Ho'omana'o

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ABSTRACT

Ho'omana'o is an application which addresses an issue in the medical community. The issue of growing numbers in no-shows, as patients may happen to forget their appointment or have no way of being reminded of their appointment. Our application handles such situations through anticipatory guidance for patients to know when their future health care needs are scheduled.

Author Keywords

Controlled settings directly involving users; functional requirements; non-functional requirements; iterative design model; Human-Computer relationship.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

For our project, we decided to create a web portal where users can add reminders for their doctor's appointments. Through a web portal, it would be more accessible between varying platforms and user friendly towards the elderly if they use bigger screens. In our data gathering, we learned from a medical professional that there was no reliable way for patients to be reminded of their appointments. Both patients and doctors are at a loss when there are "no-shows". Where patients might not get their necessary prescriptions or check-ups. On the other hand, doctors lose time, money, and find it their responsibility to ensure that patients know exactly when the next appointment is scheduled.

Our target population are users that are eighteen or older, where they are able to make appointments within certain intervals, and for patients who require additional reminders. They will be able to add, edit, or delete reminders for appointments. This way patients are able to better remember when their last check-up was or when they need to come back in for a follow-up appointment to reduce the amount of "no-shows".

DESIGN

Our application design is centered around being intuitive and easy to use. The purpose of the application is to decrease the number of no-shows at doctor appointments by having a centralized place for reminders. Our features such as having a visual calendar, an appointment list, and the ability to easily send multiple reminders support this goal.

Our non-functional requirements were: internet access to use the application, reliability, have it be secure, responsive across multiple platforms, and for it to be English. These non-functional requirements are limited due to time constraints, but in the future we would like to implement multi-language support.

Our functional requirements were that users should have the ability to add their appointments, set reminders via email or text, have a monthly calendar that highlights upcoming appointments, and panel that showed upcoming appointments.

Initially, we came up with three different design concepts, with one of them allowing health providers the option to input appointment reminders for their patients. Another design concept put the responsibility on the patient and did not allow health providers to input appointments. The third design concept was debating between what type of reminder to send out. In the end, our refined concept was a mesh of all three because we believed all were important when it came to meeting the purpose of the application. However, due to the lack of time, we were unable to allow health providers the ability to input appointment reminders.

Our final design is a functioning calendar system where users are able to add, edit, and remove appointments and reminders.
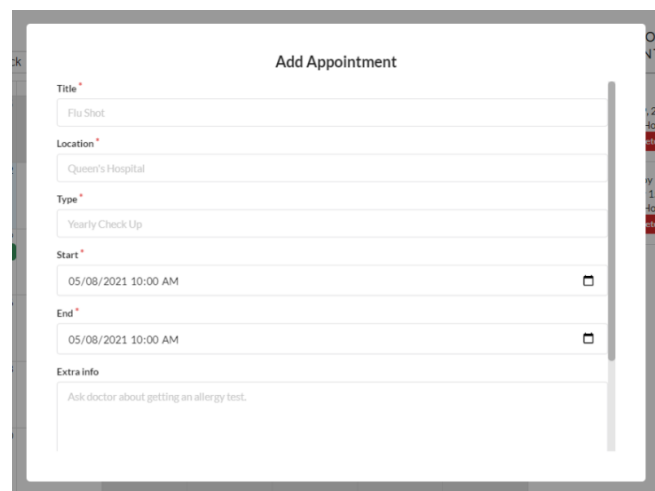

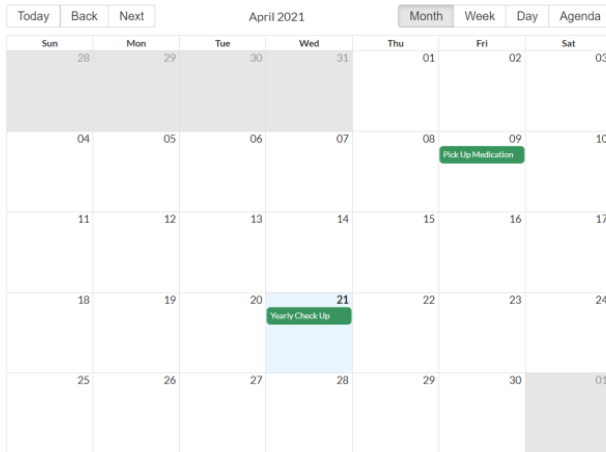**Figure 1. Users have the ability to add appointments and reminders.**

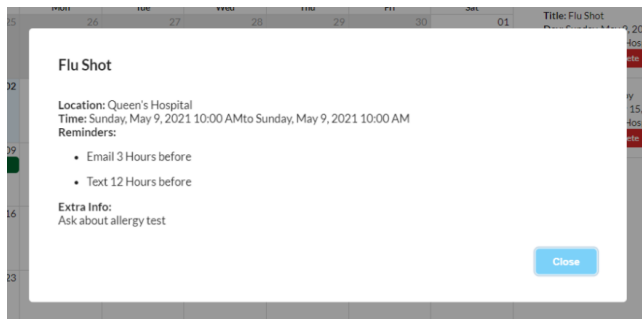**Figure 2. Functioning calendar system**

Figure 3. Users have the ability to click on the calendar to view appointment information.

IMPLEMENTATION

Our application uses a calendar user interface (UI) similar to google calendar. Once the user logins, they are able to click on the day they would like to add a reminder for. Once this is done, a pop-up will appear where they are able to fill out all the necessary information to create their reminder for an appointment. A potential issue we found with this implementation was whether it was intuitive enough in order to add an appointment reminder. We found in our user-testing that if they previously used google calendar it would be easier to understand. To alleviate this issue, just in case for users who have not used google calendar before, we provide new users with a Help Page where they can learn how to use our application.

When the reminder is created, they will be able to view on the calendar and on the side panel under upcoming appointments. Under this panel users can either edit or delete these reminders if needed.

EVALUATION

The evaluation plan that we developed followed the "Controlled Settings directly involving users" methodology in which we used usability testing to measure the intuitiveness of our website. We gave users a set of instructions to follow and let them have a hands-on with the website. The three questions asked were: Is the application intuitive enough? Are there any complicated/difficult steps? What do you think could be improved with this application? We asked four users to test our application with these set of instructions and our results indicated that using the application was relatively easy. We also evaluated that our website met most of the functional and nonfunctional requirements, except the functional requirement of setting reminders through email or text, which our group did not yet implement. Additionally, there were three main issues that were common in the majority of the interviews: (1) When creating an account, users are redirected to a page that is not in use. (2) The sign out page did not match the rest of the pages. (3) The reminder options were a bit confusing for users as it was blank. These problems occurred because of the time constraint, forcing us to focus on the main functionality of the application for the prototype, which is why we may have overlooked parts that were not as major, or did not implement the reminder function in time. Our proposed solutions for these issues were to redirect users to the help page, add more to the sign out page, and to have placeholders for the reminders section.

REFLECTION

Upon our reflection, we concluded that the iterative design model is a good way to revise and revamp our application. It allowed us to get a working user-friendly application in a fast and easy approach. As programmers, we have a different set of skills and knowledge that an average user might not have. Having outside feedback at every step of the process helped us stay on track of creating an application that has a simple and functional Human-Computer relationship. An iterative design process allows developers to work more efficiently while constantly improving their design.

If we could develop the application from scratch again, we would make a couple of changes. The first change we would have made is to conduct observations along with our structured interviews. Due to the current pandemic, we were not able to observe our target population or users. If we had, we might have been able to uncover more useful functions to solve our health-related problem.

Another technique we would have tried to use is A/B testing. A/B testing involves creating two or more variants of a page or pages of our application and showing them to users. It allows us to collect information and determine what works better and what appeals to the users more. Unfortunately, due to time restraints, we were unable to try this method. We think that this would have refined our application more and might have allowed us to create a more useful application.

Overall, we are happy with how our application turned out. We learned a lot about the iterative design process and how helpful it can be when developing. It provides a collaborative environment to quickly develop an application that may benefit and resolve a current medical issue.

TEAM COLLABORATIVE WORK ASSESSMENT
Everyone had a hand in all stages of the project: application development, brainstorming, design process, interviews, and reports. Our team leader, Lucy Rock, provided graphics and created the landing and sign-up pages. Our main programmer, Jennifer Hsu, was tasked to the calendar page. Deshay Clemons, was tasked with the login page. Jin Yan Wu was tasked with the user account settings page. Anh Le was tasked with the help page.

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