

SOFTENG350 ASSIGNMENT 3

Report



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Table of Contents

Prototype Description	2
Scenario	2
Other Features	6
Walkthrough Video	7
Visual Design Choices	8
Usage Testing	10
Protocol Description	10
Results	11
Appendices	13
Appendix A	13
Appendix B	16
References	20

Prototype Description

Scenario:

StudyShare is a data sharing service which is based around student collaboration and file sharing via projects. The concept of projects provides a way of collecting files into a single workspace which can be shared with others. This would be useful for students as it allows easy collection of different file types and organization of various assignments or tasks. This adheres to the Nielson's heuristic of matching between the system and the real world, as projects commonly take place in schoolwork and professional work.

Creating a new project:

When first using StudyShare, a new user would create a new project by clicking the "+" button at the top right of the screen shown in figure 1.

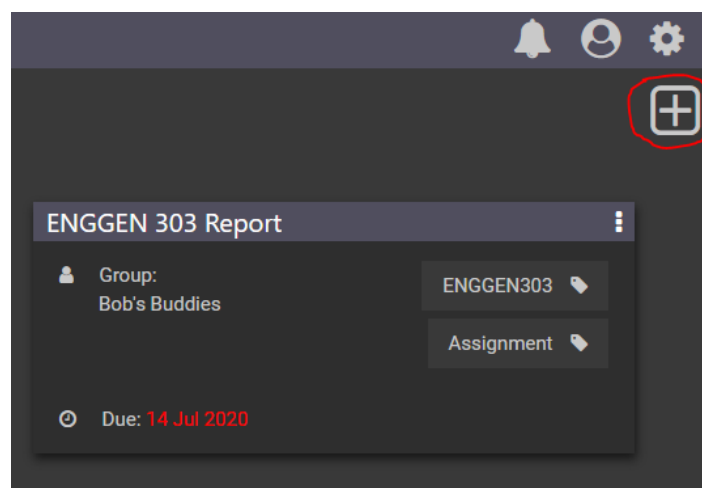


Figure 1

This action opens a sidebar which displays various options, but for the scenario the user would click "New project". This is shown in figure 2.

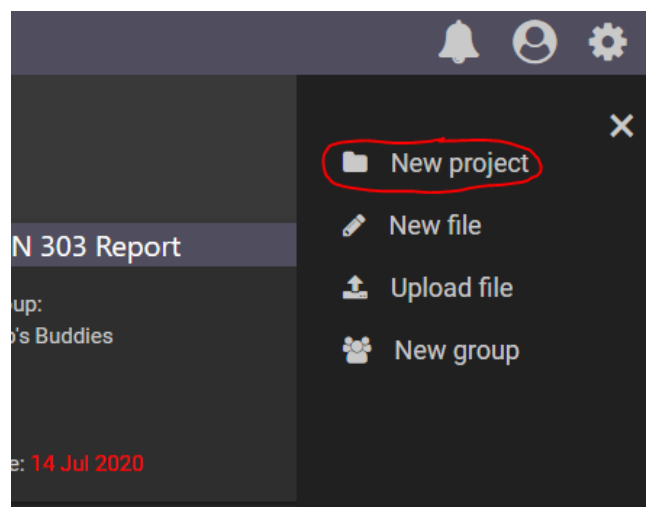


Figure 2

The “New project” button presents the user with a pop-up menu for creating a new project shown in figure 3, which allows:

1. Setting of the project name
2. Setting a due date:
Being able to set a due date is useful for students as it allows them to sort by their most urgent assignments or projects and track their due dates in one easy to see location.
3. Sharing the project with different individuals:
Sharing projects fulfils the user need of sharing files with peers and is more efficient than individual sharing of files. A message can also be included in the sharing, which is students can use to communicate various things to their peers such as the share of work they need to do.
4. Sharing the project with groups:
Students often have long term collaboration with the same peers over multiple assignments or projects, which is supported by StudyShare in the form of groups. Being able to share projects with groups fulfils the **user need of efficiently sharing files with the groups they most frequently work with.**
5. Adding tags to the project:
Adding tags to a project fulfils the user need of easily identify projects and communicate this to their peers. Projects can also be categorised in this way, selecting a tag from the projects screen will show all projects containing that tag.

The screenshot shows a 'Create Project' modal window. The header is a dark purple bar with the text 'Create Project' in white. Below the header, the form is organized into several sections: 'Project Name' with a text input containing 'StudyShare'; 'Due date' with a date picker showing '14/01/2021'; 'Share with' with a dropdown menu showing 'StudyShare' and a group icon, and an 'Add' button with a plus icon; 'Add tag' with a text input containing 'StudyShare' and an 'Add' button with a tag icon; and a 'Message' section with a large text area. At the bottom of the modal are two buttons: a red 'Cancel' button with a close icon and a green 'Create' button with a checkmark icon.

Figure 3

Once the new project is created, it will be shown in the main screen of the projects tab, as shown in figure 4.

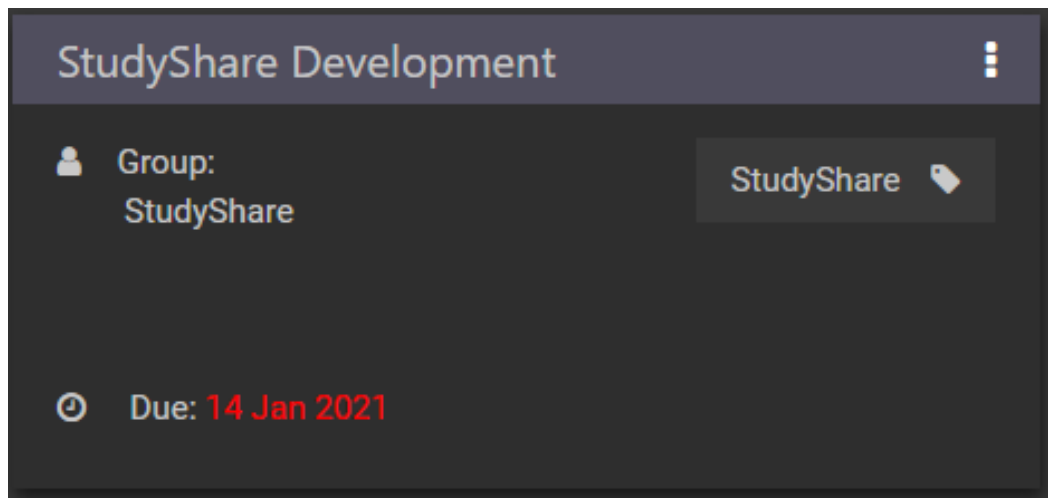


Figure 4

Uploading a file:

An important feature is the ability to import existing files, as not all file types can have supported editing in the service. This is needed after a new project is created, as students may have existing work to import into StudyShare. This is fulfilled by the “Upload file” button shown in figure 2, which when clicked will open the pop-up menu for uploading files. This is shown in figure 5.

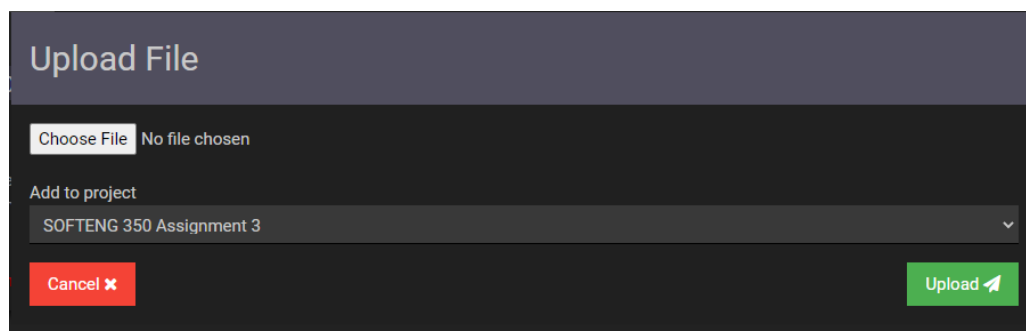
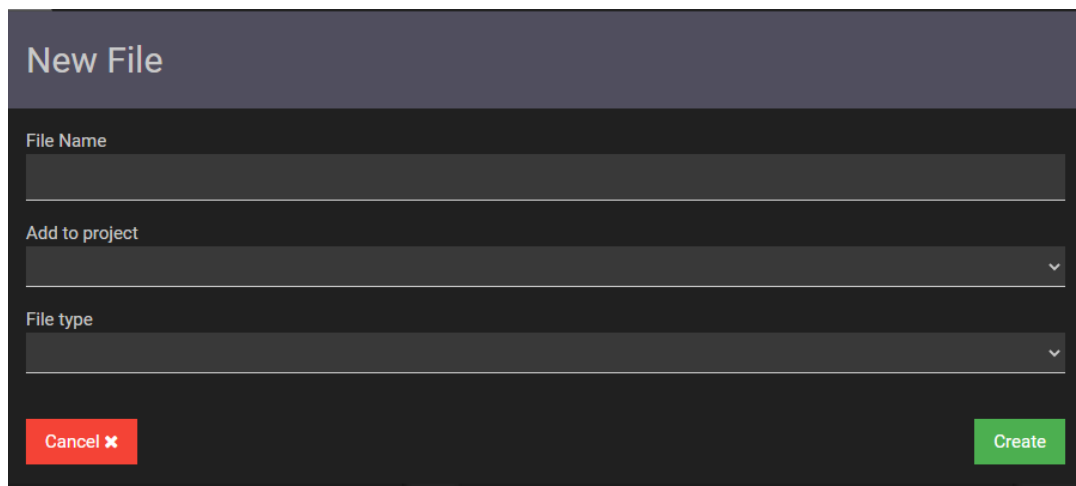


Figure 5

Files can be chosen from the OS file explorer which opens when the “choose file” button is clicked. Each file can be added to a specific project.

Creating a new file:

Files can be created by clicking the button shown in figure 1, then clicking “New file” shown in figure 2. This opens the New file pop-up menu shown in figure 6.



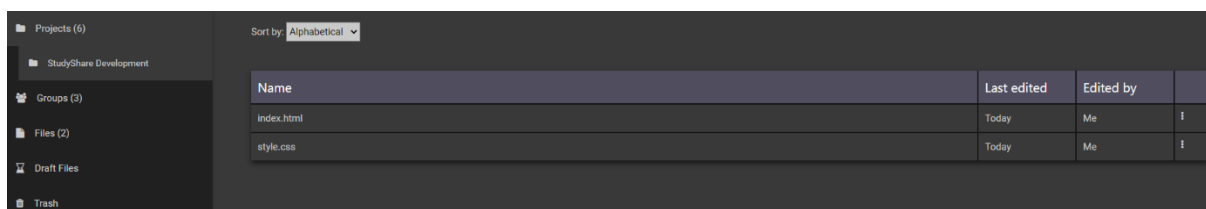
The 'New File' dialog box has a dark theme. It features a title bar 'New File' in white. Below it, there are three input fields: 'File Name', 'Add to project', and 'File type'. Each field has a light gray placeholder text. At the bottom, there are two buttons: a red 'Cancel' button with a close icon and a green 'Create' button.

Figure 6

The main file types students would use for schoolwork are provided as options, document, slideshow and spreadsheet. These provide convenience and efficiency for students who either do not have access to document editors, or want fast creation and in browser document editing.

Viewing the contents of a project:

The contents of a project can be viewed by clicking on the title of a project. Figure 7 shows the contents of the “StudyShare” project. Some details about the individual files like the last edited date and editor are shown. This is useful to students as they may need to inquire with the last editor about their changes or advise them.



The screenshot shows a sidebar on the left with a tree view containing 'Projects (6)', 'StudyShare Development', 'Groups (3)', 'Files (2)', 'Draft Files', and 'Trash'. The main area shows a table of files for the 'StudyShare Development' project. The table has columns for 'Name', 'Last edited', 'Edited by', and an empty column. The files listed are 'index.html' and 'style.css', both edited 'Today' by 'Me'.

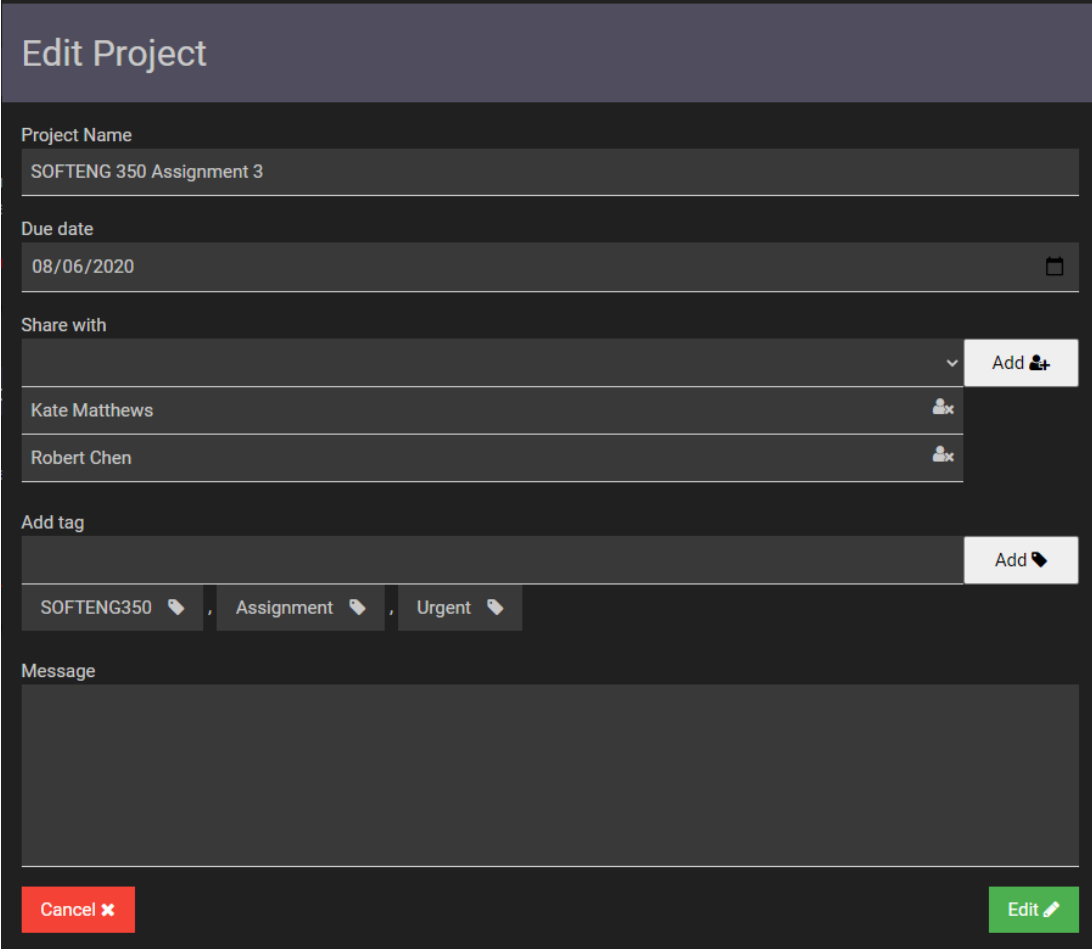
Name	Last edited	Edited by	
index.html	Today	Me	I
style.css	Today	Me	I

Figure 7

Other features:

Editing projects:

Projects can be edited by clicking the ellipsis at the top right of each project as shown in figure 4. This action opens the edit menu, shown in figure 8. For all pop-up menus on the website, there is always a cancel button that allows the heuristic of user control to exit whenever needed. Furthermore, dropdown lists are used wherever possible to achieve the heuristic of recognition rather than recall.



The 'Edit Project' modal form is displayed with a dark theme. It contains the following fields and controls:

- Project Name:** A text input field containing 'SOFTENG 350 Assignment 3'.
- Due date:** A date input field showing '08/06/2020' with a calendar icon on the right.
- Share with:** A section with a dropdown menu (currently showing a checkmark), an 'Add' button with a plus icon, and a list of users: 'Kate Matthews' and 'Robert Chen', each with a remove icon (person with an x).
- Add tag:** A text input field with an 'Add' button and a tag icon. Below it, three tags are shown: 'SOFTENG350', 'Assignment', and 'Urgent', each with a tag icon.
- Message:** A large text area for a message.
- Buttons:** A red 'Cancel' button with an 'x' icon and a green 'Edit' button with a pencil icon.

Figure 8

From this menu any attribute set in the project creation can be edited. This is useful for students as they may want to make changes like adding more users to the project or adding tags.

Editing files:

Files can be edited by clicking on a project to see its files, then clicking the ellipsis shown in figure 9.

Name	Last edited	Edited by	
mockup.png	1/3/20	Kate Matthews	

Figure 9

This opens the file editing pop-up menu shown in figure 10, which allows users to edit or delete the file.

Figure 10 is a dark-themed pop-up menu titled "Edit File". It contains the following elements:

- File Name:** A text input field with a red "Delete" button featuring a trash icon.
- Share with:** A text input field, a dropdown arrow, and a white "Add" button with a person icon.
- Message:** A large text area for entering a message.
- Buttons:** A red "Cancel" button with a close icon and a green "Edit" button.

Figure 10

Walkthrough Video:

A walkthrough of the explained scenario can be found in the link below:

<https://www.youtube.com/watch?v=rwtU1B1t960&feature=youtu.be>

Visual design choices:

The website is cleanly partitioned with the use of whitespace into 3 parts: the main element in the middle, the navigation sidebar, and the top bar. For the colour, a dark scheme of grey, black and purple is used to provide relief for the eyes and allow the use of brighter colours to highlight important elements such as the due date. This is shown in figure 11.

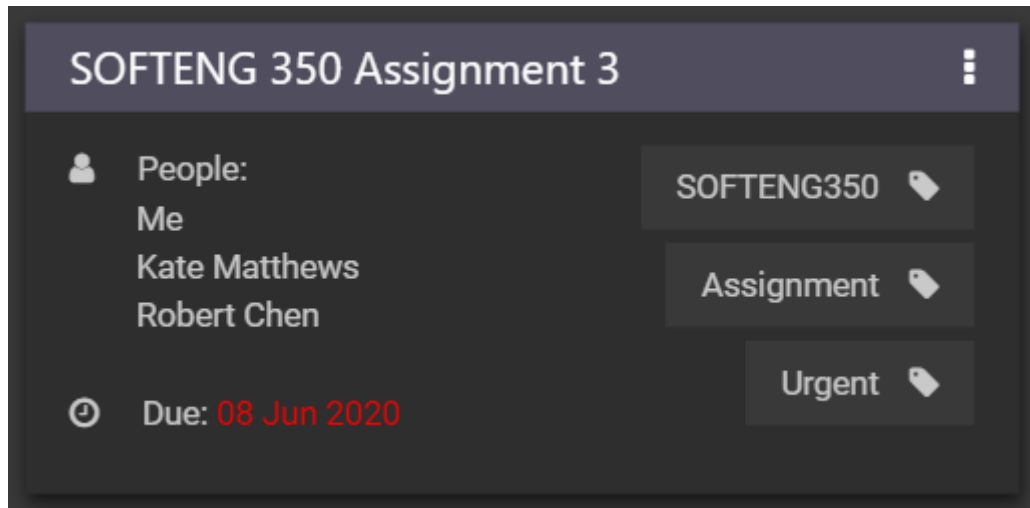


Figure 11

Using a dark colour scheme, sufficiently high colour contrast is achieved between the text and the background to satisfy the Web Content Accessibility Guidelines 2.1. The website always shows where the users are by highlighting the current page in the sidebar as shown in figure 12. This achieves Nielsen's heuristic of visibility of system status.

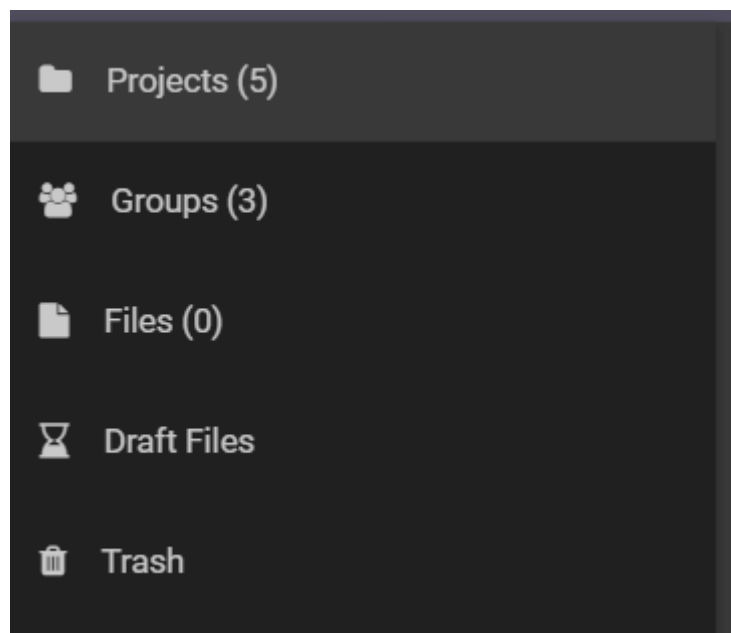


Figure 12

Figure 13 shows there is also a hover effect to create an instantaneous response.

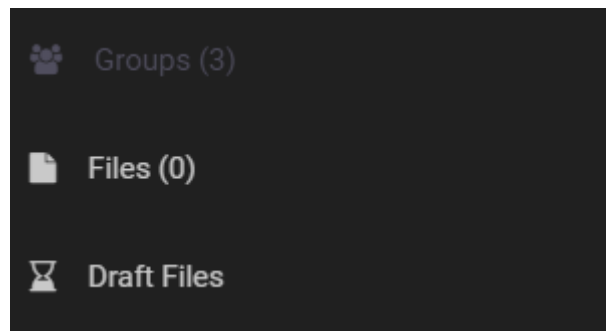


Figure 13

The different creation features are commonly used, so they are made accessible from every screen of the website. The open and close buttons of the creation options list are placed in the same position so that it may be closed fast, achieving the efficiency of use heuristic.

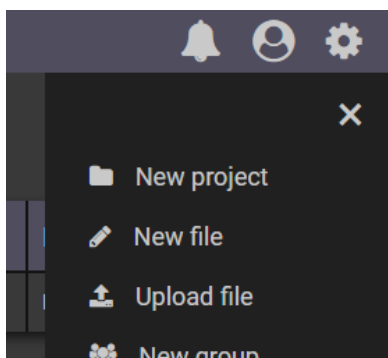


Figure 14

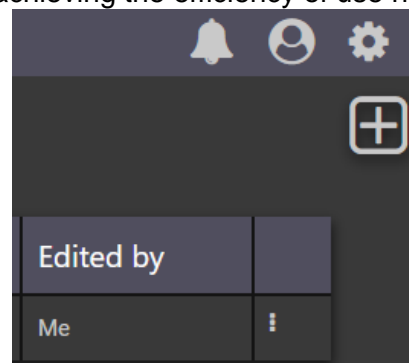


Figure 15

Using the common fate principle of Gestalt Principles of Perception, the elements in the main page are placed in grids to create a sense of relation and order as shown in figure 16.

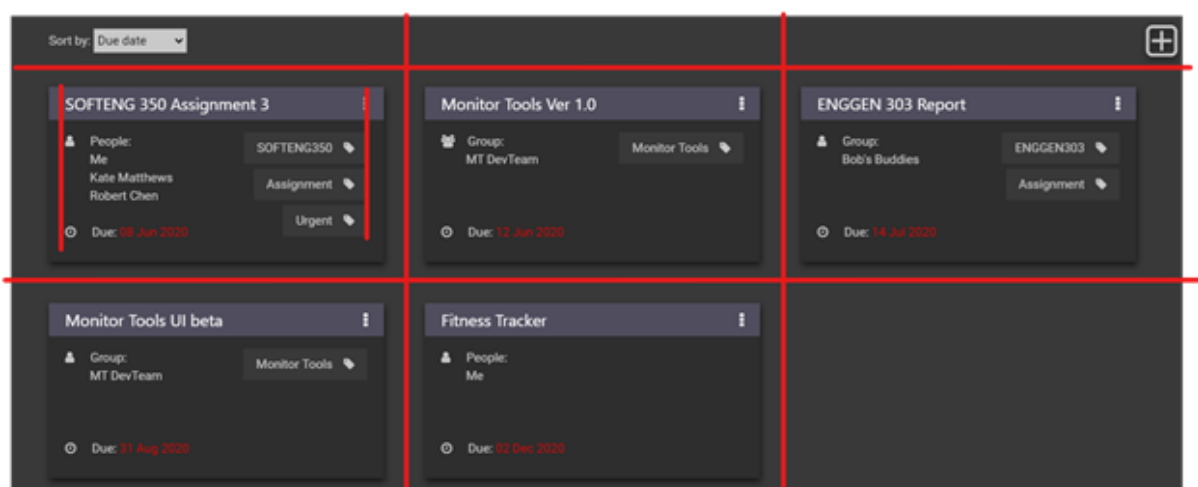


Figure 16

Usage Testing Protocol Rationale

For the user testing, we asked the participants to perform 3 predefined tasks. Free exploration was avoided as the website lacked full functionality. The 3 predefined tasks covered most of the website's functions. These tasks were chosen to address potential usability issues.

Projects are an important part of the website as it allows users to share everything inside the project after specifying who to share with once at the start. That is why for the first task, the user is asked to create a new project with given information. We hypothesised that this task may pose a problem as the navigation to create a project is not immediately obvious. The task was made in a way that ensured the participant would interact with every input element of creating a project.

Another designated task was the creation and deletion of a file. Having the user create a file allowed us to see if using the main feature of the website is obvious and simple. Adding the deletion of a file to the task simulates some of the intended workflow of the website. This lets us see if the workflow of the website is logical and intuitive. The task also allowed us to test our hypothesis that the user would be unable to open the project due to the title of the project not being an obvious button.

The final hypothesis we had was that users would expect to edit projects from inside, while a project is open. This goes against the design of the website which places the option to edit projects on each project box in the homescreen. The third task asked the user to edit a project, which let us test this exact hypothesis. This task also allowed us to see the user navigate back to the homescreen from the project view entered in task 2, which we thought could be problematic as there is no obvious back button to press.

We decided to analyse two metrics as the users undertook the tasks, the time taken and critical errors made. The time taken would allow us to see if the user was struggling to find or understand controls by comparing to the baseline time. Measuring the errors would provide obvious pointers to problems in the interface.

We asked the users some questions prior to the commencement of the usage test in order to gauge their level of familiarity with file sharing systems in general. This was so that we could have better insight into what they would expect the interface to look like and perform like. We also asked a few questions after the usage testing in order to get some overall feedback on the design of the website and its usability.

Usage Testing Results

Participant Characteristics:

	Age	Occupation
Participant 1	18	Computer science student
Participant 2	21	Computer science student

We ensured the participants selected represented the target users of the website, university students who would frequently undertake assignments and projects. The participants were both familiar with using a variety of web applications as computer science students at an age where technology is a part of everyday life. Neither had in depth knowledge of UI or UX design. Their only experience using file sharing applications was Google Drive, but their usage of drive was very frequent at multiple times a week. They valued features like document viewing and editing, the ability to upload any file type, and ease of use. The participants felt that the editors contained in drive lacked the features of desktop applications, and disliked their lack of native support for coding.

Quantitative results:

	Task 1	Task 2	Task 3
Participant 1	Time: 106s Errors: 2	Time: 48s Errors: 1	Time: 40s Errors: 0
Participant 2	Time: 40s Errors: 0	Time: 58s Errors: 1	Time: 33s Errors: 0

	How much did you like using the website?	Rate the overall aesthetic of the website.	How difficult was the website to use? (1 being most difficult)
Participant 1	4	3	4
Participant 2	3	2	5

Qualitative results:

From the in-test questions, we found that the participants had problems with the design of the website. Participant 1 did not understand the use of the tagging system for projects and thought that this would likely not be commonly used. Participant 2 thought that the central boxes contained too much information and took up too much space. They also thought that it was not obvious as to what the boxes represented. Another problem that participant 2 had with the design was that they did not find it obvious that a new project had been created. The final problem presented by participant 2 in the in-test questions was that the file delete button appeared to be related to the file name due to the proximity of the two elements.

In the post-test questions participant 1 thought that the text on the 'edit' button in the edit file popup did not follow what they expected from their use of other websites. They also thought that the creation of a new project may not be obvious to the user due to its placement at the end of the list. Participant 1 thought that the colour scheme of the website was 'drab'. Participant 2 noted the lack of the ability to delete a project. They also thought that the colour

scheme was 'a bit depressing', noting that the contrast between some of the colours was too high.

During task 1, a problem that participant 1 encountered was when adding shared users/tags they did not expect to enter their input before clicking the add button.

For task 2, participant 2 found it confusing that they had to select a project for the new file when they had already navigated to the project that they wanted the file to be in. They also thought that the position of the delete button next to the file name input box meant that they had to enter a file name before deleting.

Discussion:

The results from the user testing showed all the hypotheses of the usage testing tasks to be false. Most of the website controls were intuitive, and the workflow was logical enough to understand at first glance. The icons used were also easy to understand as there was a good match between the system and the real world.

A problem that both participants identified was that it was not obvious when a new project is created. This is likely because the new project is placed at the end of list. This problem could be rectified by having the default sorting set to creation date newest to oldest so that the new project is the 1st item in the list. An alternative solution/addition to this could be to highlight the newly created project with a border or colours in order to make it stand out.

An observation from the usage tests was that both users entered the project that they wanted a new file to be inside before creating the file, when it was intended that the user would select the project when the file is created instead. This is most likely due to conventions on other platforms. To address this issue the website should follow this convention.

Another key problem identified by the participants was the placement of the file deletion button. The buttons proximity to the file name input field made the users feel like these were related when they were not intended to be. This caused confusion in the users on what actions needed to be performed in order to delete a file. A solution to this problem would be to move the delete button to be next to the file options button.

From the ratings received on the aesthetic of the website, it can be seen that the colour scheme of the website needs adjusting. The solution would most likely be to add more colour variation or adjust the purple theme colour to be brighter, as both participants commented on the dullness of the colours used.

Appendix A

Test protocol:

Greeting:

Today you will be completing a series of tasks on our website StudyShare. The website is a file sharing service aimed at students. The results we gather from your completion of the tasks will be used to improve the design of our website.

Informed Consent

Before we start, please review and sign this informed consent form.

Task Instructions

1. Hypothesis:
Users may not recognise the button for creating new files/projects, or have difficulty finding it.

Task:

Locate the create button and create a project with specific information.

Baseline time: 25 seconds

Prompt:

Say you want to create a project called "StudyShare" that is due on the 14th of January 2021. Create such a project with the website and share it with the "StudyShare" group, with the share message being "Start whenever you are free." Add a tag called "StudyShare".

2. Hypothesis:
Users may have difficulty viewing a project's contents.

Task:

Create and delete a file.

Baseline time: 25 seconds

Prompt:

Now we want to create a new document file called "report" for the "ENGGEN303 Report" project. Go ahead and create that file.
Let's say you don't actually need that file. Delete that file.

3. Hypothesis:
Users may not realise editing of project details occurs from the home projects screen and not the project contents screen.

Task:

Edit a project.

Baseline time: 15 seconds

Prompt:

About that project "SOFTENG 350 Assignment 3". I think that's kinda long. Let's change the name of the project to "SE350A3". Also, you previously forgot to add your peer John Smith to the project, so go ahead and add him too.

Questionnaire:

Pre-test questions:

1. What other file sharing websites or applications are you familiar with?
2. How often do you use file sharing websites?
3. What do you like about these websites?
4. What do you dislike about these websites?
5. Are you familiar with UX/UI design?

Questions during tasks:

1. What part of the homescreen stands out to you the most?
2. Describe which elements seem like buttons without clicking on anything.
3. Without clicking on anything, could you describe what you think the 3 icons in the top right corner do?
4. What do you think of the layout of the content?
5. (after task 1) Is it obvious to you that your new project has been created?
6. Why did you click(what user clicked) to create a new project?
7. (after task 2) Is it obvious to you that the file has been deleted?
8. Why did you click(what user clicked) to delete that file?
9. (after task 3) Why did you click(what user clicked) to change the project?
10. What part of the website do you think is most commonly used?
11. What part of the website do you think is least commonly used?

Post-test questions:

1. How much did you like using the website on a scale of 1-5?
2. If you could make one significant change to the website, what change would you make?
3. If you could add one feature to the website what would it be?
4. Rate the aesthetic of the website on a scale of 1-5.
5. How difficult was the website to navigate on a scale of 1-5? 1 being most difficult and 5 being least.

Consent form:

Informed Consent Form for Participants of StudyShare User Testing

(Template taken from The UX book: Agile design for quality user experiences)

Assignment 3 Group 11 - 5/6/2020 - Title of Project: StudyShare

Project team members directly involved: Quang Hoang, Joel Shin, Callum Daniel. Project manager: Quang Hoang

- I. **THE PURPOSE OF YOUR PARTICIPATION IN THIS PROJECT** As part of the StudyShare project, you are invited to participate in evaluating and improving various designs of the StudyShare website, which is for sharing files primarily between students.
- II. **PROCEDURES:** You will be asked to perform a set of tasks using the StudyShare cloud service. These tasks consist of reviewing a website while talking aloud what you are thinking, then completing a questionnaire. Your role in these tasks is to help us evaluate the design of the website. We are not evaluating you or your performance in any way. As you perform various tasks with the system, your actions and comments will be noted and you will be asked to describe verbally your learning process. You may be asked questions during and after the evaluation in order to clarify our understanding of your evaluation. You may also be asked to fill out a questionnaire relating to your usage of the system.
- III. **RISKS:** There are no known risks to the participants of this study.
- IV. **BENEFITS:** Your participation in this project will provide information that may be used to improve our designs for StudyShare. No guarantee of further benefits has been made to encourage you to participate. You are requested to refrain from discussing the evaluation with other people who might be in the candidate pool from which other participants might be drawn.
- V. **EXTENT OF ANONYMITY AND CONFIDENTIALITY** The results of this study will be kept strictly confidential. Your written consent is required for the researchers to release any data identified with you as an individual to anyone other than personnel working on the project. The information you provide will have your name removed and only a subject number will identify you during analyses and any written reports of the research. The session may be recorded. If it is recorded, the recordings will be stored securely, viewed only by the project team members and erased after three months. If the project team members wish to use a portion of your recording for any other purpose, they will get your written permission before using it. Your signature on this form does not give them permission to show your recording to anyone else.
- VI. **COMPENSATION** Your participation is voluntary and unpaid
- VII. **FREEDOM TO WITHDRAW** You are free to withdraw from this study at any time for any reason.
- VIII. **APPROVAL OF RESEARCH** This research has been approved, as required, by the Institutional Review Board for projects involving human subjects at the University of Auckland.
- IX. **PARTICIPANT RESPONSIBILITIES AND PERMISSION** I voluntarily agree to participate in this study, and I know of no reason I cannot participate. I have read and understand the informed consent and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent for participation in this project. If I participate, I may withdraw at any time without penalty. I agree to abide by the rules of this project.

Signature

Date

Name (please print)

Contact: (phone or email)

Appendix B:

Usage Testing Results:

Participant 1:

Occupation: Computer Science student

Age: 18

Pre-test answers

1. Google drive
2. Frequently during school with courses which requires collaboration
3. Variety of features such as drawings, spreadsheets, uploading any file type. Free to use. Intuitive, and googling help yields plenty of results.
4. File editors lacks features that other document and file editors have, is not as featureful as Microsoft office.
5. No

In-test answers

1. The grid of projects
2. Successfully identifies all buttons as buttons, without any false positives.
3. Notification control, profile/display, settings
4. Well done
5. Yes, additional project in homescreen can easily be seen.
6. It seemed obvious with the plus element, icons that look like that usually add something. Also it is on the projects screen as seen in the left side navbar.
7. Yes, as the file is gone from the project view.
8. Intuitive, there is a button that looks like it would open a menu of sorts corresponding to the file to be deleted.
9. Intuitive, there is a button that looks like it would open a menu of sorts corresponding to the project to be edited.
10. The edit buttons for files and projects.
11. The tags functionality, unsure of their place in the website. (what they are used for)

Post-test answers

1. 4
2. Would change the text of the "Edit" button to say "Save" or "Save changes" as the edit button is more commonly seen at the start of the editing process.
3. Could be cases where it isn't apparent that the user's project has been created, so the projects could be sorted by creation date by default, so new projects are shown at the start of the list, or a pop-up message saying the specific project has been created.

4. 3, colours look drab.
5. 4, only confusing part was the "Edit" button. Rest of the website seemed intuitive.

Task 1

Participant easily locates "+" button for creation, then the "Create project" button. Inputs the title with no hesitation. When selecting the group to share with, does not realise the group must first be selected before clicking the "Add" button. Also does this for the tag input.

Time taken: 1 minute 46 seconds

Errors: 2

Task 2

Participant opens the project before clicking the plus button and "Create file". No hesitation or difficulty creating a file. Also no hesitation or difficulty locating the button for editing the file, and deleting it.

Time taken: 34 seconds for file creation, 14 seconds for deletion.

Errors: 0

Task 3

Participant finds the button to go back to the homescreen without hesitation, and immediately opens the menu to edit files by clicking the edit project button. Correctly adds another individual to share with this time, seems to have learned from task 1.

Time taken: 40 seconds

Errors: 0

Participant 2:

Occupation: Computer Science student

Age: 21

Pre-test answers

1. Google drive
2. Often, multiple times per week
3. I can open documents easily with google docs and am able to convert to pdf.
4. Doesn't have native support for coding.
5. No

In-test answers

1. The boxes in the middle.

2. Identifies all of the buttons successfully and also explains what they thought each button was.
3. Answered during the previous question, bell is notifications, person is profile and cog is settings.
4. Confused by what the boxes in the middle are.
5. It was not super obvious. I couldn't find the new project initially and the popup was not where I expected it to be. I expected it to be in the middle but it was at the top.
6. Because it's a plus and it's big. There isn't anywhere else that would make sense to click either.
7. It didn't really tell me that the file had been deleted, it just disappeared. If you had a lot of files I can imagine it being very hard to tell.
8. It's next to the file and it's a very commonly used icon on many different apps to represent this sort of functionality.
9. Same reasoning as before.
10. The buttons at the top right of the page.
11. The boxes in the middle, they have a lot of information and take up too much space. The titles don't really stand out because everything is the same colour scheme.

Post-test answers

1. 3, wasn't too hard to do the actions you asked me.
2. Changing the delete file button. It felt related to the project name, and seemed like I had to enter a project name to delete.
3. The ability to delete a project.
4. 2. Colour scheme is a bit depressing. The contrast between some of the different colours is a bit too high.
5. 5, the website was really easy to use.

Task 1

Instantly clicks on the + button. Selects the new project button. Easily inputs all of the specified information without any problems, including date (uses keyboard for this), shared with and tags. Clicks the create button. Clicks the ok button. Is somewhat confused as to where the new project is at first. User spontaneously opens the edit project menu

Time taken: 40 seconds

Errors: 0

Task 2

Clicks into the project. Hovers over left navigation options at first. Then clicks on the + button, followed by new file. Enters details of the new file. Is confused by why it asks for the project when he is already in the project that he wants the file in. Clicks create. Clicks ok. Instantly clicks on the edit button. Is very confused by the placement of the delete option and exits the edit menu once. Then re-enters it and clicks delete.

Time taken: 58 seconds

Errors: 1

Task 3

Clicks Projects on the left to return. Clicks on the 3 dots in the top right corner. Changes the appropriate information and clicks the add button. Puts a new tag and a message. Clicks edit. Clicks ok

Time taken: 33 seconds

Errors: 0

References

<https://www.w3.org/TR/WCAG21/>

<https://www.w3.org/WAI/EO/Drafts/UCD/questions.html>

The UX book: Agile design for quality user experiences
Authored by H. Rex Hartson; Pardha S. Pyla;
Published 2019