

## WellWatch

Caroline Debs, Ross Thorburn, Alexis Weill, Jessica Zhao

WellWatch is a personal assistant that helps users incorporate healthy and spontaneous activities into their day and form positive habits.

# Final Project Report

December 5, 2015

*WellWatch - "Use free time well to be well"*

## Problem and Solution Overview

We strive to give people the opportunity to live healthier lives in a holistic sense. During the needfinding process, we realized that students live increasingly busy and hectic lives, making it difficult to incorporate positive behaviors into their routine. Our app is a personal assistant that helps people learn healthy and spontaneous activities by giving suggestions based on the user's schedule, how much time the user has, and the user's surroundings. The chat-messaging client gives users a familiar, friendly and convenient way to receive recommendations. Our app also integrates with Calendar to help people form positive habits by adding recurring events and pushing notifications.

## Tasks & Final Interface Scenarios

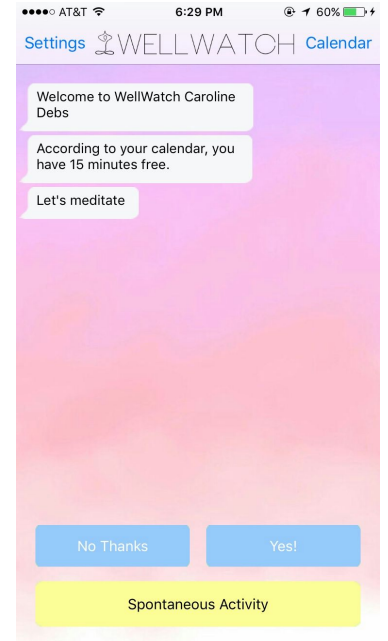
### Task 1: Integrate Spontaneity into Your Routine (Easy)

Through the needfinding process, we found that while people understood that keeping a routine was important for productivity, the most enjoyable parts of their days were often spontaneous. Thus, we decided to incorporate spontaneity into our app as a method of encouraging people to add new positive activities to their routine.

This task is achieved simply by pressing the "Spontaneous Activity" button located at the bottom of the app's main screen. After pressing this button, the user is redirected to a random activity. The user is redirected to a screen with a randomized activity with default time duration of 15 minutes. For example, the user would be taken to a screen that suggested walking around Main Quad with the timer set at 15 minutes. After finishing the activity, the user can rate the activity, giving us a way to inform future activity recommendations.

### Task 2: Learn New Healthy Activities (Medium)

In relation to the first task, we wanted to give users the ability to perform new, spontaneous activities. Thus, while some tasks offered by our application require no additional skills (i.e. take a walk around the Main Quad), some of the healthy activities require new skills. For instance, if someone did not know how to meditate, they might not go about meditating in the most effective way.



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Thus, we want to offer users a way to learn healthy habits by providing guidance and information about each of the activities. For each activity, there is an accompanying video and concise description of the activity. This task is achieved by the user watching the video and learning how to properly execute the activity.

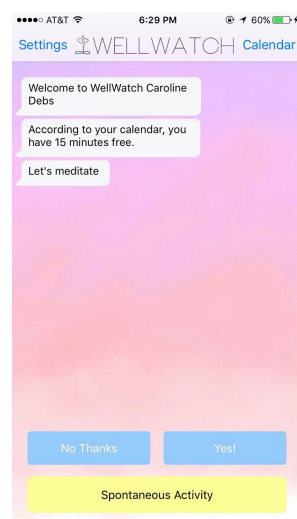
### Task 3: Add Positive Activities to Your Routine (Difficult)

We wanted to go one step further than simply teaching users new healthy behaviors. Going back to our needfinding results, we found that people highly valued routine and felt like maintaining routine was essential to their health. Thus, we wanted to incorporate these new activities into the routines of users by adding activities they enjoy to their weekly calendars. By adding recurring events which give users notifications on their calendar, this helps people form positive habits.

A user can achieve this task by completing an activity and rating an activity positively. In the case of WellWatch, this means that the user rates an activity 4 or 5 stars on a 5 star scale. The user will be prompted to add this activity to their weekly calendar. The user will accept to add the activity to their weekly calendar. At the same time every week, the user will be prompted by WellWatch to perform the activity. Thus, a routine incorporating the new healthy activity has commenced.

### Task Walkthrough 1: Integrate Spontaneity into your Routine

We offer spontaneity in two ways: either by prompting them based on their calendar availabilities (through notification and/or chat interface), or if they ask for a spontaneous activity (see yellow button).



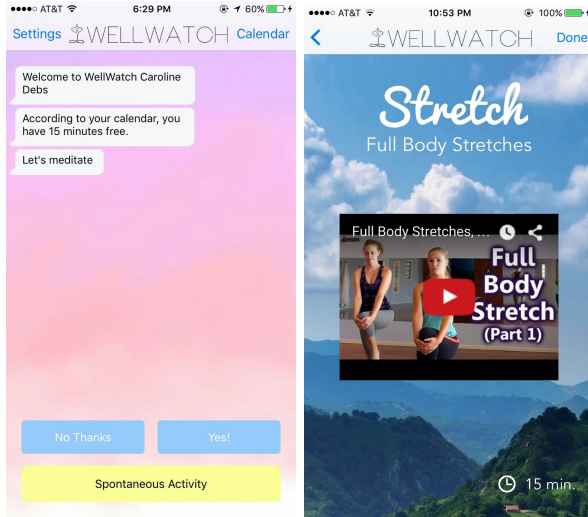
### Task 2: Learn New Healthy Activities

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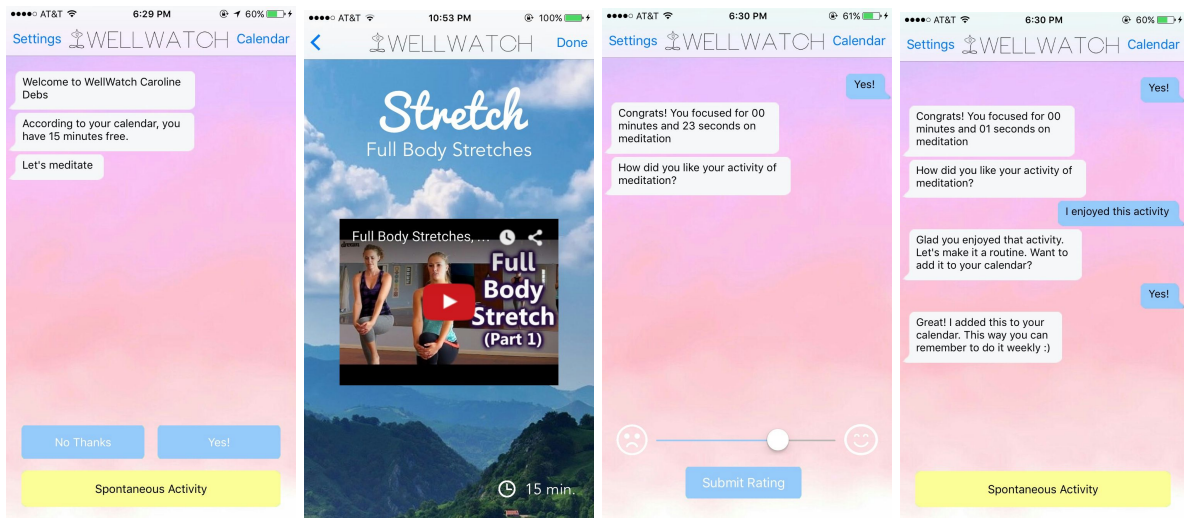
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Once the user accepted an activity offered by WellWatch or asked for a spontaneous one, we provide them with a video to teach them the best way to do that activity.



### Task 3: Add Positive Activities to Your Routine

After users do the activity, we asked them to rate the activity. If they enjoyed the activity, we offer to add the activity to their calendar on a recurring basis. If they accept, it is automatically added to the user native calendar.



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## **Design Evolution**

Following our needfinding process, we began to explore a number of different design realizations for our solution to help people incorporate healthy and spontaneous activities into their routines. Our initial exploration yielded two distinct user interfaces: a highly visual, object oriented interface, and a chat-messaging client interface. The object-oriented interface would allow the user to select how much time they had free, and then select an healthy activity from a number of different objects floating around on screen that fit the amount of time that you have. Alternatively, the user could also choose from a number of different categories of activity to find one that looks like something they would enjoy. On the other hand, the chat-messaging client UI realization talks to the user and gives them specific suggestions of activities that they could learn. Moreover, it is a more interactive interface which has a logical flow as a conversation would with a personal trainer or real-world assistant. While the object-oriented UI was highly aesthetic and appealing from a visual perspective, it was much more constraining in what it allowed us to offer in the app and compromised usability and flexibility. We opted for the chat-messaging client since this is a familiar conceptual model for the customer to get advice from an expert. Moreover, our users expressed a difficulty in choosing healthy activities and knowing what they should be doing. To remove this pain point, we decided to remove the requirement that the individual choose an activity when they may know nothing about it. Instead, our expert personal assistant makes a recommendation based on current context, taking into account your calendar, ratings of previous activities and any other data we can collect from the user. The chat-messaging client also gives us more flexibility to build future product features and get additional inputs to improve our recommendations by asking the user questions about preferences.

Prior to building our low-fi prototype, we storyboarded the task flows for our chat-messaging client interface. We initially forced the user to import their calendar when opening app for the first time, since we had planned to only give recommendations based on the user's calendar. The app would then push the user a notification when they have a slot on their calendar to do an activity that fits the time slot and their surroundings. Our storyboard for the low-fi prototype included no ability for the user to request an activity outside of slots on their calendar. Rather than having free entry text input to interact with WellWatch, we restricted inputs to simple yes/no answers, to simplify the implementation of the initial app prototype since this is the only response we need to make the concept work effectively. We also implemented the ability to rate activities at this stage, allowing us to improve our recommendations, and only prompt the user to add a recurring event if they gave the activity a positive rating. Finally, users could switch back and forth between the chat client and their calendar.

We built our low-fi prototype with paper, with different sheets for each screen and chat responses that could be added and removed as the user interacted with the app. To test our

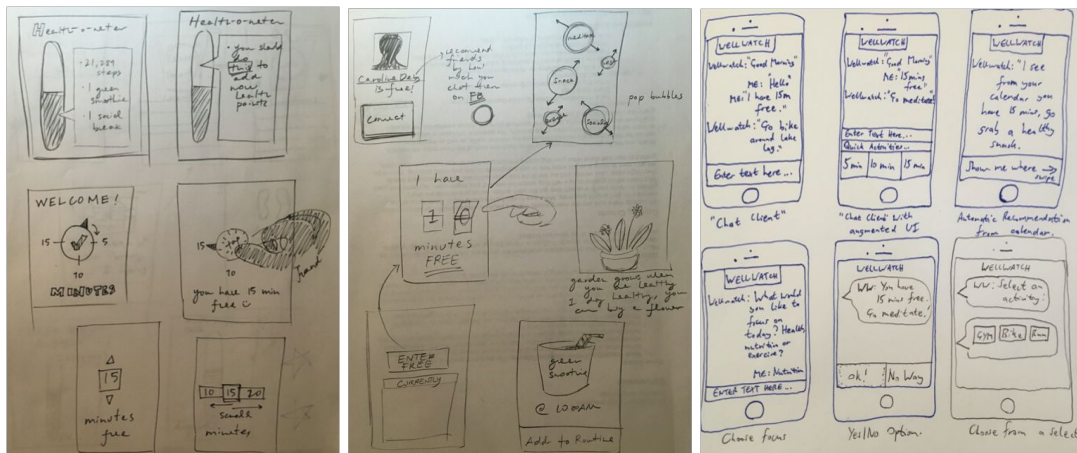
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initial prototype, we wanted to collect both qualitative and quantitative data. To begin, we tested our low-fi prototype with three different users who were representative of our target demographic: busy college students and professionals and health-conscious individuals. We shared our concept with them through a brief conversation and our concept video, before having them complete our three tasks with the app. As they completed the tasks, we had them talk us through their thought process and how they were completing the tasks, in addition to observing facial expressions and time spent to see if there was confusion or any usability problems. In addition, we created a user survey with two main sections: task analysis and usability/overall perception. We asked the participants to rate the app functionality on a scale, with questions such as “This app would help me be more active”, and “The interface was overly complicated.” This gave us a thorough set of data regarding how each type of user found different elements of the app. At this stage, we had several key pieces of feedback that informed our design. Firstly, users expressed a desire for a timer to help them keep to their schedule when completing an activity, which we added for our medium-fi prototype. In addition, there was some confusion when users would decline an activity or enter a negative input, since there was no feedback from the chat client. We added messages from the app when the user declines activities, in addition to adding a back button to allow for increased freedom and flexibility for the user. Finally, one user expressed frustration that his calendar may not be up to date, and that he could not simply request an activity when he had time free. This was an important observation, prompting us to add an option to get a spontaneous activity by clicking a bar at the bottom of the screen. In addition to adding these new features to the medium-fi prototype, we altered the aesthetics of the app by using a white/green color combination, and scenic images as backgrounds for the activity screen. Details for major usability changes following the expert heuristic evaluation can be found in the next section.

## Initial Design Exploration

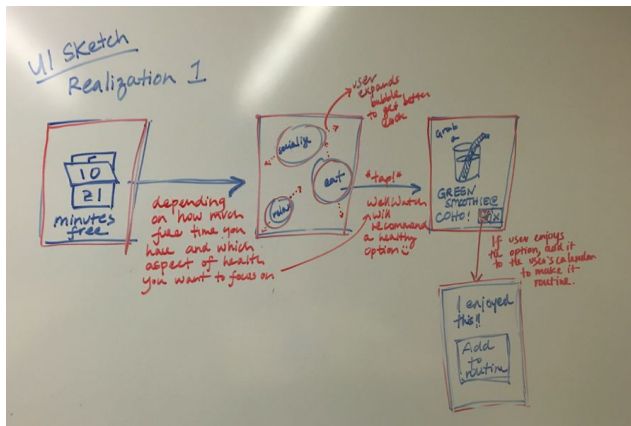


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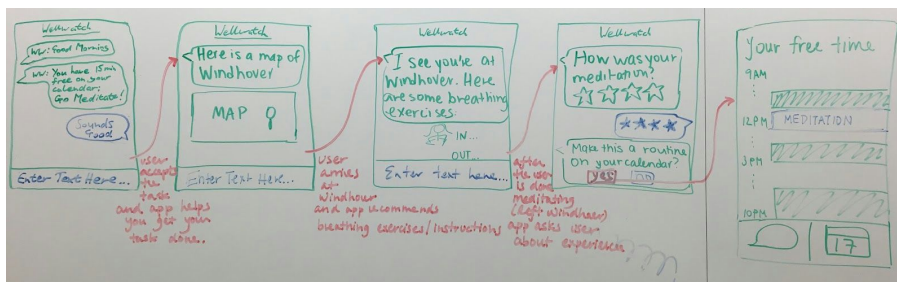
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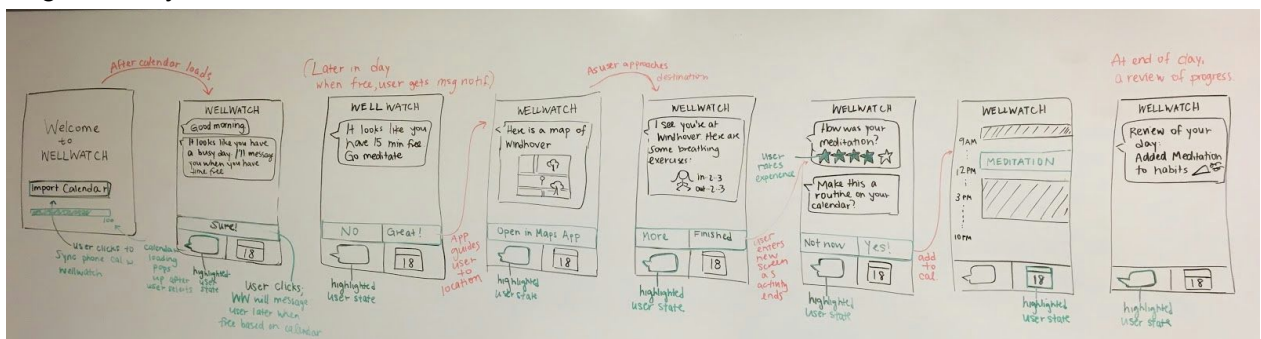
## Initial UI Sketch Realization



## Selected Interface - Alternate UI Sketch Realization



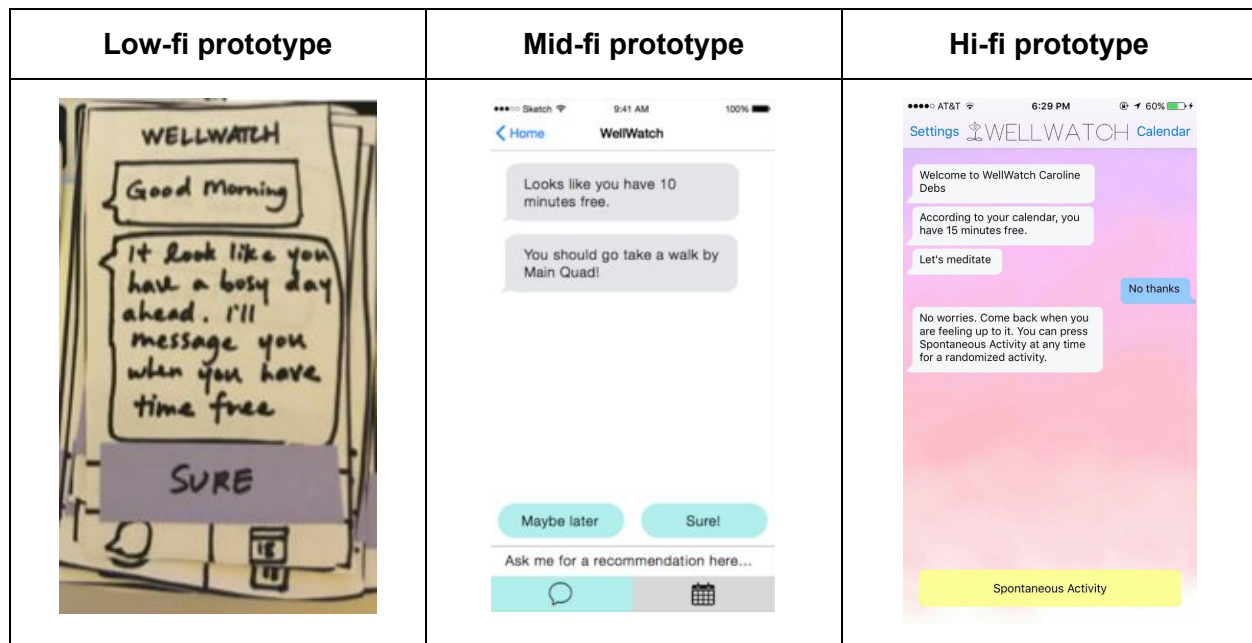
## Original Storyboard



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### Major Usability Problems Addressed

#### 1. [H2-3 Consistency & Standards] [Severity 4] [Found by: A, C, D]

*The user can only choose a randomly selected activity, there is no option for them to choose from multiple activities/ see a last of activities*

We chose not to implement this suggestion at this time because we did not believe that this would be an issue for the hi-fidelity prototype; however we would consider implementing some variation of this in a future iteration.

#### 2. [H2-2: Match Between System & Real Worlds] [Severity 4] [Found by: A,B, C, D]

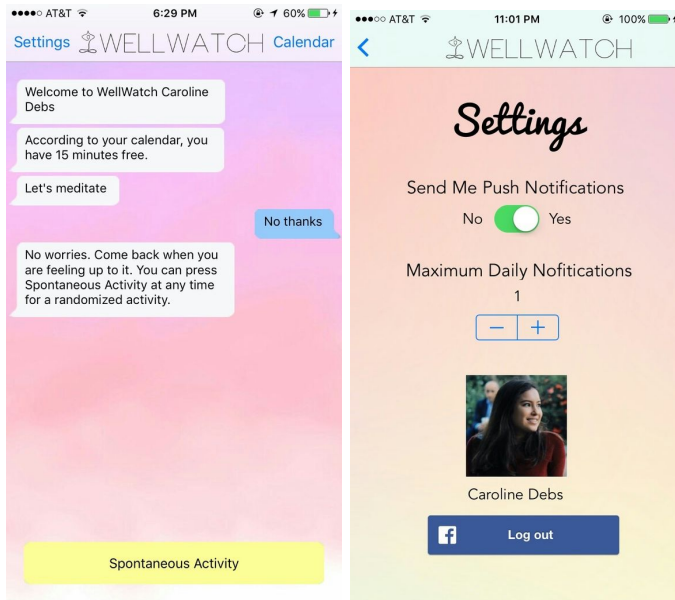
*The "home" button takes you to the welcome screen, which is a useless screen, and when you click on the button on the welcome screen it takes you right back to where you were.*

We got rid of the welcome screen, we made the chat window the "home" screen, and switched the info on the welcome screen to the settings. This makes it clear to the user that the chat-messaging client is the primary feature of the app.

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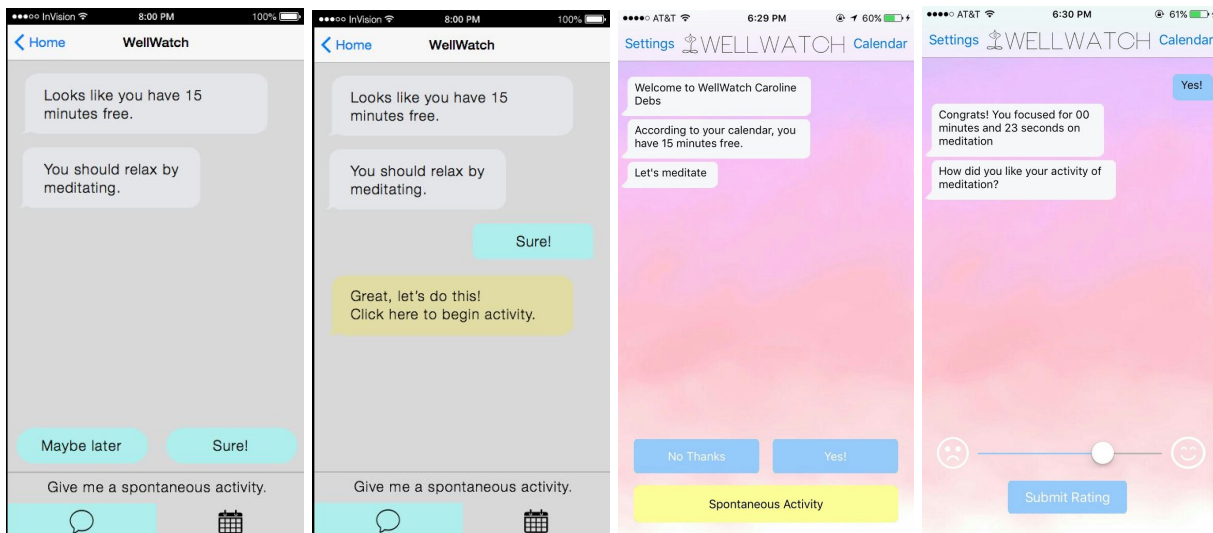
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### 3. [H2-4: Consistency & standards] [Severity 3] [Found by: C, D]

*Sometimes you are able to click on the box that resembles a text box, but sometimes you can't click it. It seems a little arbitrary where you click to go to the next step*

We realized that this was a confusing feature and decided to eliminate all instances of clickable text boxes. We now have clear buttons to go to the next step.



### 5. [H2-2: Match Between System & Real Worlds] [Severity 4] [Found by: A,B, D]

*The message screen seems to be mirrored after a chat history, but sometimes the whole chat disappears and starts over. It seems like this should scroll, but like a texting conversation.*

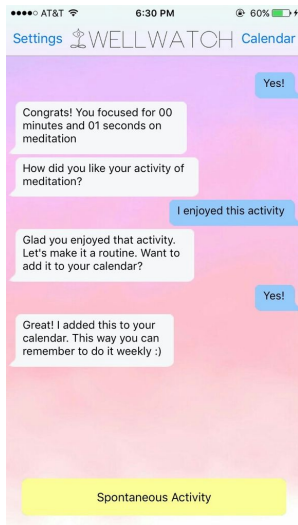


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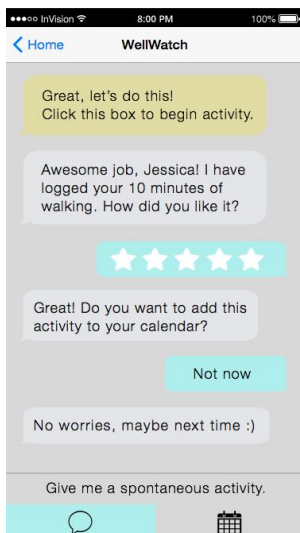
We fixed this one by keeping the conversation without starting over every time you do an activity. The text is stored in the app so that whenever you switch back to the chat-messaging client you can see your conversation history. We also added a scrolling feature so that you can easily read through all of your message history.



### 6. [H2-10: Help & Documentation] [Severity 3] [Found by: A,C, D]

*When you complete an activity, it asks if you want to add the activity to the calendar. It's unclear if you mean retroactively add it to the calendar or schedule it for later on. There should be documentation for this.*

We decided to fix this by making the prompt clearer to indicate that we are adding a recurring event on your future calendar to help the user add it to their routine as a positive habit.



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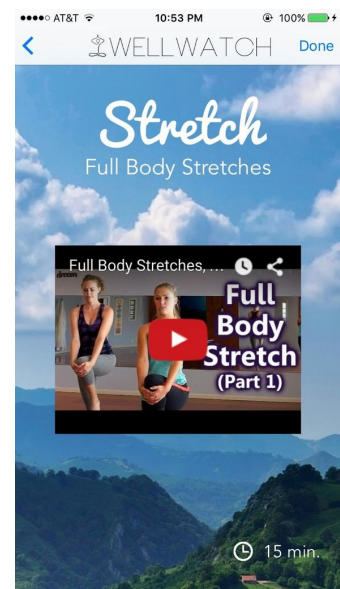
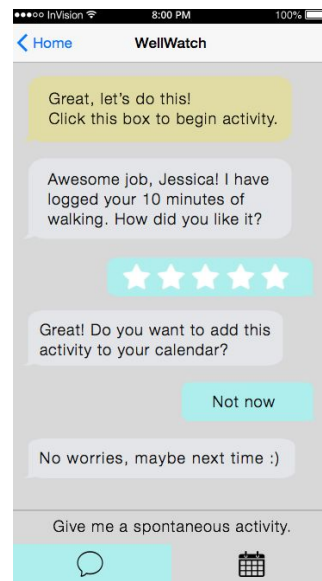
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### 14. [H2-3 User Control & Freedom] [Severity 3] [Found by: D]

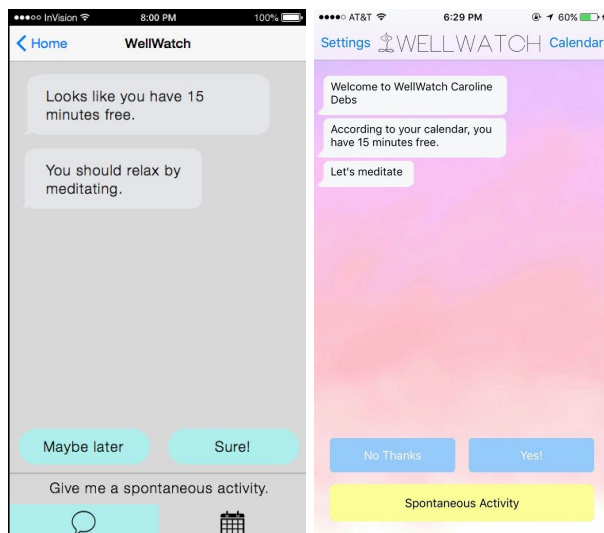
Clicking the back button in the upper-left corner of the screen immediately after an activity is finished will undo the completed activity. This takes a different action than the button's name suggests, which would be to return to the chat screen with a completed activity. I would suggest changing the button's name to say "Undo" or changing the button's functionality by sending the user to the WellWatch chat screen, depending on your intended purpose.

We got rid of the wording "Back" and just have a left pointing arrow, similar to options found in other iOS apps.



## Other Changes

Besides the specific changes resulting from the HE evaluation that are listed above, the major change we made between the med-fi and hi-fi prototype was the change in our color scheme from the grey/green combination to the pink, blue and yellow combination seen in the hi-fi prototype. We identified that the previous design was bland and didn't indicate a difference between the different buttons on the app since they were all the same color. The change was made tackle this problem, and to make the app much more aesthetically pleasing and accommodate a color combination consistent with those recommended by Professor James Landay in CS147 lecture. We used blue as a background color for the "Yes!" and "No Thanks" buttons, and a yellow background for the spontaneous activity button to indicate a difference in functionality that was missing in the medium-fi design, but also prevent a major color clash that would exist by using red, green and another color.



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## **Prototype Implementation**

Our hi-fi prototype for WellWatch was built using a range of software packages and programming languages. We chose to use XCode as our integrated development environment, since we opted to build our WellWatch prototype in iOS. Apple recommends XCode as the best IDE for iOS development and XCode's built in features for app development helped speed up the development process. Code for the prototype application was written in both Objective-C and Swift, based on previous experience in these languages and open tutorials for how to build different app features we desired to use. We found the languages relatively straight-forward to learn, although it was slightly inconvenient needing to switch back and forth between Objective-C and Swift.

To build out different features of the app, we used developer tools from Facebook and YouTube. For the user login, we opted to use the Facebook login SDK, as an easy way for us to validate users, and as a convenient way for the user to sign in to the app. To provide content for each activity to help users learn how to complete healthy activities, we used the YTPlayerView function to add youtube videos within our app on each activity page. We hard coded the different activity pages and content links to the videos for each screen. Our prototype did not require any Wizard of Oz techniques to make it work effectively. However, we had to hard code in the amount of time required for each activity and how much time the individual has free since the calendar integration on iOS requires a lot of additional work and would not add value to the prototype. For the prototype, people are only interacting with it to experience the different features, so we only include a sample push notification stating that they have time free on their calendar to demo what this would look like. When the user opens the app, we assume the free time they have using a hard-coded value. In future, we plan to improve this feature to identify when the user has a free time slot on their calendar, and recommend an activity that fits the time slot.

Our hard-coded content is also limited to a few activities, simply to give the user a taste of the different types of things that they could be recommended while sampling the app. In future, we would increase the number of available recommendations and generate content from a wider variety of sources, such as health and nutrition experts or different publications. Moreover, for the prototype, our rating system is relatively simplistic, with ratings only determining whether the user is prompted to add the activity to their calendar as a recurring event or not. In future, we would use the ratings and do some machine learning or data analysis to determine which types of activity the user enjoys best and inform future recommendations. Recommendations may be informed by the user's surroundings (location-specific) or based on the types of things on their calendar, such as suggesting an activity to take a mental break after studying. Additionally, since the app has a chat-messaging client, we can add a number of different questions to ask the user and get a much better idea of the types of activity they are most interested in learning.

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Our product could benefit from more user-research and studies on habit-forming. We could also integrate health data from iOS and Apple Health to inform the user whether the healthy activities are improving their well-being. Finally, we could easily add integration with WatchOS, in order to push notifications to a user's watch for convenience, since people with Apple Watch often find it easier to get data from apps in this way.

## **Summary**

During the initial needfinding phase of the design process, we realized that people live increasingly busy and hectic lives, making it difficult to form positive habits and adopt healthy routines. Moreover, people appreciate adding a degree of spontaneity to their schedule. To help people solve this problem, we created WellWatch as a personal assistant that recommends activities based on the user's schedule or when they request a spontaneous activity. By helping users learn new, healthy activities in their free time and reinforcing positive habits through recurring events on your calendar, WellWatch has the potential to improve holistic wellness in a simple and convenient way, despite time constraints. During the design exploration phase, we decided to use a chat interface to make the app more interactive and personal, with flexibility to integrate many additional health data points and feedback from the user. Based on user testing on our low-fi prototype and an expert heuristic evaluation on our medium-fi prototype, we were able to identify usability issues with our implementation and iterate multiple times to dramatically improve the product, both in terms of functionality and aesthetics. Some of these changes included improving freedom and flexibility, reducing the dependency on calendar integration, adding a timer and altering the color scheme. Despite some limitations in the implementation of our hi-fi prototype, we believe we can increase the number of activities offered, improve the rating system and identify when the user has time free on their calendar rather than using a hard-coded value. In the future, we would like to spend more time developing the algorithm to provide the right activity, at the right time for a given user. We would also like to incorporate research on habits to improve the efficiency of our application on user habits. This would give our app much more potential to deliver improved health and wellness outcomes for users based on increasingly intelligent recommendations.