Recovery Ninja Usability Report

Team 4: Dev Ninjas

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Summary

This report presents the findings of the usability evaluation of the Recovery Ninja application. The purpose of this test was to evaluate the overall user experience with the Recovery Ninja app and identify potential pain points to be resolved to improve the app.

The Recovery Ninja app is designed to aid patients recovering from substance abuse. The app acts as a tool to track long and short-term goals, engage in daily activities, monitor progress, and award achievements marking success. Recovery Ninja utilizes gamified features in its design to motivate users and incentivize repeat use. The primary function of the app is as a monitoring tool for individual patients. Healthcare professionals—like therapists and addiction specialists—can also access the app to engage with and provide support to their patients.

This test consisted of 5 total sessions. Each session was conducted by a user experience consultant working with the Recovery Ninja development team (Liam Houston), and was observed by one or more members of the development team. The test consisted of seven test scenarios and included several questionnaires and a post-test interview with each participant.

Key findings revealed that users struggled to easily understand the goal creation process within the app due to unclear communication and poor app navigation paths. Overall participants performed very well with few errors despite the previously mentioned issues. Fixing these and other issues highlighted by user feedback will significantly improve the user experience of the Recovery Ninja app.

Testing Objectives

The objective of this test was to evaluate the quality of user experience present in the Recovery Ninja application. Both the objective functionality of the application and subjective user opinions on the applications performance was recorded to evaluate Recovery Ninja's performance.

Equipment Requirement

- A form of web browser with which to access the Recovery Ninja application is required (i.e. Chrome, Safari, Opera, Edge, etc.)
- A smartphone, laptop, or desktop computer device with access to the internet is required to access and engage with the Recovery Ninja application.

Methodology

This test was carried out with a group of five participants who do not belong to the target user group but who do posses a level of experience using technology comparable to what is expected within the target group.

The testing was facilitated by acting user experience consultant Liam Houston, a graduate student enrolled in the CS5760 course at Michigan Technological University. Testing was observed by additional members of the app development team. All tests were conducted in a signed out meeting room in the Wadsworth dorm hall on Michigan Tech's campus. Each test was conducted within the expected time allotment of 45 minutes.

Procedure

The procedure of the test consisted of three sections: (1) a pre-test questionnaire, (2) a series of seven task scenarios for participants to complete, each followed by a short questionnaire, (3) a final questionnaire and interview on the overall experience using the Recovery ninja application. User performance measures and qualitative data was taken throughout the duration of the test.

Quantitative Measures

Qualitative measures were made standard across all scenarios except scenario two, which serves as a dummy task with the only goal of allowing participants to gain a better idea of the app's layout before moving on to testing specific features. These measures were as follows:

- Time taken to complete task
- Accuracy of completion
- Number of errors made during completion of a task
- Accuracy of system updates upon task completion

Qualitative Measures

Certain qualitative measures were taken during the course of testing. These measures were purposely made similar across scenarios for easier processing of the data. The qualitative measures are as follows:

- User perception on the ease of use of the application
- User feedback on the quality and ease of navigation
- Clarity of system feedback upon making changes
- Clarity of UI elements
- Additional user inputs on specific features and the app as a whole

Potential Observations of Participants

There are certain and specific potential observations of participant behavior that support the qualitative measures listed above. Observations were also used to assist in the identification of potential pain points in the design of the Recovery Ninja app. These observations are as follows:

- Displays of frustration or confusion when trying to locate or execute specific elements
- Confusion or inaccuracy in recognizing system status updates
- Choice in navigational path through the app to achieve particular goals

Test Scenarios

Scenario 1 — User Onboarding

Scenario description

Users will go through the process of making an account on the Recovery Ninja application from the perspective of a first-time user. This will include the selection of a username and the customization of an avatar, as well as the selection of certain options like account anonymity.

Scenario text

Imagine that you are a first time user of this app. You want to make an account but remain anonymous on the app.

Test goals

- Evaluate the intuitively of app onboarding design
- Identify existing pain points in the onboarding process
- Verify accounts display anonymous status correctly

Tasks list

- Open the Recovery Ninja app
- Customize your initial avatar
- Create one initial treatment goal
- Make your account anonymous
- Continue to the app home page and verify that avatar choices were saved
- Navigate to the leader board and confirm the account is anonymous

Scenario 2 — App Navigation

Scenario description

Users are expected to open the Recovery Ninja app and navigate between the different features within the app. Navigation between features should be intuitive and with few errors.

Scenario text

Imagine that you are a first-time user of the app. Explore all of the different features within the app. Try to get a feel for all the app has to offer.

Test goals

- Evaluate the ease of navigation within the app
- Identify existing pain points users face while navigating the app

Task list

- Open the Recovery Ninja app
- Navigate to the treatment goals screen
- Navigate to the daily activities screen
- Navigate to the avatar customization screen
- Navigate to the leader board
- Navigate to the achievements screen
- Navigate to the help screen
- Navigate back to the home screen

Scenario 3 — Treatment Goal Creation

Scenario description

Users are expected to open the app and create a new treatment goal. Users are also expected to be able to edit the details of existing treatment goals and recognize that changes updated accurately.

Scenario text

Imagine that you are a frequent user of this app. Open the app and add a new treatment goal.

Test goals

• Evaluate the ease and accuracy with which users can make treatment goals

Task list

- Open the Recovery Ninja app
- Navigate to the treatment goals screen
- Create a new treatment goal
- Confirm that goal was created correctly
- Return to the home page

Scenario 4 — Treatment Goal Updating

Scenario description

Users are expected to open the app and create a new treatment goal. Users are also expected to be able to edit the details of existing treatment goals and recognize that changes updated accurately.

Scenario text

You recently realized you made a small error when creating a treatment goal. Go into the app and fix the error.

Test goals

Evaluate the ease and accuracy with which users can edit treatment goals

Task list

- Open the Recovery Ninja app
- Navigate to the treatment goals screen
- · Edit an existing treatment goal
- Confirm that edits saved correctly
- Return to the home page

Scenario 5 — Daily Activity Tracking

Scenario description

Users are expected to select a daily activity to complete. Users should be able to complete the selected task and verify that they have been awarded points upon its completion.

Scenario text

Imagine your counselor has asked you to complete at least one activity a day. You have a free moment between classes to complete one now.

Test goals

- Verify the successful completion of activities and their contribution to profile point counts
- Evaluate if users are reliably aware of points contributing to their progress

Task list

- Open the Recovery Ninja app
- Navigate to the daily activities screen
- Start a daily activity of your choosing
- Log that activity as complete
- Return to the home screen

Scenario 6 — Journaling Activity

Scenario description

Users are expected to complete a journaling activity and log it toward their daily activity points.

Scenario text

Imagine that recently your counselor has asked you to do some additional journaling in the app.

Test goals

- Verify the successful completion of activities and their contribution to profile point counts
- Evaluate if users are reliably aware of points contributing to their progress

Task list

- Open the Recovery Ninja app
- Navigate to the journal activity screen
- Start a journal entry
- Log the entry as complete
- Return to the home screen

Scenario 7 — Avatar Customization

Scenario description

Users are expected to be able to change the appearance of their avatar and view their updated choices from the home screen of the app.

Scenario text

Imagine you have become bored with your ninja's appearance. Go into the app and change its appearance.

Test goals

- Verify that users can update their avatar appearance
- Verify that customization choices update successfully

Task list

- Open the Recovery Ninja app
- Navigate to the avatar customization screen
- Change the character appearance in some way
- Save changes and return to the home screen
- Confirm that avatar was updated successfully

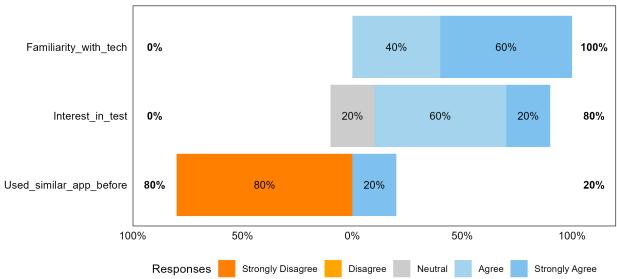
Results

Results of this test strongly indicate that the Recovery Ninja app—in its current state—is highly usable with few pain points and user concerns. Participants performed exceptionally well on all seven scenarios and provided valuable feedback that was used to uncover major and minor pain points within the app's design. Overall user consensus was that the app is easy to use, navigate and understand.

Participants

A total of five participants evaluated the Recovery ninja app in this test. Participants were current Michigan Tech students within the 18 to 25 age range. Participants reported having high levels of familiarity with technology. On average Participants have owned smartphones for 8.6 years. Based on this information, participants were assumed to have an expert level of knowledge on how to use the Recovery Ninja app. Additionally, participants were asked if they had ever used a goal tracking app before. This question was intended to gauge whether or not participants could have a baseline expectation or potential experience using the more common features of a goal tracking application, thus giving them a higher familiarity with the Recovery Ninja app functions going into the test. Only one participant reported having used goal tracking apps before, so it was assumed the majority of results were not affected by any preconceived expectations of the apps layout or functionality.





Performance on Tasks

Participants performed exceptionally well on all seven of the test scenarios. Only two participants did not complete a task each. These two instances were to participants believing the task complete, but failing the final "submit" or "save changes" input that was considered the final criteria for accurate task completion. This resulted in a completion rate of 80-100% for the entire test. Error rates were also extremely low. Errors were defined as mistakes in navigation or mis-inputs that required correction but did not meet task failure criteria. Several tasks had no errors at all, while others had only one or two participants who made fewer than three total errors.

The time it took for participants to complete each task was recorded. There was no expected time that each task should take. This measure was taken to cross reference participant performance and observe if any participant lagged significantly behind others, and if more time taken was directly related to the number of errors made or the status of completion. Participant times were fairly homogeneous across all seven scenarios. Where user completion times differed significantly, it was deemed that this was for reasons not related to the performance of the app. Primarily, longer completion times were attributed to the level of commitment the participant had towards role playing as a recovery patient while completing certain prompts. Additionally, no relationship between time on task and the number of errors committed by participants was apparent. The table below summarizes the total results of all scenarios.

	Completion rate	Mean time on task	Mean errors
Scenario 1	100%	126.8 seconds	0.2
Scenario 2	100%	169 seconds	0
Scenario 3	80%	68.6 seconds	0.8
Scenario 4	100%	23.6 seconds	0
Scenario 5	80%	29.8 seconds	0.8
Scenario 6	100%	21 seconds	0
Scenario 7	100%	19.4 seconds	0

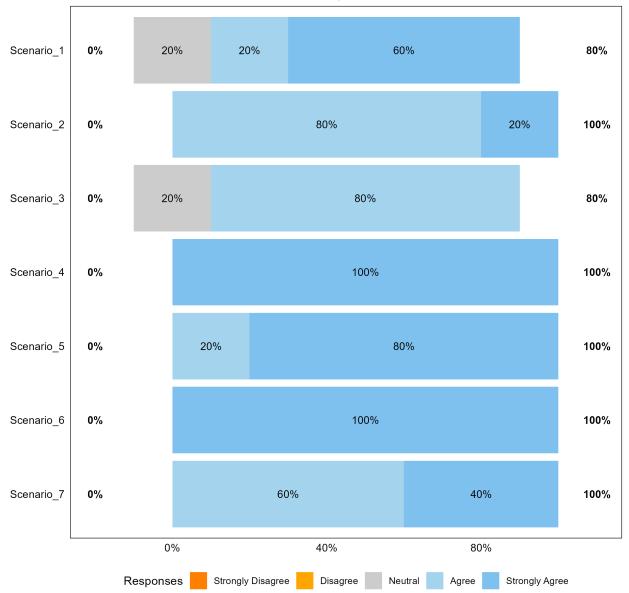
Ease of Navigation

Scenario two was entirely focused on asking users to evaluate the app's ease of navigation, and to get more familiar with the app layout before moving on to later scenarios. Every user reported that the app was easy to navigate. In this scenario's questionnaire and the later interview, users expressed that there was no area of the app that was confusing to navigate to or understand.

Ease of Use

The main qualitative measure taken consistently across all scenarios was a likert scale rating the ease of use of each part of the app focused upon. Based on this feedback, no particular function of the app that was tested was determined confusing or hard to use. Most results from users were either positive or extremely positive. The only neutral responses occurred

Ease of use ratings across scenarios



System Feedback

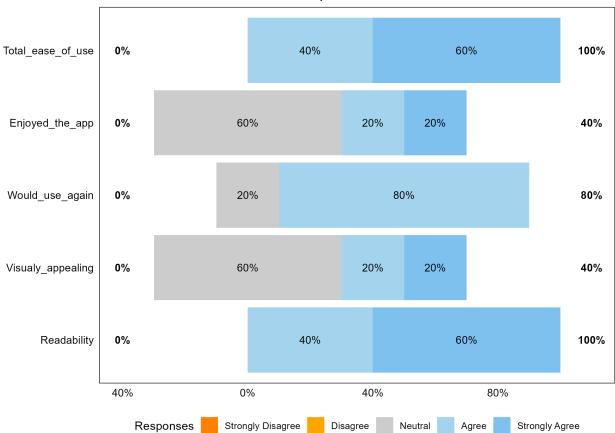
Binary questions were asked throughout the test to identify markers of system feedback. These questions in scenarios three to seven reached the same consensus. All updates to the app after users completed a task to gain points, or updated an aspect of a treatment goal or their Ninja's appearance were clearly understood. The system feedback question from scenario 1—asking participants if their account displayed as anonymous—came back with mixed results. While some participants were able to easily determine that their profile was private on the leaderboard, most were unsure if their account was anonymous. From later feedback it was revealed that the leaderboard does highlight your account and displays the name as "anonymous" but this may not be a significant enough call out. Additionally, the leaderboard only displays the current user if they have gained enough points to make the top ten. If they have not, there is no display of their anonymous status within the app.

Overall User Experience

The post questionnaire and closing interview were aimed at covering the overall interpretations of the Recovery Ninja app. Participant's overall perceptions of the app's ease of use was entirely positive. Their perceived enjoyment of their experience with the app was overall neutral. Which may be an artifact of how the question was worded. Most participants expressed that they would use this app again.

The final two questions of this questionnaire were aimed at uncovering any dissatisfactions in the app's visual appeal and readability. Overall opinions on visual appeal were neutral and slightly positive. The overall readability was considered entirely positive. User feedback written in during prior scenarios also included several instances of participants praising the app's design and coherent layout.

Post-test questionnaire results



Motivation

Participants were asked whether or not they thought the app would be a sufficient at motivating users. User sentiments on this topic were mixed. Three participants expressed general agreement that the app would be sufficiently motivating in its intended use case, Two participants expressed skepticism as to whether or not the app itself would motivate users, expressing that there is likely nothing the app can do unless users want to engage and use it repeatedly.

Bugs

There were very few bugs uncovered during testing. These bugs included a failure of the app to update the home page when users navigated to it from the onboarding process, and the timer and completion buttons on activities being completely separate and unaffected by each other's functionality. Despite being prevalent, these bugs were not at all severe and went entirely unnoticed by the majority of participants. See Appendix C for the full bug report form.

Findings and Recommendations

There are a few clear pain points within the app that need to be addressed based on user insights. There are also several smaller areas within the app that should be updated, but do not necessarily affect the key functionality of the app, only the satisfaction in the cohesivity of the product.

Major Pain Points

The first and most apparent pain point noted in testing was the design of the treatment goal creation and editing process. The process of adding a new treatment goal requires at least one sub goal. This information is not communicated to users initially. Only through an error message is the user notified that a sub goal is required. The process of adding a sub goal uses a small "+" button. This button was not well understood by users and many did not grasp at first what its function was. 2 participants made specific requests that this button be changed to make the process easier. Either calling out the necessity of the "+" button to add sub goals or changing the button to be more apparent to users would sufficiently resolve this issue.

Additionally, there is currently a limit of three long term treatment goals. This information is not clearly conveyed to the user and caused notable frustration in most participants as they had to first delete a treatment goal before adding a new one. The process to delete a goal also requires users to navigate to an additional drop-down tab to select the goal they wish to edit and/or delete. This step in the navigation path is unnecessary. 3 users expressed a desire for an edit and delete button on the treatment goal main page to easier access these options, circumventing the drop-down menu entirely.

Minor Pain Points

Two users pointed out a visual inconsistency in button design on the home page. The treatment goals and daily activity buttons are visually very different from the rest of the app's button

design. These two users commented on how they were initially unsure these were even buttons due to their mismatch with the rest of the app.

Four of the five users expressed a desire for the Ninja customization function to have colors labeled with color names instead of "color1, color2, color3, etc." Updating these color labels will quickly resolve this issue in user satisfaction.

Concern was expressed on multiple occasions for the layout of the app homepage. A few participants speculated that it may be confusing to understand the intended navigation within the app when activities are accessible through multiple pathways. While this concern was widespread, participant performance was not affected by the homepage layout, nor did any participant express that they themselves found the layout confusing. Further research is needed to determine if a solution is needed in this regard.

Most users also suggested that the help page of the app be changed so that each separate page has its own help link that opens a pop-up window with specific help data in addition to the general help page. Multiple participants expressed that this would make the help page information more useful and accessible. This would also help reduce the amount of back and forth navigation required when users do wish to consult the help page, potentially improving user recovery from errors.

Additional Recommendations

Outside of direct user feedback, there were a few aspects of the app's design which were noted to be of concern, and should be changed to improve the overall user experience of the product.

There are certain functions in the app that redirect users to a different page—either to the home page or the activities page. These redirections are inconsistent and may cause confusion for some users as a redirect to home can signal an update to certain inputs and cases where this is inconsistent could cause users to mistakenly assume their inputs were not saved correctly. Redirects should either be consistent across the app or removed entirely to avoid this confusion.

Within the app, pop-up windows are used to report successful system updates to users. These are also inconsistent across the app. Some pop-ups are very clear and apparent, while others went unnoticed by participants entirely. The appearance, behavior and existence of these pop-up windows should also be standardized across the app.

The last recommendation for the improvement of this app is in regards to the app's interface "language". There are several places within the app where an icon is used only once. The best example of this is the trash can icon used to delete sub goals. This icon only exists in that one place within the app, yet there are other delete functions present elsewhere. In order to ensure clear and consistent communication with future users, the "language" that the user interface uses should be made consistent across the app. This will reduce the chances of confusing users and potentially reduce user errors caused by a lack of consistent UI design.

Test Limitations

This test and the results gained from them are affected by certain limitations and shortcomings. The version of the app tested was still in development, lacking many of the final activity features that will be implemented in the final product. Because of this, this test was not able to determine the usability of any of the specific activity functions.

As far as evaluating the quality and effectiveness of gamified features and their capacity to motivate users, this test is a poor indicator in either direction. A separate test with different scope is likely required to evaluate these qualities of the app. User feedback on the topic did not adequately point toward the app being successfully motivating based on one use.

This test is also in need of some revisions that became apparent during testing. Some prompts and steps in the test procedures were not well designed and poorly communicated the correct intended action to the participants. The results of the test may have been made less accurate—or missed a pain point—by these small issues with the test design.

Conclusion

The major take away from this test is that the Recovery Ninja app as it is now is highly functional and considered very usable by participants. The app is also primarily bug free. The bugs that do exist are negligible in severity. Both the major pain points uncovered in the goal creation process and the minor pain points identified by participants have relatively simple solutions that will immediately improve user experience in the app once enacted. As the Recovery Ninja app is yet unfinished, this test is not a definitive evaluation of the app's usability. Further testing should take place in the future to evaluate functions of the app not present in the version that was tested, and to address shortcomings of the test design itself.

Appendix A: Usability Test Documents

Appendix A1: Usability Test Script

Hi, my name is Liam and I'll be walking you through today's test session.

Thank you for agreeing to participate in this study on the Recovery Ninja application. As you may know already, the purpose of the study is to help us evaluate the user experience of the app. The results of this testing will be used to help make improvements to the design of the app.

First I will have you fill out a short questionnaire that will let us know your level of experience with mobile applications. Afterwards I will walk you through 5 scenarios that are designed to test specific features of the app. For each scenario we just want to observe how you use the app and complete the task. I will observe the way you perform those tasks and take notes while you do so. You can't do any of these tasks incorrectly. At the end of each scenario I will ask you to fill out a short questionnaire specific to the scenario just completed. At the end of the test I will give you a final questionnaire and ask you some questions about your experience using the app.

I'd like to take the time to point out that this is a prototype with limited functionality, so not everything will work. Your feedback will be used to improve the features. At the end, I'll have you fill out a short questionnaire. The whole process should take about 5 mins.

I want to remind you that we are testing the Recovery Ninja app today. We are in no way testing you. There are no right or wrong answers. We're interested in your honest impressions, so please feel free to share what you think of your experience.

If at any time you need me to repeat a question, or if you want to stop or take a break, just say so and we'll do that. Do you have any questions Before We Get started? All right, let's get started. [move on to scenarios]

Post Test Interview Questions

Now I am going to ask you some questions about your experience with the app. Some of your answers may overlap with what you selected in the questionnaires.

- 1) How would you describe your overall experience with this app?
- 2) What did you like the most about the app?
- 3) What did you like the least?
- 4) Do you think the app would motivate you to continually track activities?
- 5) Were there any features that were confusing to use?
- 6) Do you have any additional feedback for the app that was not addressed by any of my questions?

Appendix A2: Pre Test Questionnaire

Please indicate your level of agreement to the follow statements:

"I am	very interest in the testing of this application."
1)	Strongly agree
2)	Agree
3)	Neutral
4)	Disagree
5)	Strongly disagree
"I am	familiar with using phone apps in my daily life."
1)	Strongly agree
2)	Agree
3)	Neutral
4)	Disagree
5)	Strongly disagree
How	many years have you used a smart phone?
	years.
Have	you used a goal tracking app before?
	Yes
	No

Appendix A3: Scenario 1 Questionnaire

				ing the w arding pr		5 being t	he best).			
1		2	3	4	5					
Was	any _l	oart of	the prod	cess confi	using or f	rustratin	ıg?			
	No									
	Yes	. If so, v	what par	t?						
Was	your	accou	nt displa	yed as ar	nonymou	s on the	leader b	oard?		
	Yes									
	No									
	Uns	sure								
Are t	here	any w	ays the o	onboardi	ng proces	ss could l	be impro	oved?		

Appendix A4: Scenario 2 Questionnaire

	On a scale of 1 to 5 (1 being the worst and 5 being the best). How easy was it to navigate to different features in the app?								
			- Gur						
1		2	3	4	5				
Were	any f	features	difficult	of confu	sing to find?				
	No								
	Yes.	If so, wh	ich ones?	?					
Are t	here a	any ways	s navigat	ion in th	e app could b	e improved?	•		

Appendix A5: Scenario 3 Questionnaire

	-	•	_	orst and 5 reatment	being the b	est).		
TIOW Casy	, was it t	o create	a new t	reatment	godi:			
1	2	3	4	5				
Could you	Could you tell if your changes to treatment goals saved correctly?							
□ Yes								
□ No								
Are there	Are there any ways creating treatment goals could be improved?							

Appendix A6: Scenario 4 Questionnaire

On a scale of 1 to 5 (1 being the worst and 5 being the best). How easy was it to edit an existing treatment goal?								
	sy was it	to cuit (arr existin	8 treatment	Bour.			
1	2	3	4	5				
Could y	Could you tell if your changes to treatment goals saved correctly?							
□ Y€	es							
□ N	0							
Are the	re any wa	ays crea	ting treat	ment goals o	could be impr	roved?		

Appendix A7: Scenario 5 Questionnaire

	On a scale of 1 to 5 (1 being the worst and 5 being the best). How easy was it to complete a daily activity?							
			-	_				
1		2	3	4	5			
Did t	Did the app accurately reflect the number of points you earned?							
	Yes							
	No							
Was	it eas	y to tell	that you	r points t	otal had updated?			
	Yes							
	No							
Are t	here	any way	s trackin	g daily ac	ctivities could be improved?			

Appendix A9: Scenario 6 Questionnaire

		-		•	rst and 5 being the best). og a reflection activity?
11000	casy	was it to	Compie	te ana ie	og a renection activity.
1		2	3	4	5
Was	it cle	ar that y	our jouri	naling wa	as logged as an activity and awarded points?
	Yes				
	No				
Did t	he ap	p accura	ately refl	ect the n	number of points you earned?
	Yes				
	No				
Are t	here	any way	s trackin	g daily a	activities could be improved?

Appendix A10: Scenario 7 Questionnaire

	-		_		5 being the i ja's appea i				
1	2	3	4	5					
Did your	Did your changes accurately carry over to the home screen?								
□ Yes	S								
□ No	1								
Are there	e any w	ays the a	vatar cu	stomizati	on process	could be	improved?	•	

Appendix A11: Post Test Questionnaire

Please indicate your level of agreement to the follow statements:

"Overall, this application was easy to perform the tasks."

- 1) Strongly agree
- 2) Agree
- 3) Neutral
- 4) Disagree
- 5) Strongly disagree

"I enjoy using this application."

- 1) Very much
- 2) A little bit
- 3) Neutral
- 4) Not very much
- 5) Not at all

"I would use this application again."

- 1) Strongly agree
- 2) Agree
- 3) Neutral
- 4) Disagree
- 5) Strongly disagree

"I found the design of the app to be visually appealing."

- 1) Strongly agree
- 2) Agree
- 3) Neutral
- 4) Disagree
- 5) Strongly disagree

"The text in the app was easy to read and understand."

- 1) Strongly agree
- 2) Agree
- 3) Neutral
- 4) Disagree
- 5) Strongly disagree

Appendix B: Test Attendance

Test session	Date & Time	Location	Dev. Team Members	Dev. Attended	Particpant Attended
1	04/07/2025 03:00pm	Wads G12W	Izzie House	Yes	Yes
2	04/07/2025 04:00pm	Wads G12W	Luis Vervaet, Owen Cramer	Yes	No
3	04/09/2025 03:00pm	Wads G12W	Owen Cramer, Kaira Stricklin	Yes	Yes
4	04/09/2025 04:00pm	Wads G12W	Luis Vervaet	Yes	Yes
5	04/10/2025 02:00pm	Wads G12W	Ben Papp, Ben Kornas, Jah Multani, Kaira Stricklin	Yes	Yes
6	04/10/2025 03:00pm	Wads G12W	Jah Multani, Kaira Stricklin	Yes	Yes

Appendix C: Bug Report Form

Bug #	Bug Name	Bug Description	Prevalence
1	Home page refresh failure	Home page does not update correctly when navigating from onboarding.	Occurs every time.
2	Activity timer not connected	Activity timer and complete button act interdependently, they do not effect each other as they should.	Occurs every time

Appendix D: Testing Challenges Form

Challenge #	Name	Description
1	Start confusion	Participant did not have a clear cue to begin working on a scenario in the first test, resolved in subsequent tests.
2	Communicational error	Participants were sometimes confused by the wording of prompts and asked for clarifications a few times.
3	Unforeseen curiosity/ poor scenario design	In scenario 2, it was not well communicated that the intended outcome was a simple exploration between app windows. Instead, many participants took time to extensively explore app features, potentially gaining a leg up on future tasks having already completed them in some capacity in scenario 2.