OOP Project Report – Group 74

Anastasia Rokoma, Antreas Ioannou, Aryan Daga,
Eirini Zambarta, Rafael Alani, Victor Purice

ABSTRACT

This document is a Heuristic Usability Evaluation Report on the team project of Group 74. The report evaluates the usability of the application 'Talio', based on the project prototype provided by the team. Six computer scientists with relative knowledge in usability testing were recruited to evaluate the prototype using Nielsen's usability heuristics. The severity of each issue was rated in a scale of 1 to 5. The results indicated several issues with the prototype, including but not limited to, incorrect placement of objects and lack of error messages. After analysing the results, the team declared the acuteness of each issue based on the number of experts who found them and the average grade of severity they scored on the scale. It is decided that each problem will be tackled with an order of priority. The report concludes with specifications on improving the usability of 'Talio'.

1 INTRODUCTION

We have been given a team the task to evaluate our report on our current work. The project's requirements are the same for all teams so by working on their own application they should be able to spot mistakes and suggest improvements. Their knowledge of Heuristic Usability will be the guide of the evaluation, as well as their understanding of the app's expectations and basic requirements. This will help us improve our app to be more user-friendly and professional. The prototype we have provided is in the form of a video, which clearly indicates the connection between the mockups of the Talio App. We have also added a written description of the video. The description presents information for the general operating system from the user's perspective, like the different available functions so far.

2 METHODS

Regarding the Heuristic Usability Evaluation, six computer science students were recruited as our experts. The experts have attended a lecture to being educated in evaluating products, following Nielsen's usability heuristics. Due to their occupation, they have not had further experience with the subject.

For the evaluation, the experts were given the prototype that was described, which they could interact with and explore how the pages were connected with each other. A document with detailed instructions was given for what they needed to do. They had to first examine the app and find heuristics based on Nielsen's theory, which we provided*. They were also instructed to rate the impact of the issue from one to five, five being the most important to fix. The format they had to describe each heuristic on is the following:

(1) Problem description
(2) Likely/Actual Difficulties
(3) Specific contexts
(4) Assumed causes

After inspecting the application individually, the six of them needed to host a meeting, where they discussed their results on the evaluation. In addition, the experts completed a table for each heuristic, which showcased the impact of the problem and which students were able to recognize the issue. This would show us the impact and the frequency values of each heuristic, which can be used to create a table of results. Its purpose is to know the severity of each found problem in order to prioritize them and spend the appropriate amount of time and resources on each one. The final format of the review consisted of a list of heuristics, where for each one there was included a table of its impact value given by each expert, as well as a short paragraph describing it, or optionally whether they had found the issue. The table had this format:

Group Member	Impact

3 RESULTS

For each of the 10 Heuristics described by Nielsen's research we have selected the top one and we are going to give a brief overview as to why these are the most pressing ones.

1: All 6 group members declared that there are unclarities regarding proper "Visibility of the system status". The problem is apparent when connecting to the server, since there is no confirmation whether this happens successfully. They also mentioned that when adding a card, a list, or joining a board, after filling out the new details or pressing done there is no evidence that the action has gone through. The students suggested the addition of such signals to avoid any confusion to the user. The average severity for this issue was rated 3.16, which is quite alarming.

2: 3 out of the 6 experts suggested that the IP Address box, that is shown to the user when trying to connect to a specific server, might be a difficult concept to understand. Many users may not have the knowledge of what it means or they could not know the server they should connect to, which could prevent them from using the app. This heuristic is part of matching between system and the real world in Nielsen's theory. The experts rated it an average of 2 regarding the impact, thus the heuristic has a low to medium severity considering only half found the problem.

3: 4 out of the 6 experts indicated that the user cannot abort a task creation once they started creating one. This does not provide the intended amount of freedom to the user, as an accidental click on the button forces them to create a new task. This corresponds to the "User Control and Freedom" heuristic in Nielsen's theory. The average severity of this problem, according to the experts, is

3.33 indicating an average importance.

4: 50% of the experts suggested a change in the placement of the buttons. More specifically, there was a unanimity regarding the positioning of the 'delete' and 'add task' buttons. According to the experts, the 'delete' button should be on the bottom of the list whilst the 'add task' button should be at the top of the list. The average user would expect those buttons in the aforementioned locations, so them not being their can create a confusion. This corresponds to the "Consistency and Standards" heuristic in Nielsen's theory. With an average of 2.66 , this problem fluctuates among the mild ones.

5: There is no option to choose whether to delete a card or not. When a user accidentally clicks the delete button, the card gets deleted without confirmation, which could lead to trouble for the user. The solution to this is to add a pop-up that appears and asks for confirmation for the deletion of a card. A similar approach could be taken for the deletion of a list. - Severity rating of 4.

6. For the heuristic related to minimizing user's memory load by making the elements, actions and options visible, the most common problem (reported by 5/6 experts) was that some buttons are not properly outlined and might cause visibility difficulties for the user(ex: disconnect, go back). Another problem that has been detected by an expert is the fact that the join board by key text field is hardly visible, which might harm the user experience if the user uses it frequently. The experts suggested adding a hovering effect to the buttons, as it might increase their visibility. All these problems have been assigned a low grade of severity.

7: It could be more efficient for users to be able to delete a card directly from the board interface, rather than having to enter the card first. If adding a delete button to the created cards is overwhelming the interface with new elements, they could be hidden and displayed in a transition when the pointer hover over the card. Also, some users might not be aware of the existing keyboard shortcuts, which could reduce efficiency. Adding a visible button that displays the existing shortcuts could be beneficial. (Severity - 1)

8: The team of experts didn't find any issues with respect to the aesthetic and minimalist design heuristic.

9. For the heuristics related to helping users recognizing, diagnosing and recovering from errors, all the experts reported the problem that the prototype that was provided to them didn't contain the errors messages when performing the usual application tasks(ex. invalid server error message) and assigned a high severity problem to this issue(5 - max severity).

10: For the final one, only 16.5% of the experts found the addition of a help menu a necessity as the app design follows the industry standard guidelines, as such the user should have a strong intuition on how everything works based on previous interactions with other similar systems. This is also in accordance with the principles described in [1]. The possible problem identified by one of the experts is related to the nonexistence of a keymap for users that would like to see all keyboard commands listed in one place. This is a valid concern, as keyboard bindings are much less consistent than the rest of the design, being more use case-dependent from one application to another.

Besides the aesthetic and minimalist design of the app all other heuristics were not followed to a high degree, this can be seen from the fact that their impact of some of them reach level 5, which means the developers completely ignored best practices in some cases.

4 CONCLUSIONS AND IMPROVEMENTS

As each of the problems described above are at the top of their respectable category, they take top priority in solving them, as such we have come up with a solution for all of them.

1: In order to secure clear visibility in the system, we will add reassurance messages such as "You have been successfully connected to the server" after the related action has been completed. In the opposite scenario we already make sure the user knows there is a problem by stating there has been an error, and what the problem is. Also to ensure explicit communication with the user, we will add a spinning wheel for the duration it takes to connect to the server, or to extract data from the database when something new is added or something is deleted.

2: To fix this heuristic, we will add a comment below the IP Address box that educates the user on what it means. It would suggest that the IP Address is the key of the board the users want to connect to and that they should use "localhost", in case they don't know a specific one. This would ensure that no users are confused and that they can successfully and easily log in the app. Despite having low importance, it is also easy to fix so it is worth the time.

3: To fix this issue, a 'cancel' button will be added in the 'add task' interface allowing the user to cancel the creation of the task. This will provide more freedom to the user, since an accidental creation of a task will not have to be completed. Since the severity of this problem is above average and the solution easy to implement, this feature is amongst the priorities.

4: To resolve this issue, the location of the 'add task' button will change from under the list to the top of the list. The new placement will be more user friendly as the button will stand out more and will be at the expected location. Even thought the severity is not very high, this feature's implementation is relatively easy, determining an overall above average ratio .

5: To resolve this issue, it is recommended to implement a confirmation message whenever a delete button is clicked for a list or a board. This would prevent accidental deletions and provide a better user experience. The severity of this issue isn't very high and implementation is easy, so this feature takes priority.

6: The initial app didn't provide enough tools for the user to interact with the buttons and see if the presses worked. To fix the

issues addressed, the color and border of the buttons "Go Back" and "Disconnect" in the app will be changed, such that they will become more visible to the user. Also, as one of the experts suggested, a hovering effect will be added, such that the user will see if the app responds to hit intention to interact with a button. *The join board by key text field is hardly visible, as a text field that you will use a lot i believe it should be bigger* (Heuristic Evaluation). The team thinks that this issue is not a relevant one, as the join board by key text field is visible and is located at the top of the page, hence easy to notice by the user.

7: To resolve this issue, a 'delete' button will be added to the 'list view' interface of the 'dashboard' so that we can delete a card right from the main screen instead of opening up the card and then deleting it. The severity of this issue is low and implementation is easy.

9: Although we implemented these features, the prototype didn't contain them as we didn't think of creating mock ups for the unexpected user behavior. While at the time we created the prototype it didn't make sense to add them, now the team realizes that the prototype must have included them as well, as the group of of experts must be able to freely test every possible user behavior, not only the ones that don't generate any error.

10: The implementation of a keymap although a great suggestion is not of urgent priority. At this point, the application lacks such a feature. Depending on when it will be added proper measures can be taken at the time to help the user in adapting to a more keyboard-friendly way of using the app. A help menu can be placed in the upper right corner of the app, besides the aforementioned feature, any other more advanced ones, that will be added with the growth of the app could have tutorials placed in the same menu on a need basis.

We believe this Heuristic Evaluation identified the biggest flaws in the design of the app, allowing the developers to modify it accordingly to deliver a better product for the final users.

5 CITATIONS

You can cite papers, e.g., [1]. To make the references appear, make sure to compile the latex sources, then bibtex, and then latex twice.

REFERENCES

[1] First Author, Second Author, and Third Author. 2018. An Examplary Paper For The References. In *International Conference on Silly Walks.*