OOP Project Heuristic Usability Evaluation Report – Group 12

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ABSTRACT

This report presents the results of a heuristic usability evaluation conducted on a prototype of our application, done by a team of students. The aim of the evaluation was to identify various potential or existing problems users could encounter with our application. Evaluators were instructed on how to properly evaluate our project using 10 heuristics as well as how to constructively formulate the found problems. They found multiple minor problems, for example lack of cancel buttons or the dangers of how easy is to delete whole boards. Results were examined and the improvements inspired by the problems investigators found have been implemented in our project.

1 INTRODUCTION

1.1 Aim of the report

The goal of heuristic evaluation is to find usability problems in an existing design (such that they can be fixed). This can be viewed as a method of visual "debugging" for user interfaces[1]. Participation of multiple evaluators, and their expertise on the user interface analysis lead to the nearly certain identification of most of the issues, even when they appear infrequently or hard to detect. After all identified problems are attended, the proposed final design, in section 5(?), is easier to perceive and use.

1.2 Initial prototype

Figure 1: This is the first screen that shows up on startup. Connect as admin is a checkbox that gives a different version of this scene if true. If the address doesn't exist a red border appears one the address field and the user is not redirected. If the address is valid the main page is shown.

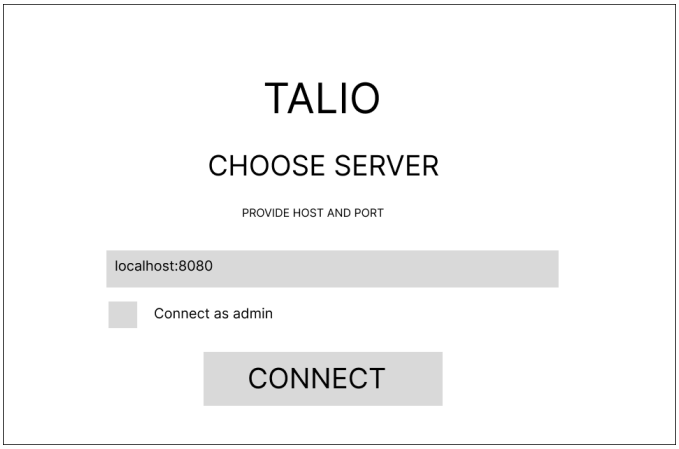


Figure 2: If the combination of password and server is correct the admin is connected. Else a red border appears on those fields. The admin has the same client but all boards existent on the server are shown and there are no modification restrictions

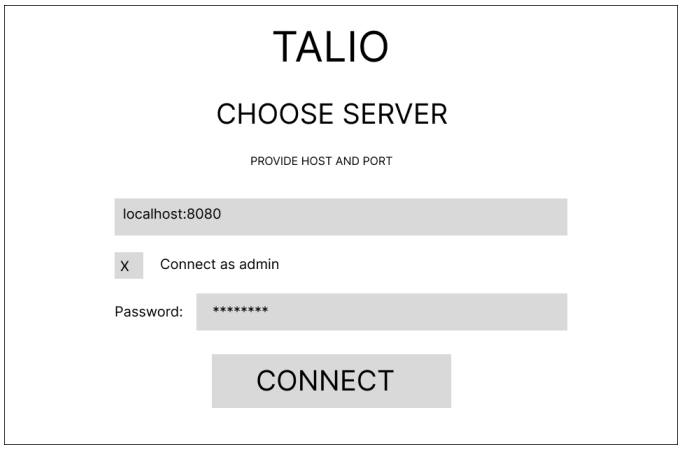


Figure 3: This is the main page. The default board is loaded first. To share the board click on the top right button to get the sharing code. To delete the current board click the top left button. To change title click on the title on the title bar and modify it. All joined or created boards are on the left bar. Change boards by clicking on their name. To add a board click the add board button and a popup will appear. This will give you options to join an existing board by id or create a new one

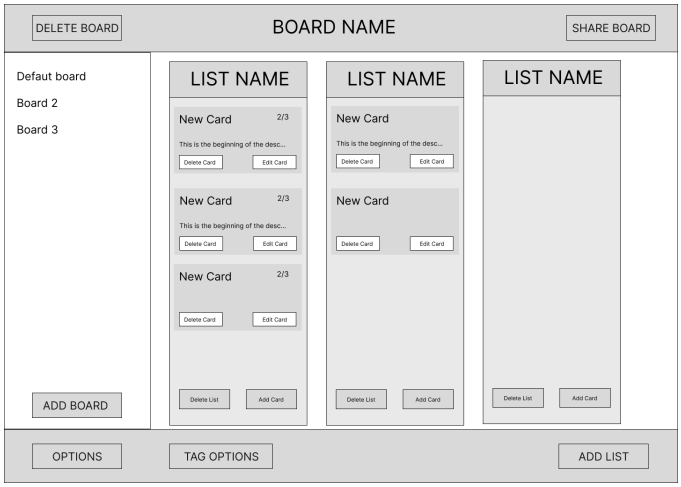


Figure 4: The main page after share board is clicked. The bar on the top disappears is button is clicked again or board is changed.

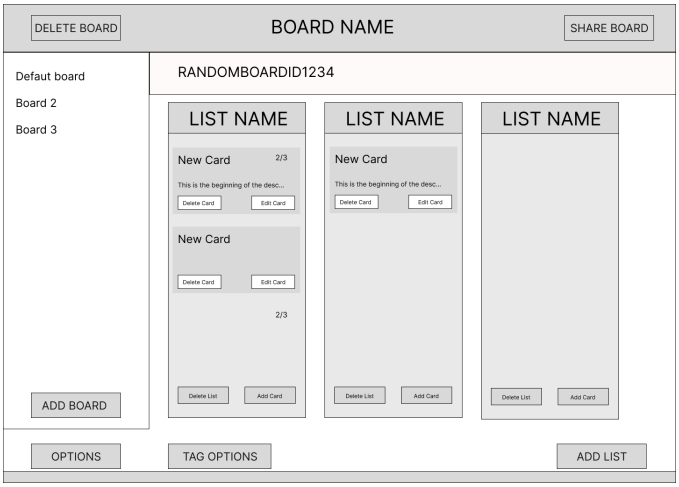


Figure 5: Board add pop-up

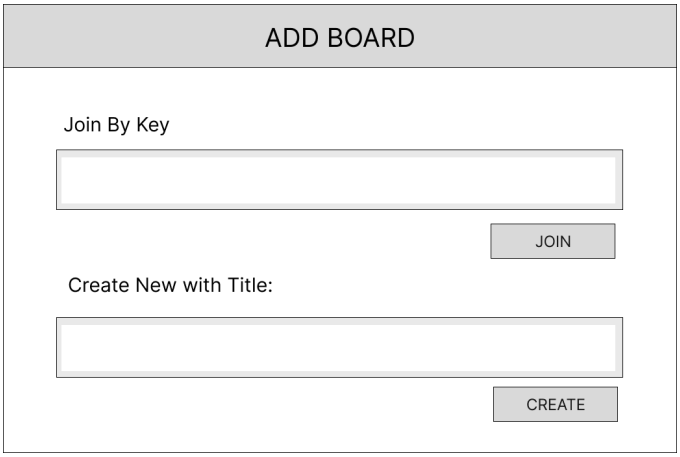


Figure 6: To add lists click the bottom-right button. If the lists don't fit in the assigned space you can scroll horizontally. To change the name of a list click on its title and modify it. To delete it you have a button on the list. To add a card to a list you have a button on the list. If the cards don't fit in the list you can scroll vertically inside the list. To add cards inside a list click on the button on the list. To delete cards you can press the button on the card. To edit cards (title, description, tasks, tags) click the button on the card. If the description or sub-tasks exists the cards adds distinctive details.

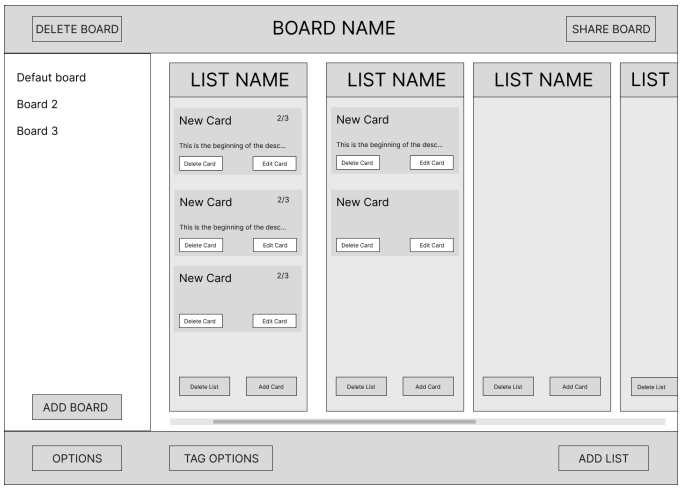


Figure 7: The card editing menu

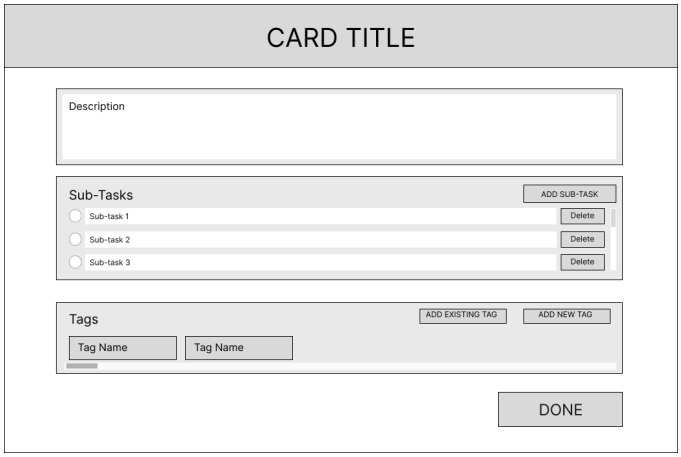


Figure 8: The options button has a menu. Change server send you back to the first page (serve choice scene). Customization serves the customization menu.

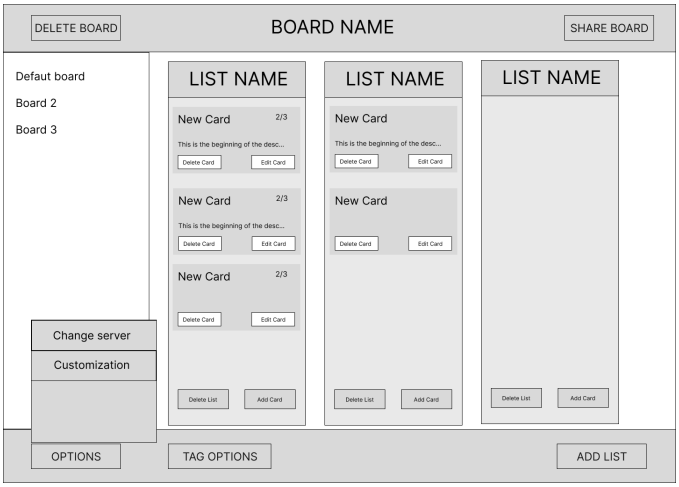


Figure 9: The customization menu. The user can change the background color of the board, cards or lists. The color is saved on the server and is loaded when the board is loaded.

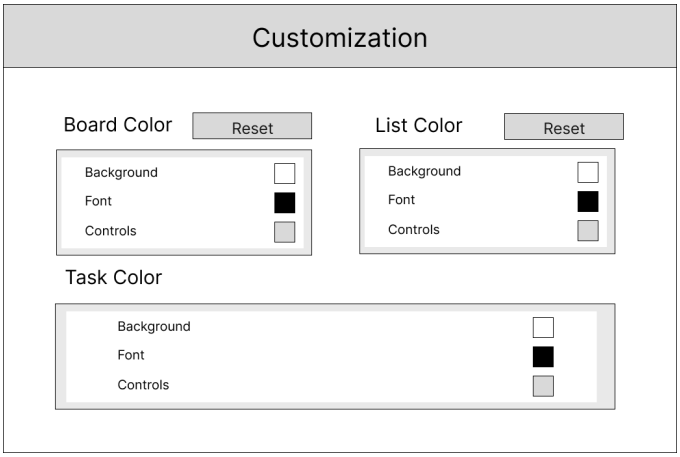


Figure 10: Pressing on the colored square, leads to opening a color picker menu.

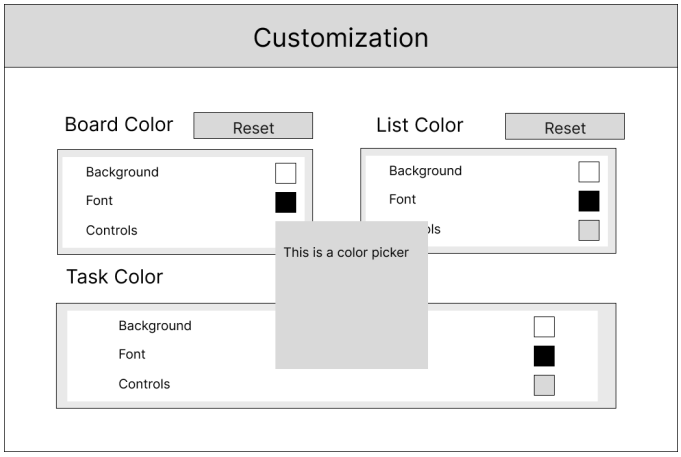


Figure 11: If tags are selected only the cards with those tags are shown and an overview of the selected tags appears on the bottom. If no tags are selected the bar on the bottom is not shown and all cards are presented. Tag options button gives a menu for tag settings.

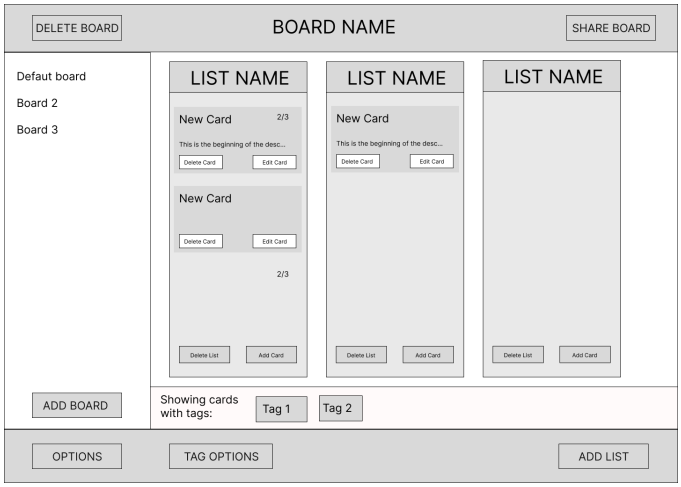
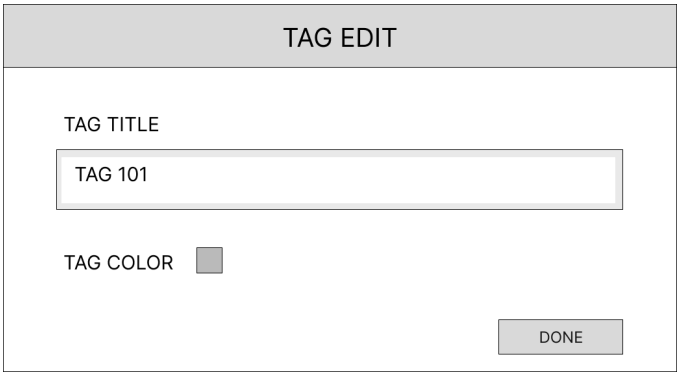


Figure 12: Tag options menu. This menu gives options to add, delete tags and pick which tags are allowed to be shown on the board. If no tags are selected, everything is shown.

Figure 13: Tag edit menu. This menu appears when creating a new tag. Gives options for a title and picking the colour of the tag with a color picker.



2 METHODS

In this section the methods used throughout the heuristic usability evaluation are specified and explained.

2.1 Experts

We recruited a team of 6 people. All of them are students of computer science who are doing the same project as us. Thus, the evaluators fall in the group of the "novice" evaluators, henceforth approximately 55 of all the issues[2] are expected to be identified.

2.2 Procedure

The team that evaluated us is supposed to give us heuristic usability evaluation on our project prototype according to the rules we sent them.

We provided them with a prototype of our application in a form of wireframes with detailed explanations of functionality on every scene and each component on it. In those we included all the functionality we already implemented in our application as well as the aspects we are planning to implement. The general design of all components is also present in those wireframes, so they can also evaluate our design.

Every individual is supposed to find as many problems by using any of the following heuristics[3]:

- Visibility of system status
- Match between system and the real world
- User control and freedom
- Consistency and standards
- Error prevention
- Recognition rather than recall
- Flexibility and efficiency of use
- Aesthetic and minimalist design
- Help users recognize, diagnose, and recover from errors
- Help and documentation

It is important to note that each expert needs to individually look at materials we have provided and evaluate the product in isolation from other evaluators, since the reviews of different people were shown to be statistically nearly independent, thus leading to significantly higher proportion of issues found in comparison to the case with single evaluator[1].

For each problem found, the evaluator should write a short title on what the problem is along with the detailed description of the problem, description of the difficulties created by the problem, specific context in which the problem occurs and suggest possible causes for the occurrence of the problem. Moreover, the estimate of the severity of the problem should be provided, being either a major or minor usability problem.

The aim of the evaluation is to measure and quantify the usability of the user interface of the prototype. The evaluators are instructed to report their findings as a list of usability problems, in the format described above. For each problem, they should provide a total of six points about that specific problem. To elaborate more on these points, the brief description instructs them to explain what the problem is so that we understand where to look for. The specific context where this problem can occur will give us a better idea of the cases we need to consider in order to approach solving this problem. The likely/actual causes will also indicate to us where our team made a poor choice in our initial design process, so that we are able to rethink our decisions. It is also asked of them to give us a severity estimation, which will be used by our team to prioritise which issues to prioritise. Finally, some suggestions for improvement are requested.

The requirements are specified in such a specific and strict manner, so that not only we receive an evaluation of high quality, which can be used to obtain a different perspective compared to that of our team, but also so that the procedure can be repeated by other experts and/or teams, thus making our research replicable. In addition,

the high level of detalization of the identified issues allows for more efficient development of mitigation method. As the evaluators also instructed to clearly indicate where the problem is by referencing slides and pictures, these will also be used to better understand the source of the problem. Our raw results will be in this format, and they will be used to improve our user interface in a way that makes it more convenient to use.

3 RESULTS

Our experts have reported a variety of problems from different aspects of our interface. We will categorise their findings regarding their severity into two categories, minor and major.(cite the paper maybe) This will be used to better prioritise them.

3.1 Major severity problems

In this section the problems that were quantified as "Major" by at least one evaluator are listed.

Problem 1. The card edit menu does not have a cancel button. Therefore, users are not able to reset the card to the content before start of the edit. The ability to restore the state of the card is highly desireable. A cancel button can be added that allows to restore the initial state of the card, discarding any new changes.
Problem 2. Tag edit menu does not have a cancel button. Hence, users are not able to exit from the menu of creation of the new tag, thus not limitating the freedom of users. Moreover, since the period to recall information stored outside of the working memory is larger than reaction time, it is quite likely that uses will enter the menu to create new tag automatically, and only after a small delay remember that there already exists the desired tag. The "Cancel" button should be added.
Problem 3. It is not clear what does task colour mean in customization menu, which forces users to spend additional thought on what it could be. While, after a little time it becomes clear that it references the background color of the cards, however this addition strain is undesirable. Labels content should be changed to the "Card color".

3.2 Minor severity problems

In this section the problems that were quantified as "Minor" by all evaluators are listed.

Problem 4. The task colour in the customization menu does not have a reset button. There might be cases when users don't remember the exact color that was set for the task before, and therefore such a button should be added.
Problem 5. There is no separation between board names on the sidebar. This leads to possible miss clicks on the boards, and thus might require additional time and stress for users to figure out that they are on the undesirable board. There are many ways to separate different boards on the sidebar, however, the way we prefer is adding a border inbetween board names.
Problem 6. The fields in the add board menu are in the not convenient order. The first label average user reads on the screen is the top one, which is "Add new board by ID". However, the second label "Create new board" we expect to be significantly more frequent choice. Thus, to minimize expected time spend by the user on this menu, the two labels and corresponding text fields should be swapped.
Problem 7. There is no indication of how the board ID can be closed after sharing. While the cases when the ID will dissapear are noted alongside prototype, there is no way for user to determine these ways just by looking at the overview. The solution we propose is to change the "Share board" button to "Hide ID" button while the ID is shown, and, moreover, hide it automatically 30 seconds after it was shown.
Problem 8. The boards can be deleted to easily. Accidental click on delete board button leads to instantenous deletion of the board, which is undesired behaviour. While indeed it is clearly indicated on the button, the action of board removal cannot be reset, thus there must be a confirmation prompt.

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3.3 Conclusions and Improvements

- In the card editing menu we added a cancel button so that the user can discard the changes he made and restore the previous state of the card.
- In a customization menu, for a task colour field we added a reset button so that the user can revert the colour changes he made in one click, instead of manually picking the same colour as it was before.
- In a tag editing menu we added a cancel button which discards the changes made to the tags so users can go back to the previous organisation of tags.
- We decided to surround the names of the boards with borders so that it is clear to distinguish and click on them.
- We made the decision to change the order of the "join" and "create" buttons.
- When the user clicks the "SHARE BOARD" button, the text of that button changes to the "CANCEL SHARE" so that it is clear how to get back to the default view of the board and clear the line with the board ID.
- The text was changed from "Task colour" to "Card colour", therefore the naming convention of individual tasks is consistent throughout the whole application.
- We added a menu that pops up everytime the user tries to delete a board and asks them if they are sure that they want to delete the board, together with all its contents.

4 CONCLUSION

After receiving the evaluation from the team we saw multiple oversights of different severity in our project design that have been spotted by one or more members of the evaluating team. We gained a lot of useful insight of problems users could experience so we concluded that we should fix them, improving the overall design of our application. Now with the implemented changes, it is easier for users to use the application without encountering any major problems and serious confusions.

From the response that we received from the evaluators and the way we changed our design, we can conclude that a heuristic usability evaluation provides valuable information about the design

of an interface from multiple perspectives. In future work, we will make sure to spend time on the user interface evaluation using all available techniques.

REFERENCES

[1] Jakob Nielsen. 1992. Finding usability problems through heuristic evaluation. In *Proceedings of the SIGCHI conference on Human factors in computing systems*.
[2] Jakob Nielsen. 1994. Usability inspection methods. In *Conference companion on Human factors in computing systems*.
[3] Jakob Nielsen. 2005. Ten Usability Heuristics.