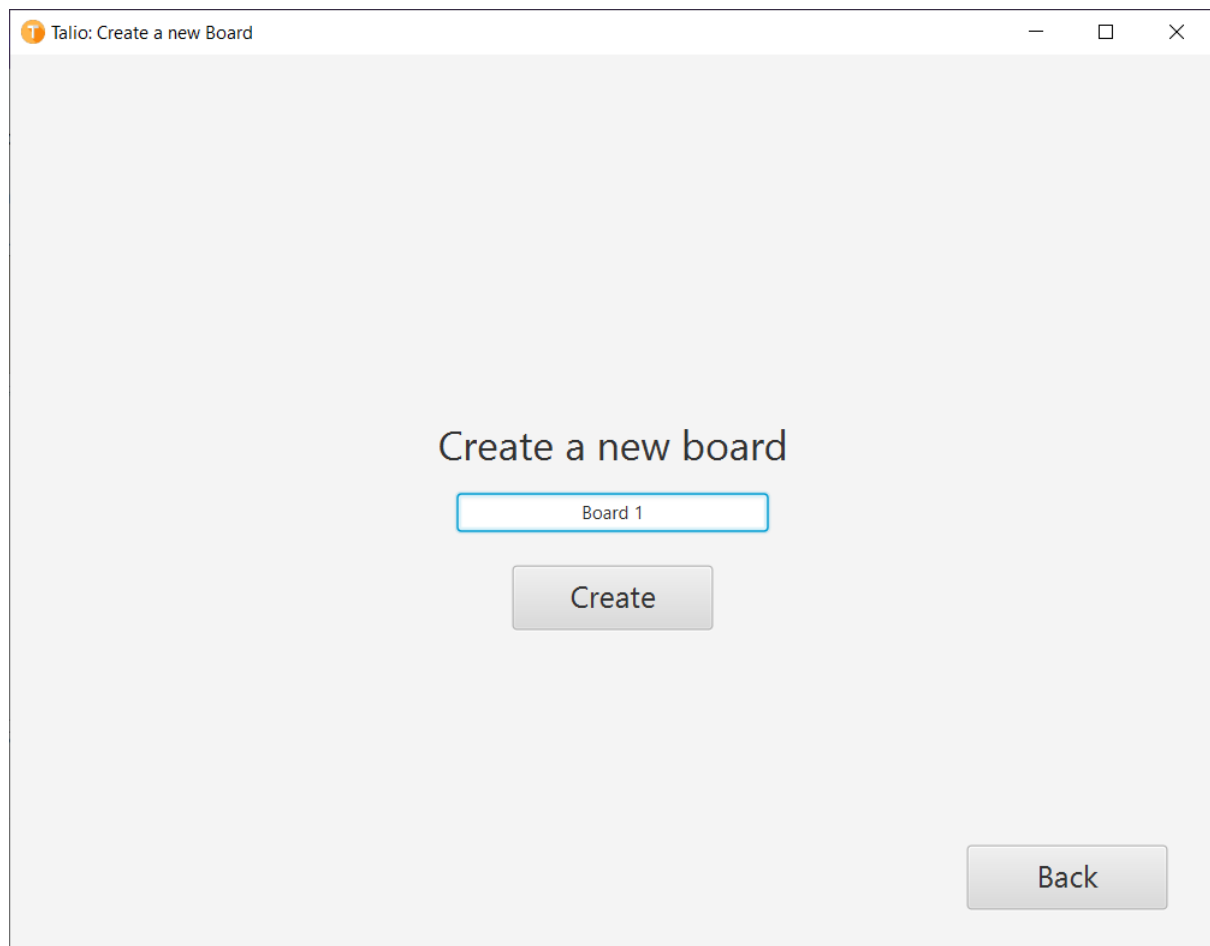
FIG. 12 Creating a new board.

FIG. 13 The board overview screen now.

FIG. 14 The board overview screen with cards added.
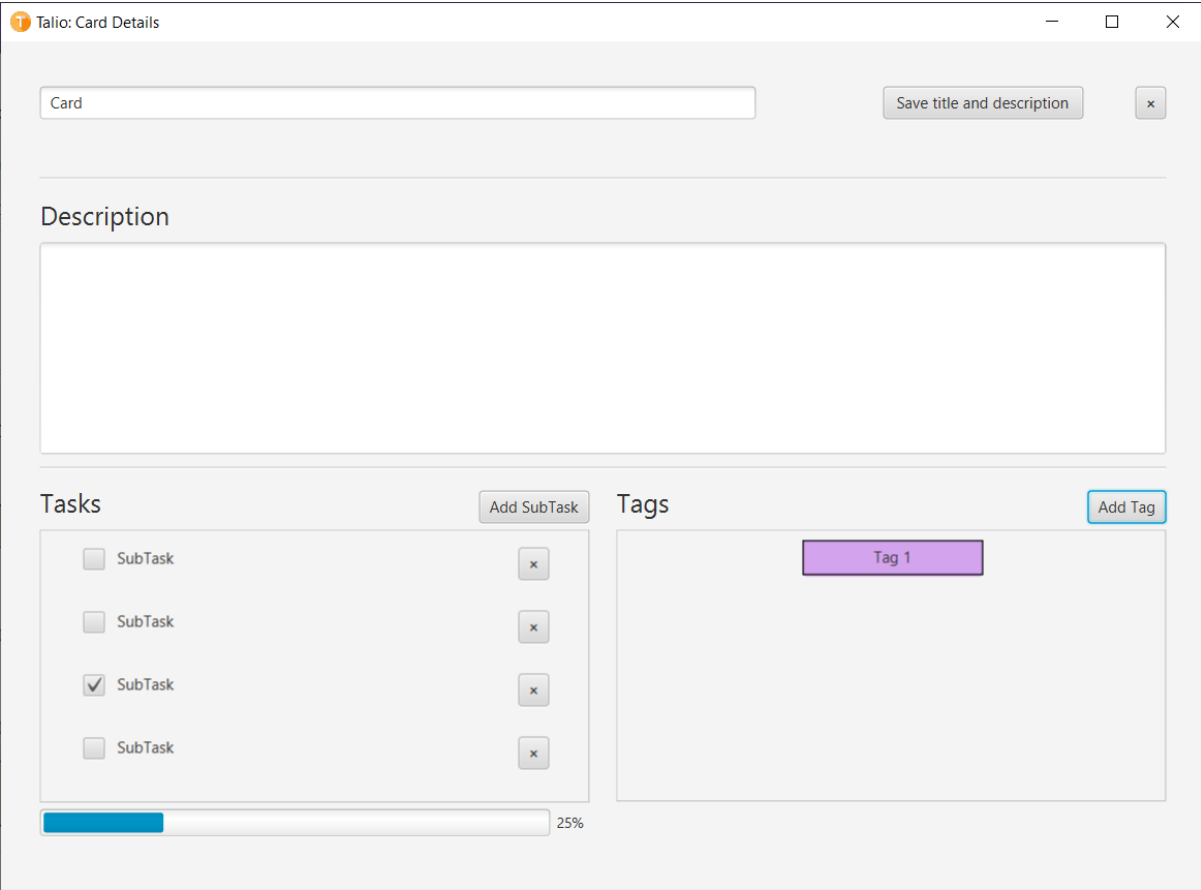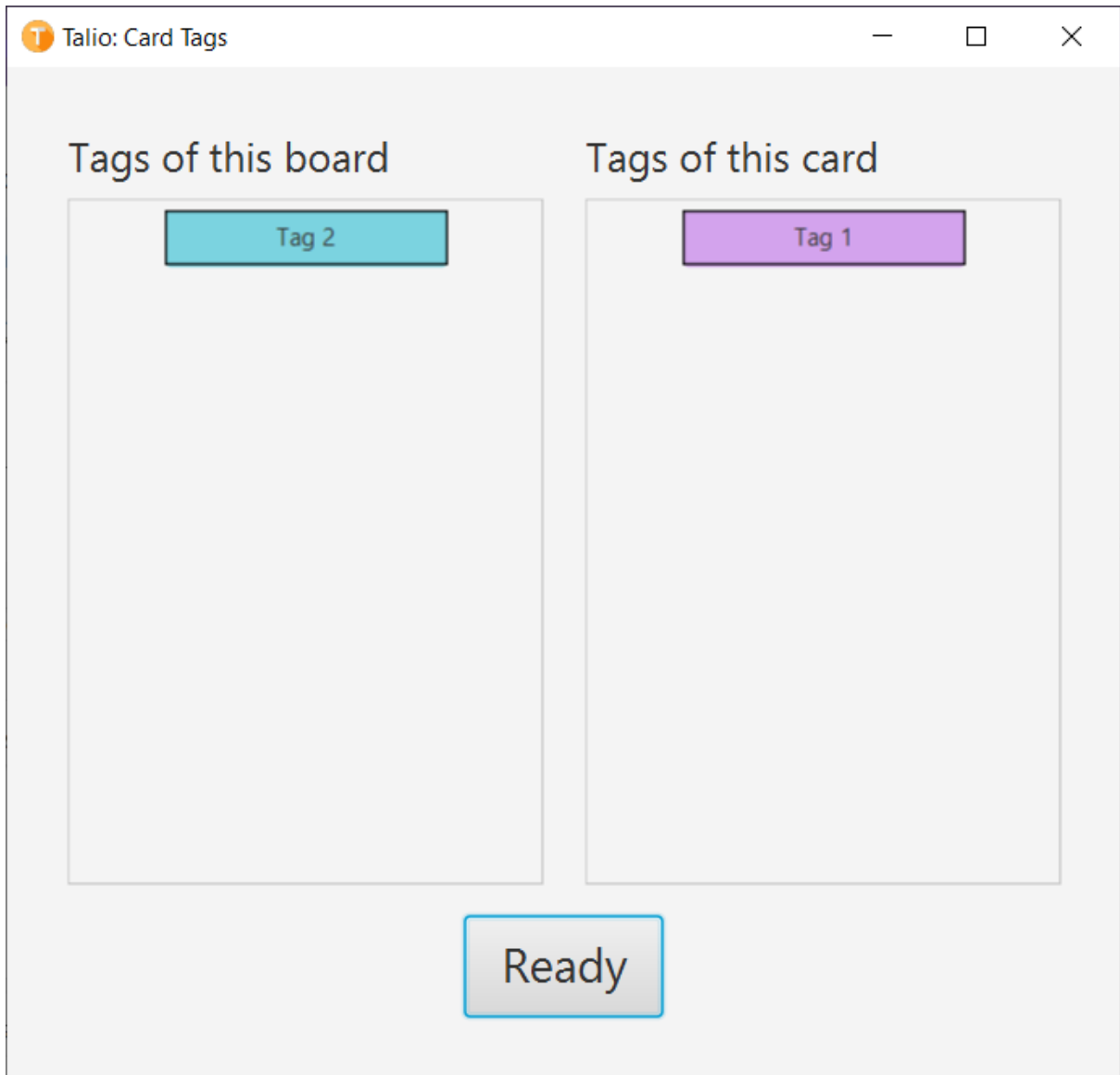
FIG. 15 Card editing window.
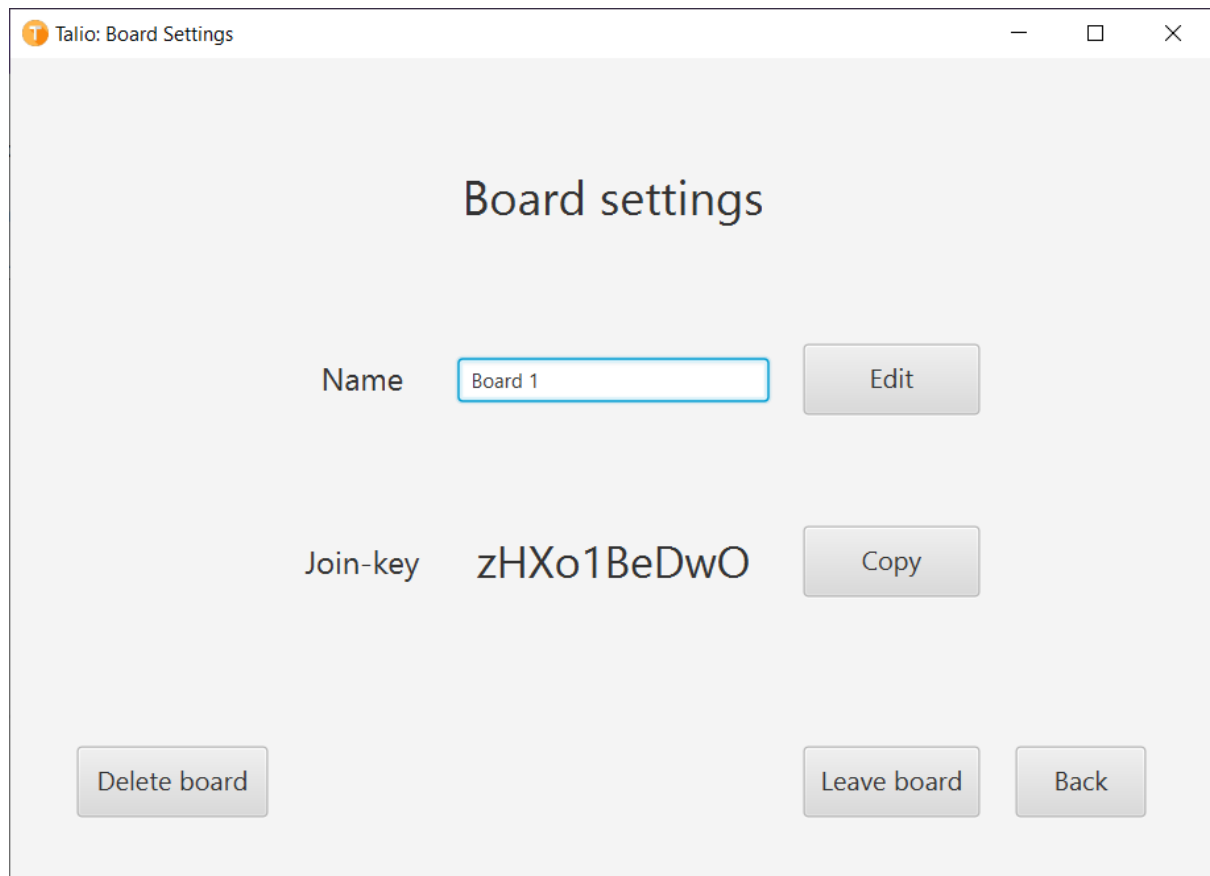
FIG. 16 Adding tags to a card.
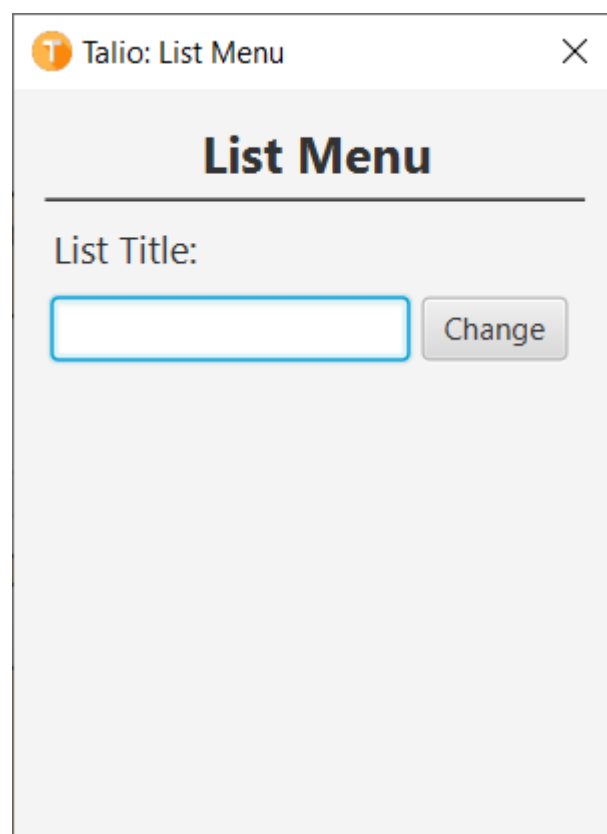
FIG. 17 Board settings.

FIG. 18 List editing window..

FIG. 19 Adding tags to a board.