OOP Project Report – Group XIX

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1 INTRODUCTION

1.1 Objective of Report

This report aims to evaluate the quality of the application our team has been developing. It focuses on extracting information from the raw feedback we have received from the team that participated in evaluating our application. The goal of this report is to describe the aspects of our product that are viewed as problematic by the users, analyse the data and derive conclusions to allow us to implement the desired changes and improve the application.

1.2 Prototype Application

The prototype that has been evaluated by our heuristic partner team is a mock-up of our product. It displays the layout of the user interface in its currently planned form, with the majority of the prototype displaying the existing features, yet with some changes introduced to showcase the modifications that are intended to be added in the near future.

The mock-up, structured as an interactive Figma prototype, showcases the layout of our user interface. It reflects the style we envision to implement in the coming two weeks. The structure of the mock-up demonstrates that of the application which we are currently working on, with the focus on the "flow" of actions between existing scenes.

The prototype provided to the team of reviewers starts on the "Join Server" scene where users are asked to input the server-address to which they wish to connect. Upon selecting the server, users are given a view which showcases all currently joined boards. When users enter a board, they are shown the Board View, which contains all vital board components, such as lists and cards. The mocks also contain scenes that showcase editing these elements. We included some mock-ups in *Figure 1* and *Figure 2*.

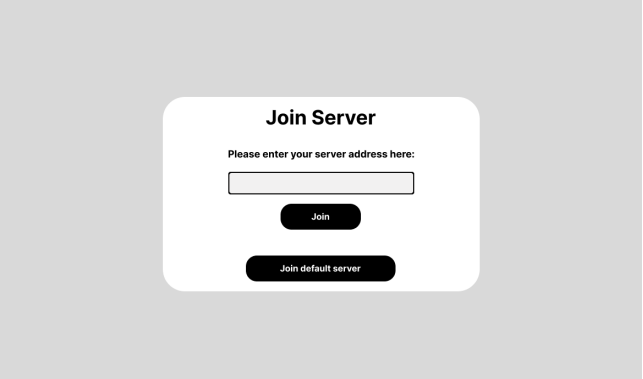


Figure 1: Input server address view

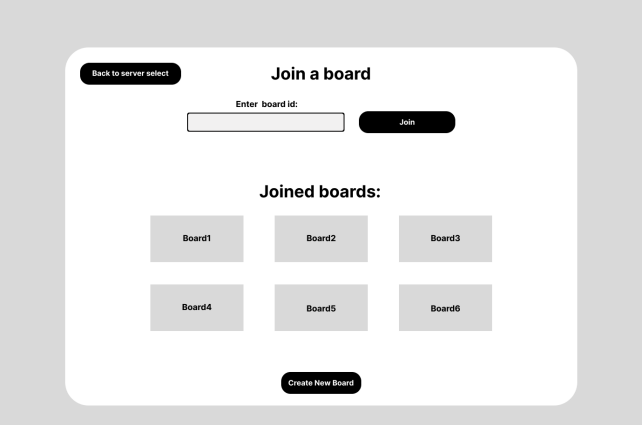


Figure 2: All boards view

2 METHODS

2.1 Experts

The Heuristic Usability Evaluation was conducted on a set of 6 experts. They are members of one of the other teams in the course so they have a lot of experience with working on the user interface. The experts have already worked on their application for about 4 weeks so they have a great understanding of the functionality of the application and the tasks that it is supposed to do. The 6 experts have a wide range of expertise levels for design and user experience since some of them have focused on the back-end while others have focused on the front-end part, which make them a great set of evaluators for our prototype.

2.2 Procedure

The experts have been provided with a word document containing 35 questions about their experience and interaction with our prototype, which were meant to help us identify the possible problems in our system and user interface. Among those questions there were certain instructions on how the users should use the application to allow them to find the all the problems that the system may have.

The evaluators have also been provided with a Figma prototype that almost resembles the desired final state of the application and which can help them easily navigate the application as if it was functional. All the buttons in the prototype take the user to another scene, in the same way as the application will.

The experts were instructed to start at the server selection scene and act as they have a server address from the server manager and to try to join that specific server, while also describing their experience in doing so. After that they are told to change their server and get back to the initial view in some way and give a rating to the flow of those actions as well as for the design of the server selections and board overview scenes. The experts are then asked to go back to the boards overview and click on a certain board

to be able to view it and also give a rating on the design of the board view. The next step is for them to go back to the multiple boards view and try to join a certain board by id and rate this process. The evaluators then must try and add a list to a board and after that is done to edit it and eventually delete it and rate their entire experience with the list workflow. Now they are asked to do the same process for a card in a specific list and rate that. The experts then have to try and add a tag to one of the cards and rate the design of the tags view. After all these steps are completed the evaluators are finally asked a set of questions regarding the overall design and how easy it was for them to navigate the entire prototype.

Our questions are designed to take the experts through some of the most applicable heuristics for our application form the 10 specified in Nielsen's paper[1] and to discover problems for those. The heuristics they would use would be the user control and freedom, consistency and standards, Recognition rather than recall, flexibility and efficiency of use and aesthetic and minimalist design.

2.3 Measures

The list of instructions and questions provided to the team of reviewers aims to measure the quality of user experience in our application. This involves measuring how easy it is to interact with different elements of our product and how clear the navigation and the structure have been designed to be.

The users were given a series of textual instructions guiding them through the application and were asked a series of questions relating to each section of the mock-up. This involved two types of questions – a rating question, which asked users to grade the interface on a scale of 1-10, and an open question which asked the users to describe why they made that choice. The former provides a way to easily quantify what aspects of the product need to be adjusted, while the latter gives insight into the reasons for the choice and problems that the users experienced.

3 RESULTS

3.1 Findings

The questions given to the experts helped us discover a lot of problems with our prototype design as well as the overall flow of the application, which will be useful in the development phase later on. Moreover, there were few problems that everybody has found so the set of experts we chose proved to be quite helpful for identifying different issues.

We have identified some problems regarding the design of the application. The colors were a conflicting topic since we had mixed reviews, some experts thought the colors were too much, especially for the tags in contrast with the rest of the application's minimalist color theme, while others found them not exciting enough. There were issues found regarding the placement of certain buttons, such as the "Add List" button which was considered to be placed too high as well as the "Join" button which was thought to be better placed next to the text field in order to make its purpose clearer. The experts have also found problems with the text of our application, for example they suggested to shorten the "Please enter board id" text and to center the "Edit Card" one. Other issues related to design were that the "Back to server select" button is gray, while all others were black and another evaluator remarked that the overall design of the application was too serious.

We have also found a lot of problems regarding the user experience of our application. One of the most common issues the experts have pointed out was that the "Add tag" button was not placed in a natural way and they found it difficult to add a tag, suggesting that it would be better to place it inside the card since no user would add a tag without using it. One evaluator also found it unclear what the "+" button does on board selection view and that the "Join a new board" text was ambiguous. Another problem that was pointed out to us was that renaming lists was not intuitive. A problem that was found by more experts was also that we don't need the add list scene and that we should just be able to rename the lists in place. One expert also reported that they should be able to see the card details without editing them. Other problems regarding the difficulty of users to interact with our application were that they could not edit the tasks and that it was difficult for them to pick a color using the RGB values, rather than a simple color picker.

The evaluators also found problems present in the prototype that weren't an actual issue regarding the intended use of the application. An example is the lack of admin contact which we find futile for the scope of Talio. Another area that is lacking from the point of view of another expert is the absence of the option to edit tasks that were added to a card. This is a work in progress feature that will be added to the application as soon as possible, so while it is an actual issue, it isn't part of the heuristic usability analysis.

We have gathered numerical data which has been aggregated and processed to produce *Figure 3* and *Figure 4*. The questions have been labeled, and below we provide a summary of what they represent.

Question	Scene or element	Question topic
Q6	Join Server	design
Q8	Board View	design
Q9	Board	ease of joining
Q12	Add lists	design
Q20	Add cards	design
Q23	Edit lists	design
Q28	Tags	design

Question		Rubric
Q5		Navigation quality
Q30		Ease of use
Q32		Consistency of design

3.2 Adjustments

As part of the review process, we have gathered numerical data on specific questions sent to the reviewers. This data contains numerical, real values, associated with the respective questions from where it was gathered. As part of the aggregation of data we have extracted this information from the received feedback, grouped it by question number, and calculated the averages for each of the questions. We have also taken the data, pre-average, and created box plots that display user satisfaction with different parts of our product. We have associated the question number with its corresponding description. Python's "Seaborn" library was used to create and render the plots.

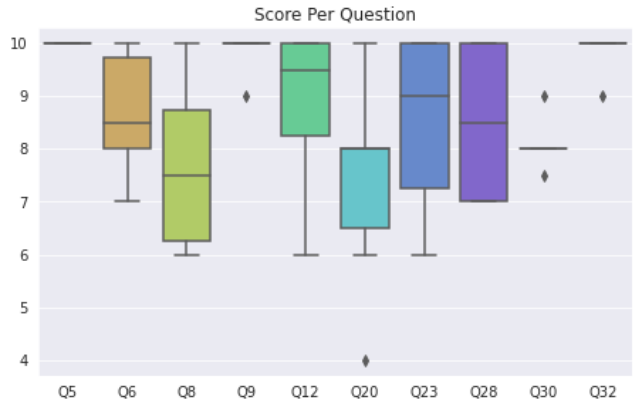


Figure 3: a box plot of recorded scores per each numerical question

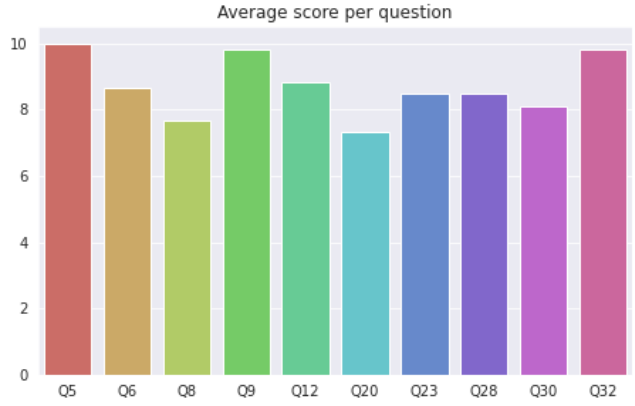


Figure 4: a bar plot of averages of recorded scores per each numerical question

3.3 Prioritization

Various problems were identified by the prototype evaluators. To be able to get an accurate depiction of the functionality of our application we ranked the found issues using a priority tensor. The three factors that we've taken into consideration when modelling this three dimensional priority array are the impact of the problem on the application as a whole, more exactly the severity of the issue, the amount of instances that it was reported in and the overall experience of the evaluator. To get a good grasp of each of the six expert's knowledge on the task that was given to them we asked them to provide us with a description of their accomplishments and the work that they have completed in their current app development process. On top of that, we required that they rate themselves from one to ten in terms of their confidence and overall capabilities in evaluating UI/UX design.

The reason for adding a third metric to the expected priority matrix, the overall experience of each of the six experts, thus making it a tensor, was the number of conflicts between the experts' findings. Design was a much disputed topic among the evaluators where we even receive totally polarized feedback from two reviewers, but the fact that we also took into consideration the experts' affinity on the subject we managed to easily find a consensus.

Another way we managed to differentiate the importance of some of the findings was the actual severity of the problem. Some of the evaluators found issues that, while being present in the actual application, couldn't be modeled in the prototype using the chosen framework. This also helped us rank the expertise of the reviewers.

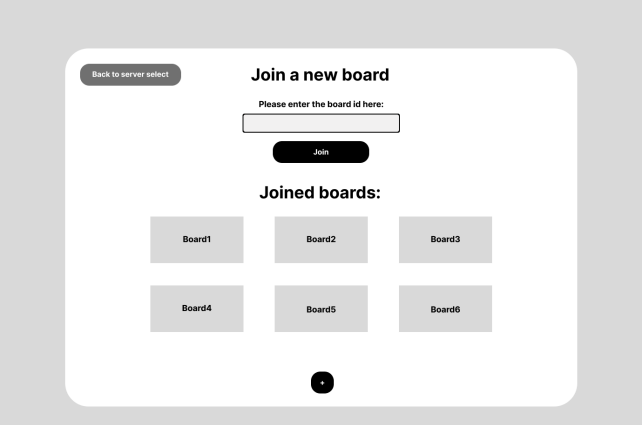
4 CONCLUSION & IMPROVEMENTS

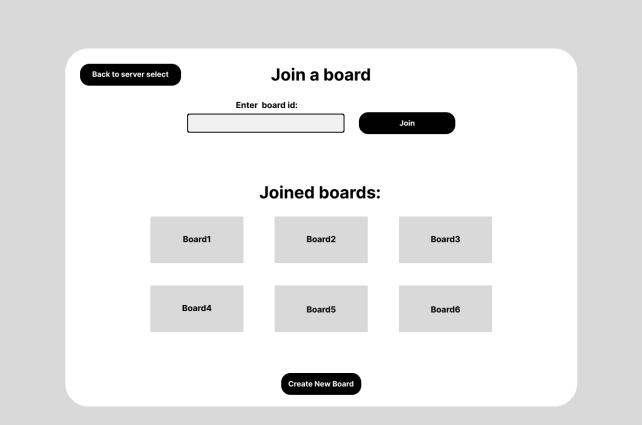
Based on the results of the heuristic evaluation, several problems were found with the prototype design and user experience of the application. There were issues with the placement of buttons, the colour scheme, and the text used throughout the application. Regarding user experience, the experts found it difficult to add tags, edit tasks, and pick colours using RGB values. Some evaluators also found it unclear what certain buttons do, such as the "+" button on the board selection view.

To improve the application based on these results, we will make several changes. Firstly, we will adjust the placement of buttons such as the "Add List" button to make it more intuitive for users. Secondly, we will address the conflicting feedback on the colour scheme by implementing a more balanced approach. Next, we will simplify the text used throughout the application, shorten some texts such as "Please enter the board id here" and make others clearer as the "+" button and the "Join new Board" label. Additionally, we will redesign the tag system to make it more natural and easier to use, such as by placing the "Add tag" button inside the card. Finally, we will make editing tasks and colour selection more intuitive by implementing a simple colour picker instead of using RGB values.

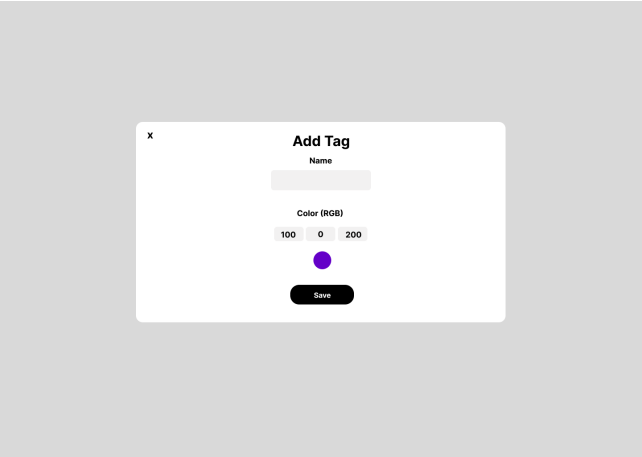
Previously, the application flow was not optimal, with placement issues, and unclear text. Afterwards, the application should be more intuitive, with better placement of buttons, a more balanced colour scheme, more straightforward text, and an improved tag system. Additionally, users would be able to edit tasks and select colours more intuitively with the implementation of a simple colour picker.

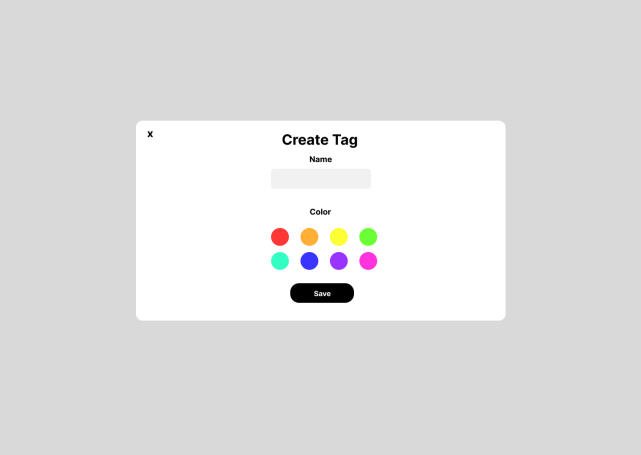
The improved version would be better because it addresses the issues found during the heuristic evaluation, making the application more user-friendly and intuitive. The changes we propose would simplify the design and make it easier for users to navigate through the application.





Here we can see the Board Overview before and after integrating the feedback from the evaluation. As you can see the button has been moved next to the input form, the plus-sign has been changed to a text button, and the back-button has been given a different colour.





Here we can see the add tag screen which has been changed based on the feedback. Before we had to input RGB codes to decide the color, after the feedback integration this has been changed to a few standard colours from which the user can choose.

REFERENCES

[1] J. Nielsen. 1994. Heuristic Evaluation. In *Usability Inspection Methods.*