OOP Project Report – Group LXVII

Georgios Kontos, Ioan Leolea, Jakub Matyja,
Vlad Popescu, Shashwat Sahay

ABSTRACT

Due to the prevalence of desktop applications in our current age, the appearance and ease-of-use of a product are crucial features for first-time users. Therefore, the analysis of the design and human-computer interface is an essential step in the development of any application. The aim of the evaluation is improving our program's design and usability. The prototype that will be used for the evaluation is a walk-through video of our application[1].

1 METHODS

Experts

The recruited experts are 6 students that are familiar with the requirements of the application, since they are developing a Talio app of their own in the OOP Project. Their level is slightly above average, since they have been instructed about the procedure and heuristics, and had the opportunity to perform an evaluation during the HCI lecture.

Procedure

The evaluation procedure took place according to Nielsen's "How to conduct a Heuristic Evaluation"[2]. The experts need to watch a video of our prototype application and they were sent the steps of the procedure via text messages.

(1) We sent the prototype video to all of them and a overseer was always available in case of any questions or difficulties.
(2) We instructed them to watch the video at least 2 times and communicated them a list of things to look out for.
(3) We asked the experts for feedback when they considered to have a good grasp of the application and the potential issues.
(4) The Experts were asked to complete a form with additional questions from the team. (maybe)

Heuristics

The experts had to follow Nielsen's 10 heuristics[1] in their evaluation:

(1) Visibility of system status;
(2) Match between system and the real world;
(3) User control and freedom;
(4) Consistency and standards of the design;
(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.

Measures (Data Collection)

We aim to measure how easy to use and intuitive our application. In order to do this we are collecting the feedback after experts' first interaction with our program. Afterwards we are categorizing it in accordance to the heuristics presented above. We are collecting data (feedback) by two means:

The first one is by gathering experts' "first impressions" of our application after a couple of test runs. Afterwards the data is filtered and reinterpreted such that we can implement the proposed solutions to the issues in our final app.

The second one is by sending the experts a form with questions in regards to how easy performing some specific actions is. The objective of this procedure is finding out how easy navigating in the app is. The gathered results will be plotted.

2 RESULTS

Upon receiving feedback from the experts' "first impressions", we managed to group all the points in 16 different interface issues that cover 8 out of the 10 Nielsen's heuristics.

The most common categories in which a design problem could have been placed were "Flexibility and efficiency of use" and "Consistency and standards of the design". Contrary, (2) Match between system and the real world, (3) User control and freedom and (9) Help users recognize, diagnose, and recover from errors problems were not found by the experts, since the application uses a clear vocabulary, without technical terms, while the user can smoothly navigate through the pages. The following list contains every point found by the experts, sorted descending by detectability, which is written in parentheses. Some of the items are accompanied by suggestions:

(1) The design is dull and not informative enough. *#8 Aesthetic and minimalist design* (4)
   - The user interface of the "Sign in" page could be subjected to improvement. A thicker font for the text and a place holder for the username in order to be more clear could be used. The buttons could also be larger, since there is a lot of empty space.
   - Make fonts bold and buttons bigger and add placeholders for all text fields.
   - The font size of editing/adding seems aggressively big.
(2) Users should be able to choose which server they want to join instead of being connected to a server instantly after logging in. *#6 Recognition rather than recall* (3)
(3) In the Board view the board page should be open in the background. All the operations (edit, delete, add) should be pop-ups. *#7 Flexibility and efficiency of use* (3)
   - It is confusing as it is unclear as to where and what we are editing.
(4) There is not an extra info page. This would help the user understand what the point of the app is and how it works. *#10 Help and documentation* (3)
   - Maybe there could be an info box when viewing all boards.

(5) The user has a hard time recognizing individual cards. *#4 Consistency and standards of the design* (3)
(6) There is no warning that a board/list/card will be permanently deleted. *#5 Error prevention* (3)
- Add a second check explaining what will happen.

(7) Users do not know that they can drag and drop cards. *#6 Recognition rather than recall* (2)
(8) The users cannot see which username they are currently using. *#1 Visibility of system status* (2)
(9) "View Board" and "Join Board" buttons are confusing and it seems that they have the same function. *#4 Consistency and standards of the design* (2)
(10) When creating a third list a scroll bar appears, so dragging and dropping a card between the first and last list is not possible or it is a challenge for the user. *#7 Flexibility and efficiency of use* (2)
(11) Too many users joining a board can cause an overflow in the user list column in the main page. *#7 Flexibility and efficiency of use* (1)
(12) Dragging a card in the middle of a list does not make it easy to understand where the card is going to be dropped. *#1 Visibility of system status* (1)
- Have the cards move.

(13) The title of the board should be more visible and detached from the window bar. *#1 Visibility of system status* (1)
(14) Dragging cards in the board view has a slight delay, which can cause problems when multiple users would be able to edit a single board. *#1 Visibility of system status* (1)
(15) The placement of the 'cancel' and 'save' buttons is inconsistent between the different windows. *#4 Consistency and standards of the design* (1)
(16) Windows have different sizes, titles and text fields are inconsistent in formatting and sizes between different windows. *#4 Consistency and standards of the design* (1)

Evaluating the frequency and the severity of each issue, we managed to compute the following matrix:

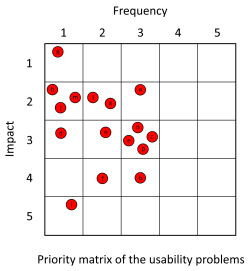

Fig. 1

3 CONCLUSIONS AND IMPROVEMENTS

As expected for the current stage of the application's development, there are a lot of weak points in terms of UI and usability. For the most part, evaluators had similar views regarding the design and friendliness of the application. This can be observed in the frequency matrix (see *Figure 1*).

A common element in the experts' feedback regarding the design was the dullness of the pages. Most of them do not stand out in any way or are not pleasing to the eye. The main problem being that the proportions of the pages are too small and sometimes information is hard to distinguish. We will fix these specific issues in the following way:

- stylize the pages: add more colors, possibly pictures, this point will be heavily implemented and improved in the "Customization" requirements.
- make the pages' design consistent across the whole application, by ensuring all scenes use the same terms for specific actions like add, edit, delete.
- make the overview page of a board larger such that lists are longer and wider.
- increase the font size of the cards in order for the tasks to be more visible.

As for the usability part, the main issues arising in the data are that the user is rarely informed about the current status of the application and assumed (potentially wrongly) to be experienced with similar task-planner applications. As a means to solve these problems we will:

- make all of the editing and deleting pages pop-ups, such that the user can see the current status of the system.
- implement a feature where a warning message is sent whenever an object is about to be permanently deleted.
- write the name of the user along with the current page in visible manner in the upper part of all pages.
- add a button that when pressed informs the user about all objects he can interact with and actions he can perform on the specific page.

Concluding, a stable interaction between the human and the computer constructs an important part not only in the highly-paced technological field, but also in the well-being of the individual. Through this process of improvement of our application, not only we managed to find innovative solutions to the problems that were addressed by our selected experts, but also serve as an example of how precise the measurements are in the field of heuristics.

More issues are there to be found and considering the early stage of the application, as well as the lack of experience of our evaluators, we are expecting to encounter even more usability concerns as we continue developing a much complex software. Nonetheless, we remain committed to improving our application and delivering an exceptional user experience that meets the expectations and needs of the target audience. [2]. [1].

REFERENCES

[1] 2023. Group 67 Talio prototype. https://www.youtube.com/watch?v=kJYlVztAcGo
[2] Jakob Nielsen. 1994. 10 Usability Heuristics for User Interface Design. NN/g Nielsen Norman Group. https://www.nngroup.com/articles/ten-usability-heuristics/