

OOP Project Report – Group 78

Alexandru Petriceanu, Oleh Grypas
Teun den Boer, Tudor Chirilă, Sagar Chethan Kumar

1 INTRODUCTION

UI is inarguably a very important part of any application, being the element with which any user will interact. Therefore, for an application to be considered easy to use, or even intuitive, one must make sure its UI respects some criteria, from now referred to as “Heuristics”. This paper will examine the task-list application “Talio” through the feedback of experts and implementation of given feedback by its team of developers, with purpose to improve upon its UI elements. The evaluated prototype will be that of Group 78, “The Sheep Blasters”, and the following represent both initial pictures and descriptions of the evaluated application:



Figure 1: Welcome screen

The image above represents the welcome screen, where a user can also enter the IP address of the server they want to connect to. The font used is DM Sans, and the main color choice is blue. The design itself uses rounded-corner boxes for both buttons and pages. The font is either black or gray and varies in size.

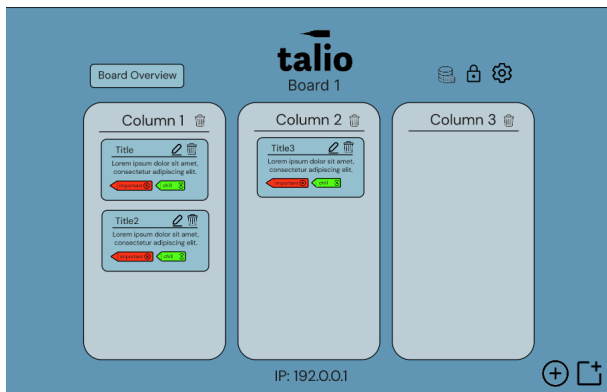


Figure 2: Board screen

The image in Figure 2 represents the board screen. This screen is much more heavily covered than the last, having various buttons which are going to be covered in the following descriptions. To list the elements of this page, we can observe the “Talio” logo, the “Board Overview” button (leads to Multi-board Screen), the “Database” button (leads to Welcome/ Enter IP screen), the “Lock” button (opens a popup window which asks to input a password), the “Settings” button (opens a pop-up that shows the Settings Screen). Then, right under the application’s logo, we can see the board’s title (currently “Board 1”). Underneath, the three light-blue boxes are Collections, that each hold a number of Cards (tasks). Each task has a visible title, description, “Edit” button (marked by a pencil icon, and lead to the Edit Card Screen), and delete button (which deletes the given Card). On the bottom of the page, we can see the IP to which the client is connected (currently 192.0.0.1), the “Add Card” button (depicted with a “plus” sign in a circle, which leads to the Add Card Screen). Finally, to its right is the “Add Collection” button (depicted through a square with a “plus” sign on the top-right). The mentioned screens are shown below, in order of appearance:

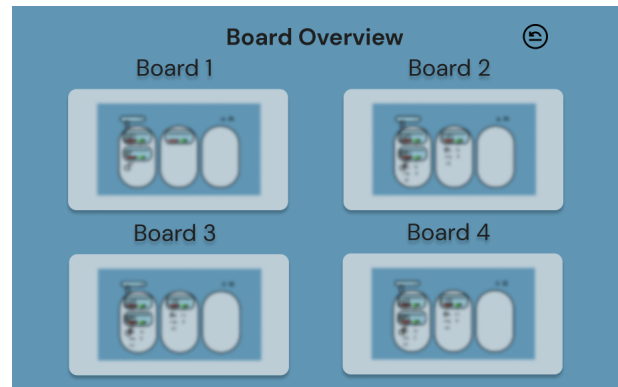


Figure 3: Board overview

In Figure 3, the Board Overview Screen is presented, which shows all available boards. At the top of the screen, we have the title “Board Overview” in bold, black text. To its right is the back button (depicted through a curved downwards-pointing arrow, encased in a circle), which leads back to the board which the user had just left from. All boards and their names are shown on this screen, and a user can scroll through them.

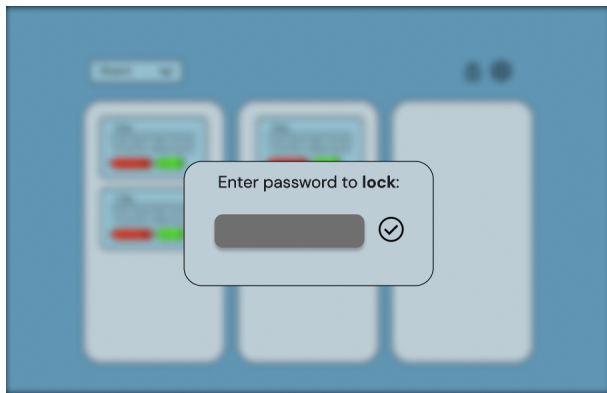


Figure 4: Locking a board

Figure 4 illustrates is the Password popup window, which allows a user to, as described at the top of the window, lock their board through password-protection. On the right of the text input field is the “Ok” button, which is used after the password is entered. It also returns the user to the Board Screen.

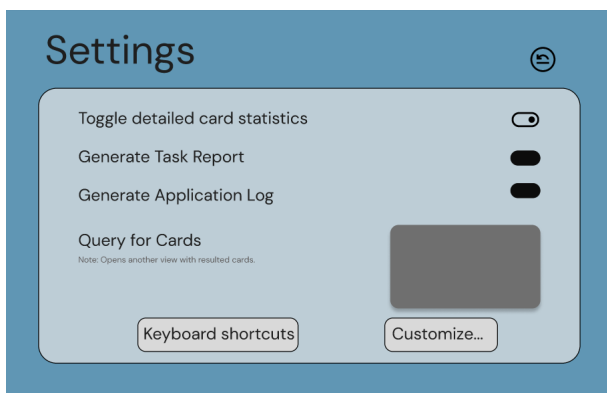


Figure 5: Settings

The Settings Screen in Figure 5 shows multiple options, mostly for exporting from and querying the database of Tasks/ Cards. It has a “Back” button on the top-right corner and two buttons on the bottom, that lead to different screens. The “Keyboard shortcuts” button opens a two-page pop-up that shows all keyboard shortcuts, and the “Customize...” button which leads to the Customize Screen.

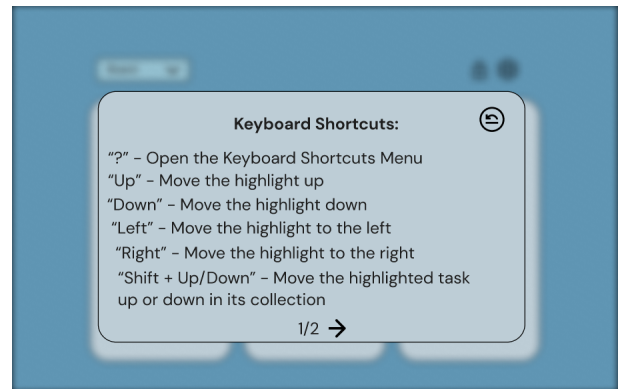


Figure 6: keyboard shortcuts menu 1

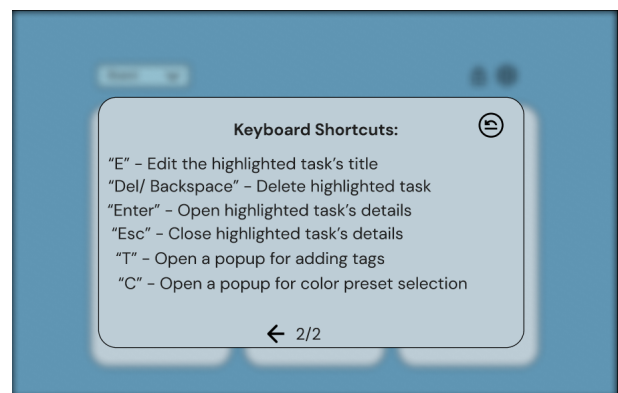


Figure 7: keyboard shortcuts menu 2

Figure 6 and Figure 7 illustrate the two-page pop-up for Keyboard Shortcuts. All the shortcuts are shown here, and users can switch between the pages using the arrows on the bottom of the popup. They can also go back to the Settings Screen using the “Back” button in the top-right corner of the popup.



Figure 8: customization window

This is the Customization Screen (Figure 8), which allows the application’s colors to be changed. As we have also seen before,

it features a “Back” button in the top-right corner. On the bottom right, the screen has a red “Reset” button, which returns all the customization settings to default.

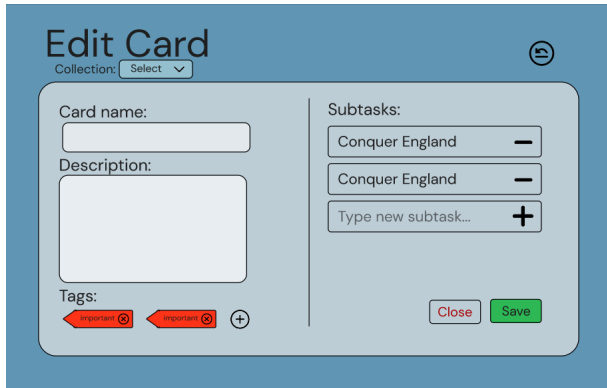


Figure 9: edit card pop up

Finally, in Figure 9 is the Edit Card Screen. On the top right there is the consistently designed “Back” button. The screen allows for the changing of a Card’s name, its description, its tags or its subtasks. It then features two buttons on the bottom, a “Close” button, which cancels all changes made to the card, and a “Save” button, which keeps all changes. Both button return the user back to the Board Screen.

2 METHODS

Experts:

We have recruited six experts, namely the members of Group 39. Although their level of expertise was that of university students, their feedback was well-developed and highly valuable to the application’s development.

Procedure:

To evaluate our product, the experts looked over the application’s prototype. Our team, Group 78, instructed them to look over the prototype demo of our application, which was created through mockups with buttons that linked them to each other. To do so, we decided to have an in-person meeting on Thursday, March 23rd, 2023. The experts used a step by step approach to evaluate the application, and were also given a form in which their answers were recorded. The approach they were instructed to use was the following: they first had to look over one screen, take notes and answer the questions from the form about that screen, and then go to the next screen. After exploring all screens, taking the required notes and answering all questions, they were instructed to freely explore the prototype and make any additional notes. The heuristics they used were Nielsen’s usability heuristics, more exactly :

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.

They were, however, instructed to focus on the heuristics that regard the app. For example, no. 2, “Match between system and the real world” was not a main focus, since the app can have entirely fictional tasks and still be very much in working order, if one user desires to do so. Moreover, being a prototype made up of mockups, no. 5 “Error prevention” was also not a main focus.

Measures:

As for what data to store, we measured the impact that certain aspects of the application’s UI have on the experts through our previously-mentioned form. These were made up of either open questions (i.e., “Is the layout of the app visually pleasing and easy to understand?”), or multiple-choice questions (i.e., “Can you create a card? Did you have trouble finding the buttons?”), to which the possible answers were “Yes”, “No”, or “A little”). All their answers were recorded by the forms and kept in Group 78’s Google Drive. Some of their answers were either translated to statistics (this was the case for multiple-choice questions), while others were kept as raw information and a popular opinion, or “trend”, was deducted from them by Group 78.

3 RESULTS

The results to the questions were varied, many offered valuable feedback, while others strengthened the idea that the application’s UI was well-thought from the start. To report on all the findings, all questions asked will be listed below, and their general “trend” or statistics will be explained below. The “trend” is reported through the thorough analysis of the experts’ opinions, pointing out common opinions, and synthesizing the observed information.

These were their answers related to the heuristics, answered in the order of appearance (of the heuristics):

1. The system status is overall visible, users always knew what was happening since every button leads to a different screen with a visible title. Moreover, each board displays the IP of the server that users are currently on.
2. This heuristic was skipped, as it did not apply to this type of application.
3. The experts found that almost any action they take can be undone, other than the deletion of cards or collections. Based on their feedback, they also described freely navigating through the application as intuitive and simple, as they could always return to the previous screen. Finally, they found the application to be simple when it comes to its flow, but some buttons could do with a redesign, such as the “Add Card” button, which wasn’t very well-placed or explicit from their point of view.
4. The experts were pleased with the application’s overall consistency. They were keen on taking note of the constant “back” button that always appeared in the top-right corner of almost any page, which also had a well-chosen icon. However, they did find the “Database” button a bit confusing, as they couldn’t understand

its functionality. They also took note of each “Save” button being placed to the right of any “Close” button, which they saw as intuitive design.

5. As explained before, this heuristic was skipped, as this was only a prototype made up of mockups.

6. The experts took note of the application’s intuitive design. Most of them had little (66.7

7. Viewing and taking note of all the shortcuts presented on the Keyboard Shortcuts popup, the experts decided that the app is very efficient, and allows for performing frequent tasks much easier. Moreover, they took note of the customization feature. They also found all these options and extra information about them to be easily accessible through the provided screens or popups.

8. When asked about whether they liked the chosen color theme, the experts mostly agreed with it, 83.3

9. Similar to heuristic number 5, the experts could not comment on this too much. They were quick to realize, however, that the app will not help users recover from errors in any way, other than deleting or editing cards they have mistakenly added.

10. The experts were pleased with the app’s documentation, which was present only in the Keyboard Shortcuts popup. They found the rest of the application to be intuitive enough as to not need extra information or documentation, other than the two previously mentioned buttons, which caused problems on multiple occasions.

Overall, these were the problems identified by the experts and their allocated Prioritizing Severity Matrix:

problem	frequency	severity
Add Task Button	5	4
Add Collection Button	4	4
Database button	3	2
Black boxes on settings screen	3	2
Delete button not standing out enough	2	1
IP instead of URL for connection	5	3
Unclear tag section	4	3

Therefore, we can observe that most problems originate from the two mentioned buttons. However, there are other aspects of the application that the experts found confusing. For example, they found that asking for an IP instead of an URL on the starting screen is unclear, and could use some extra explanations or simply a change in wording. They also found that the “Delete” Button for both collections and cards did not stand out enough, so they suggested changing its color as to avoid accidental clicks. Most of them also had problems with adding tags to cards, as they did not find the UI for them too helpful in that matter.

4 CONCLUSION AND IMPROVEMENTS

The main conclusion that Group 78 was able to draw from the experts’ observations is that their button placement or some icons are inappropriate for their given functionality, leading to confusion among the users. Moreover, as the experts have noted, the application needs more documentation when it comes to entering the server’s IP. A better explanation would be required, or a change in wording.

As to take into account the experts’ opinions on the matter, Group 78 have decided to take immediate measures to ensure proper functionality and usability of their application’s UI. The changes they have made reflect the feedback and the issues pointed out by the experts.

The first change that was made was redesigning the icon for the “Add Task” Button, making it into a button that explicitly says what it does. The “Add Collection” Button was kept unchanged, since now it was found to be much more clear. Also, the “Delete” Button for Collections was changed to be bright red, now being much more obvious.

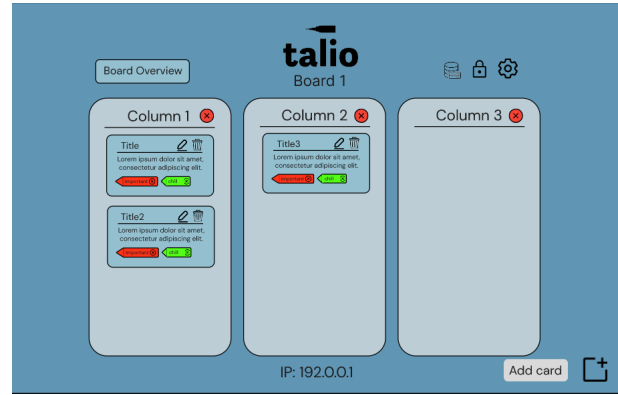


Figure 10: improved board screen

Also, the message on the Welcome/Enter IP Screen was rephrased, now asking for a link to a server instead of an IP.

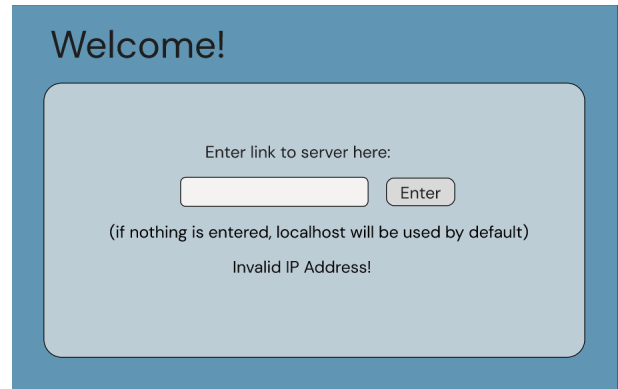


Figure 11: improved welcome screen

Finally, the black buttons that caused confusion on the Settings Screen, which regarded exporting tasks in different ways, were changed similarly to the “Add card” button, now being as explicit as possible, being labeled with their function.

Through these changes, which reflect a combination of the experts’ opinions, views and Group 78’s personal design choices, all confusing aspects of the UI should be solved, through either buttons whose function is explicit through their label, or more obvious buttons that solve problems such as not finding important functions.

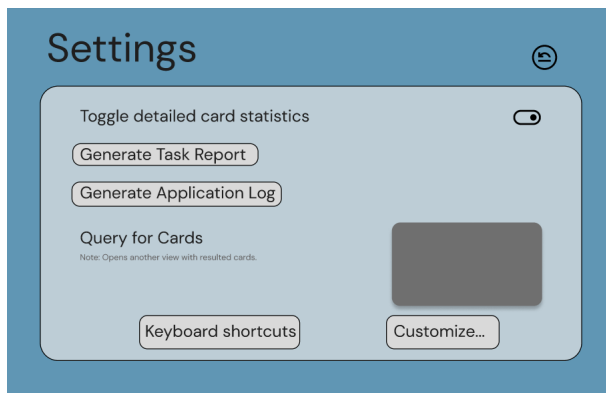


Figure 12: improved settings screen

Therefore, with most issues in the heuristics being solved with the exception of a menu for tag selection which will be added as a new screen, the UI of the design has strongly improved following the Heuristic Usability Evaluation.