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# Coursework 3: The Process

## PACT Analysis

### People

Users of this software will be outdoor enthusiasts. Mostly they will be young (18-35), but there will be a range of ages from younger teenagers up to people in their 60s. There should be a focus on younger users, whilst considering a wide range.

The users record footage with a range of durations and contexts. Their aim isn't to have a complex video editor, they want a single application which they can use to manage and view their videos. This relative simplicity is a key aim in the development of this product.

Simplicity also aids the accessibility of the app. It should be expected that there will be users with different accessibility requirements. Keeping the design relatively simple will help address this.

As the users will mostly be enthusiasts there will be a largely homogenous group of users with similar levels of expertise and requirements. This means the design doesn't need to be a very broad church; instead it should focus intensely on this particular group.

### Activities

The main activity carried out with this program is video playback. Beyond that, users would want to be able to sort through their videos and add videos quickly from their action cameras, phones, and other devices.

The users need standard video playback features like play/pause, volume adjustment, scrubbing through the video (particularly as the videos can be massive in length). Some slightly more complex playback features this group might look for are things like playback speed, for example for a slow-motion effect. This is a common use case for outdoor enthusiasts.

As the application deals with video it should be instantaneously responsive to user inputs.

Given the users are going to be mostly fairly young, use of the application should be self-explanatory and wouldn't require a rigid step-by-step process. This gives greater flexibility for the user.

### Context

As this software is intended for use on a computer/laptop, its use will usually be in a home environment. The physical environment will not be a huge factor in the development of this software as the conditions won't be challenging.

While there should be a level of human support available for this software, the main form of help should be self-serve, in the software itself. There is likely to be a level of tech-savviness amongst users, and a combination of straightforward design and self-serve help should be enough most of the time. This allows for use at any time of the day, or in places with limited WiFi such as in a hotel when the user is travelling.

There should also be features like volume control so that users can be considerate to other people or neighbours. This kind of thing is likely to be the only potential issue with the social context in which the program is used.

**Technology**

The program will take input through the user's keyboard and mouse/trackpad. Output will go through the speakers and monitor/laptop screen. Again, this is nothing too complex and allows for a reasonably low barrier to entry.

The program will need to be able to interface with the computer's file system and read a range of different video file types. The user interface will need to be able to display these videos in a way which is easy to understand and navigate. All of these requirements will be doable using C++ and Qt for implementation on a PC/laptop.

There's no real need for specialist technology in this program which will make it easy for users to access and use, and relatively straightforward to implement in an efficient and effective way.

## Sample Persona: Theo, Travel & Sports enthusiast

**Fictional Name**

Theo Brooks

**Occupation**

Self-employed

**Demographic**

- 25 years old;
- Lives in London, United Kingdom;
- Travels twice every year and treks frequently
- Has two brothers that visit during the holidays;
- Has adequate knowledge in photography, editing videos and technical knowledge

**Goals and Needs**

Theo is a hodophile, and he always makes it a point to travel overseas where he spends his time outdoors doing various activities with his favourite being trekking.

In addition, he would bring his GoPro wherever he goes and records his adventures which he shows to his friends and family whenever they come over and uploads them from time to time to his blog. So, he needs to be able to have an application that is able to import videos of various lengths from both his GoPro and other online storage that is able to sort them and for him to be able to view and playback so he can edit as well.

**Pain Points**

As of now, the main pain point for Theo is that the user interface of the current design of the tomeo system has no proper controls such as play, volume, ability to select videos.

Other pain points are

- Videos are randomly played and showed in the gallery
- No main overview of all the videos

**Relevant Patterns of Behavior**

Theo spends the majority of his time travelling and trekking. He is tech-savvy and uses the latest iPhone. He mainly uploads his videos to a file from his GoPro, but from time to time he takes them on his iPhone and stores them online in external storage. He knows his way around any app in a matter of seconds, so he always skips tutorials.

**Use Case Scenario 1**

Theo has just returned from a trip and wants to upload videos of varying lengths from his recent trip overseas. The videos were uploaded from his GoPro into a file that is on his laptop from which he uses the application to import the videos, from which they are sorted according to how recently they were shot**.**

**Use Case Scenario 2**

Theo wants to show his brothers who are coming over for the holidays the videos he had taken from previous trips which he had previously imported in the application and that were sorted based on when they were imported.

## Cycle One

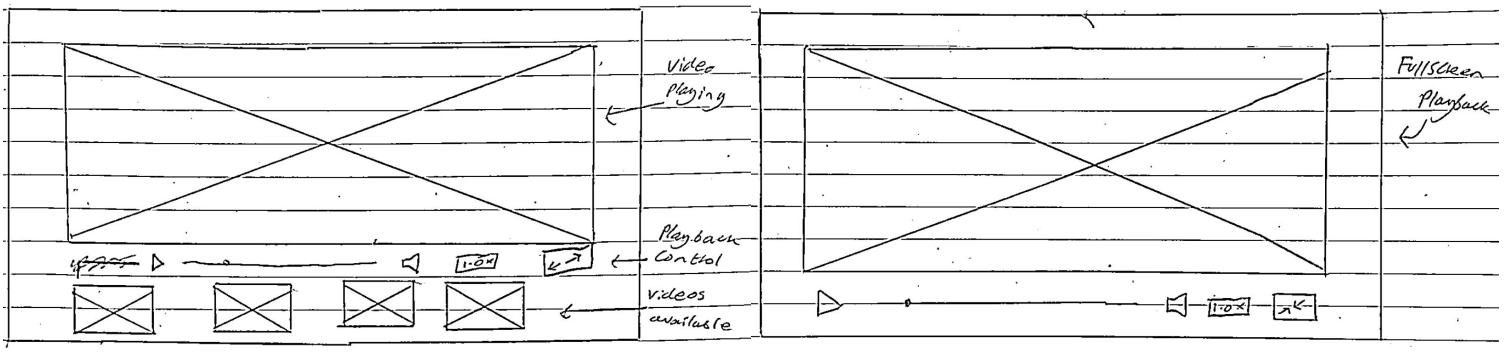
**Prototype**

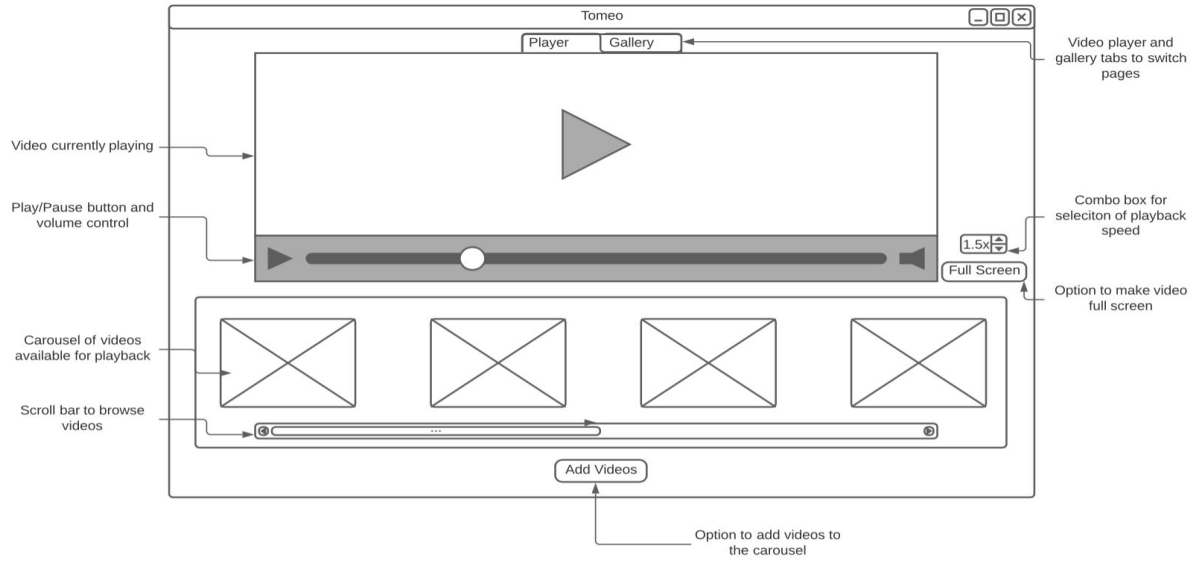
The objective of this first design cycle was to implement some of the more basic features that make a video player useful and to start to refine the user interface a little for ease of use. By the end of the design cycle, we hoped to have produced a version of the Tomeo app which is slightly less buggy and has several more of the basic features one would expect when trying to browse/view videos. These include things like play/pause, volume control, playback speed, the ability to go full screen, nicer navigation, and the ability to add videos to the app. The aim was also to have removed several bugs such as the duplication of video thumbnails on the buttons. This cycle was to be more focussed on adding features rather than making the application look perfect, and we intend to improve the design in subsequent cycles.

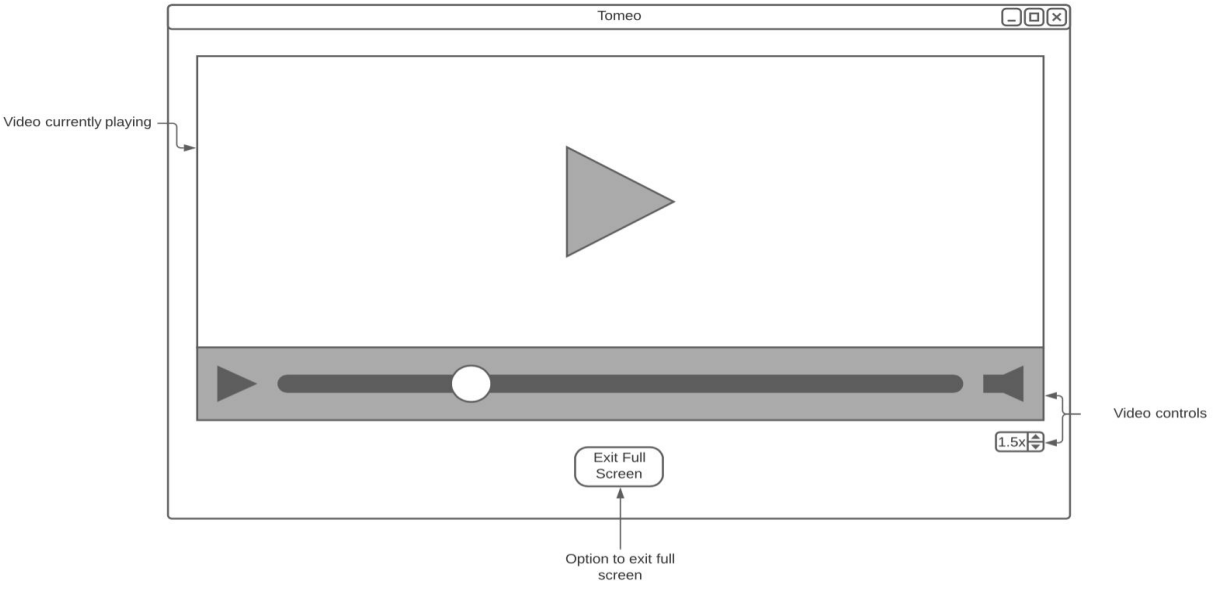
Prototypes were produced by sketches and using the online diagram software Lucidchart. These low fidelity techniques were used as this cycle was a starting point from which to grow in future cycles. Sketches in particular give a quick way to translate ideas into something visual, which could then be implemented. While there was only a rough idea of what the final product would look like it was better to work with simpler techniques, as they allow for greater flexibility than something painstakingly designed to the highest standard. The basic idea was to draw some sketches and then to produce a slightly neater final prototype using Lucidchart, which is easier to understand and work from.

The design shown in the prototype is reasonably simple. It shows the media player along with some controls, and a scroll area with a carousel to browse some of the videos in the folder. The aim with this was to meet the basic requirements for users of a video player. It is

not hugely feature rich but allows for simple navigation and control of the software. The tab at the top of the page shows a ‘gallery’ section which will be implemented in a later cycle but seemed important to include to give an idea of the structure of the program’s user interface. The prototype shows the 2 main pages implemented this cycle: the full screen mode, and the main page that a user would land on when starting up the application. This felt a good starting point for future iterations.



**Evaluation**

The evaluation technique cognitive walkthrough was chosen as most optimal for cycle one.

The reason being, it best fits to achieve the goal of understanding how a user will react and use the application in the early stage of the project and which components could be improved upon. The walkthrough is conducted, by first deciding and allocating tasks to be achieved by the user, next follows a hands-on approach where observations in regard to obstacles faced by the user and what tasks the users managed to complete.
The data is then used to quickly identify which components or features would be needed to be worked upon in further iterations.

For the 1st cycle, the following tasks listed below, were used as a test to see if the user was able to perform the normal functionality commonly found in a video player application;

- Easily import videos
- Choosing and playing a video
- Viewing the video
- Scrolling through the videos imported (in a gallery)

During the testing on the first improved application in cycle 1 the following questions were also used as a guideline

- Will the user try and achieve the right outcome?
- Will the user notice that the correct action is available to them?
- Will the user associate the correct action with the outcome they expect to achieve?
- If the correct action is performed? (Will the user see that progress is being made towards their intended outcome)

From which the following results were obtained :

- Users could complete the majority of the tasks listed above such as simple navigation of the application and importing , playing and viewing of the video files.
- Certain functionality of the current version of the player had not been thoroughly debugged, and some features could not be displayed yet.
- Users also had raised certain major issues of the application that required more focus to be placed upon and fixed in the next cycle:
    - The layout of the current player is confusing due to the randomly switching thumbnails.
    - Player control buttons were confusing because of the lack of information and key control buttons, which indicated a need for a more intuitive layout .
    - User experience of the player was affected because the video can only be played in full-screen mode which seems to be affected only on certain platforms.

Improvements to be made in the next cycle in order of importance:

- The code in cycle 1 needs to be further adjusted to make all functions appear on the interface, and the problem that the player can only play video in full-screen mode needs to be solved.
- Need to complete the code implementation of the gallery function to meet the needs of users

- Volume bar to be shifted  below the play video progress bar
- A FAQ page or HELP page is needed, to provide help to users who have difficulty using the player.

Evidence:
Result & feedback

| Tasks /Question | Will the user try and achieve the right outcome? | Noticed that the correct action is available? | User associated the correct action with the outcome they expect to achieve? | Able to see progress to their goals if the right action was performed? |
|---|---|---|---|---|
| 1.Easily import videos | **Failed** | **Failed** | **Successful** | **Failed** |
| 2.Choosing and playing a video | **Successful** | **Successful** | **Successful** | **Successful** |
| 3.Viewing the video | **Successful** | **Failed** | **Failed** | **Successful** |
| 4.Scrolling through the videos imported | **Failed** | **Failed** | **Failed** | **Failed** |

Detail breakdown

| Tasks | | | | |
|---|---|---|---|---|
| 1 | Couldn't understand how to import video | Not aware of the correct action to import videos (Assumed there was a button) | Feedback on lack of control | The outcome wasn't able to achieve |
| 2 | Confused on thumbnail Layout | | Able to associate still had confusion | |
| 3 | Feedback on lack of controls | Not able to associate correct action | Not able to associate correct action with an outcome | |
| 4 | Not able to reach outcome (not implemented) | Not able to reach outcome | Not able to reach outcome | Not able to reach outcome |

| | | | | |
|---|---|---|---|---|
| | | (not implemented) | (not implemented) | (not implemented) |

**Code**
**Video Link: https://youtu.be/zl5oKDQnSxg**

Link to the code at the end of this development cycle:

https://gitlab.com/Ben_Rowan/user-interfaces-cwk3/-/tags/Protype_Cycle_1

The end of the cycle largely looks like the prototype that was designed originally. There were no significant issues in implementing the features that were planned originally, the idea was to create a relatively simple and straightforward improvement on the initial Tomeo application which was achieved in this cycle.

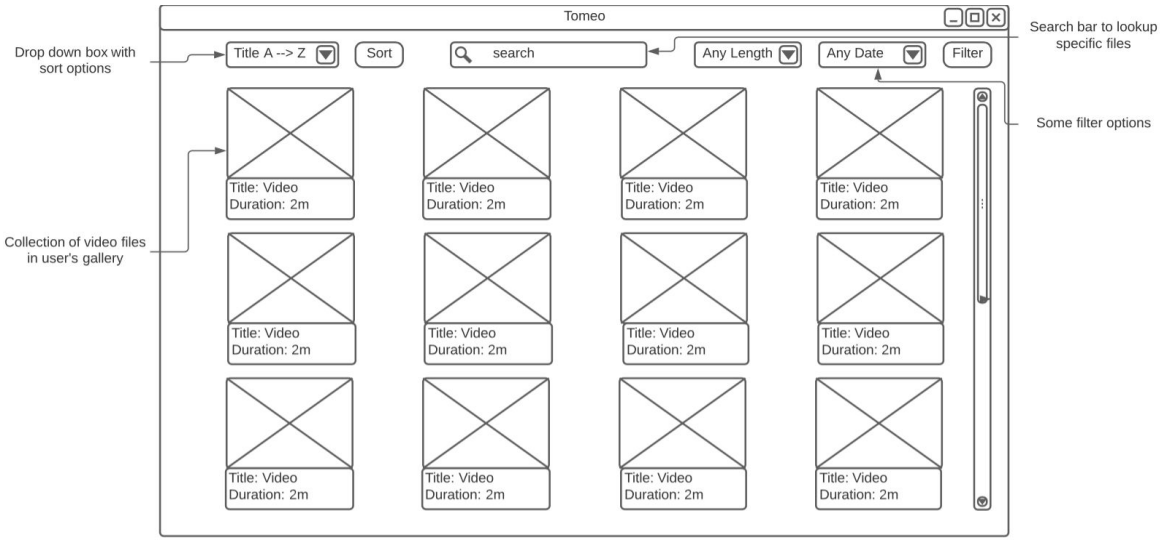
## Cycle Two

**Prototype**

The main objective of this second cycle is to give the user greater control over their video library. This will be done via the implementation of a gallery feature. One of the main requirements for the users being targeted is the ability to sort, filter, search, and organise their many video files. The gallery feature implemented in this cycle will allow for many of these use cases. The thinking behind this was the desire to create software which did more than just playback videos to the user, instead it should be a complete software package with broad utility. Users much prefer being able to do everything in one place, particularly as these users are generally more interested in simplicity rather than very complex video editing software - in general their interest lies more in filming the footage than using specialist software to organise it afterwards.

As in the previous cycle, LucidChart was used to generate the prototype here. The design is fairly “tried and true”, a gallery is fairly intuitive and consistent between software so this simple design tool was suitable.

This prototype was designed with the aim of designing a simple but useful gallery function. There’s a balance to be struck here between showing plenty of information and content, but also keeping it straightforward. As is repeated throughout this document the outcome of this wasn’t supposed to be massively complex software, but more a “middle of the road” tool which provides simple yet useful functionality. This design will be broadly familiar and intuitive to most of the users. A grid of videos with names and some metadata is what you would naturally expect to encounter if you were browsing files, just as you would if you were interacting with a physical collection of, say, photographs. In addition, this design allows for quick filtering by length and date, sorting in a few different ways, and the ability to search through the files. It’s not overwhelming in any way and continues with the principle of being able to just look at a page and knowing naturally how to interact with it to achieve a goal.




**Evaluation**

The evaluation techniques cognitive walkthrough and use of questionnaire was chosen as the appropriate evaluation methods for cycle 2 to achieve our next cycle's objective.

The reason these two techniques were chosen was that it achieves the goal of gathering feedback in a quick manner of the current implementations done in the second cycle and improvements that are to be completed in the next. In the second cycle, the application should have completed all the functional components needed with the focus to next be directed to the improvement of the layout of the user interface. This will be redesigned and implemented to meet the user's habits and feedback that was gathered from the evaluation.

For this evaluation it will first use the cognitive walkthrough approach to see how the user would react to the changes made to the application, by taking on a hands-on approach where the tasks given were designed to fully test all functionality and discover issues to be debugged in the following cycle.

Questionnaires are then sent to users of different backgrounds and capabilities to get a more comprehensive feedback. In regards to the questionnaire, the questions were designed to test the following aspects which are simplicity of the application , functional satisfaction and post experience. The data obtained gathered here will then be used to facilitate the further improvement and development of the third cycle.

Cognitive Walkthrough

For the 2nd cycle, the following tasks listed below, were used as a test to see if the user was able to understand and use the newly implemented functions of the application;

- Navigating around the gallery
- Search for a particular video
- Import then search

The same questions as in cycle 1 are used to keep consistency

- Will the user try and achieve the right outcome?
- Will the user notice that the correct action is available to them?
- Will the user associate the correct action with the outcome they expect to achieve?
- If the correct action is performed? (Will the user see that progress is being made towards their intended outcome)

Questionnaire

With the intention of testing the comprehensiveness of the software and user's experience the following questions were asked to participants as shown below.

The form is broken down as follows: it consists of the consent form for participants at the top and details of the study taking place, 5 scoring questions and 2 short open-ended questions.

The following are the set questions asked:

Section 1

- You agree to the above information and allow us to use your feedback to modify our software

Section 2 (rating from 1 to 10, 1 as disagree and 10 as highly agree)

- Application is simple (All functions and its buttons are easy to find and simple, easy to use)
- Application is easy to control (Application allow user to perceive that they are in control, and allow appropriate control of the application)
- Application interface design (The interface presents elements simply, the layout suit user using haibit)
- Application suit my daily use (The application fit individual tasks within whatever modality is being used )
- User satisfaction of the Application (Rate from 1~10 your satisfaction with the software and whether you will continue to use it)

Section 3 (Short answer)

- What do you think is the advantage the application
- What do you think we need to improve

From which the following results were obtained：

- Users could complete all the tasks listed above such as navigate around the gallery, and be able to search for particular videos.
- Users think the current layout is clear and simple and covers the basic functions.
- Users expect more functions added such as be able edit video and add location search.
- Users also had raised certain major issues of the application that required more focus to be placed upon and fixed in the next cycle:
    - Users think the current layout is confusing, especially the video list of the player.
    - Users think the video progress bar and volume bar need to be smoother.
    - The current layout is still confusing for the first time users, it's hard to pick up.
    - Users think the color scheme of the current prototype is bland and hard to identify the features.
    - User is confused about the purpose of the application when first used.

Improvements to be made in the next cycle in order of importance:

- The Layout of the player needs to reorganize to suit the users habits.
- The color scheme of the player need to change to avoid the problem that users have difficulty picking informations
- Simplify the user interface to reduce the time required for users to familiarize themselves with the software for the first time.
- Video progress bar and volume bar need to improve control ability and fluency feedback
- Maybe add a welcome page to give basic information of the application to help users understand the purpose of the application.

Evidence:
Cognitive walkthrough
Result & feedback

| Tasks /Question | Will the user try and achieve the right outcome? | Noticed that the correct action is available? | User associated the correct action with the outcome they expect to achieve? | Able to see progress to their goals if the right action was performed? |
|---|---|---|---|---|
| 1.Navigating around the gallery | **Successful** | **Successful** | **Successful** | **Successful** |
| 2.Search for a particular video | **Successful** | **Successful** | **Successful** | **Successful** |
| 3.Import then search | **Successful** | **Successful** | **Successful** | **Successful** |

Detail breakdown

| Tasks | | | | |
|---|---|---|---|---|

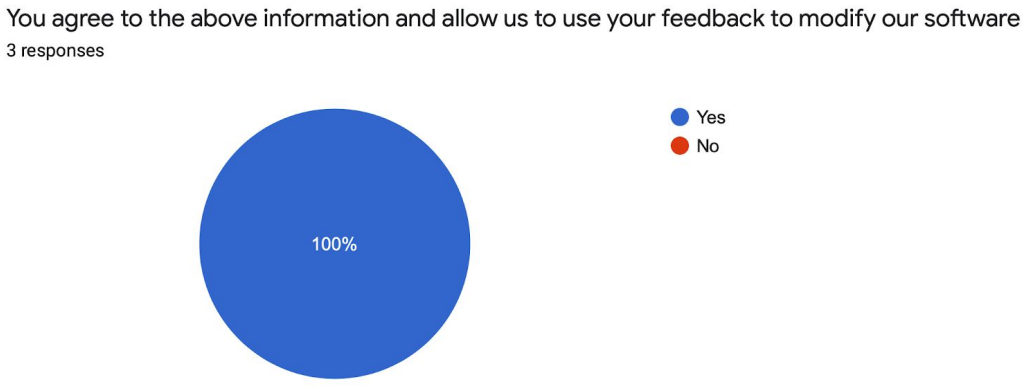
| | | | | |
|---|---|---|---|---|
| 1 | User was able to achieve outcome | User was able to notice the correct action available to them and could easily navigate to the gallery page | User was able to associate the correct action with the outcome of the task | User saw that progress was made when correct action was performed |
| 2 | User was able to achieve outcome | User was able to notice the correct action available to them | User was able to associate the correct action with the outcome of the task | User saw that progress was made when correct action was performed |
| 3 | User was able to achieve outcome | User was able to notice the correction available to them | User was able to associate the correct action with the outcome of the task | User saw that progress was made when correct action was performed |

Questionnaire

*Result & feedback*

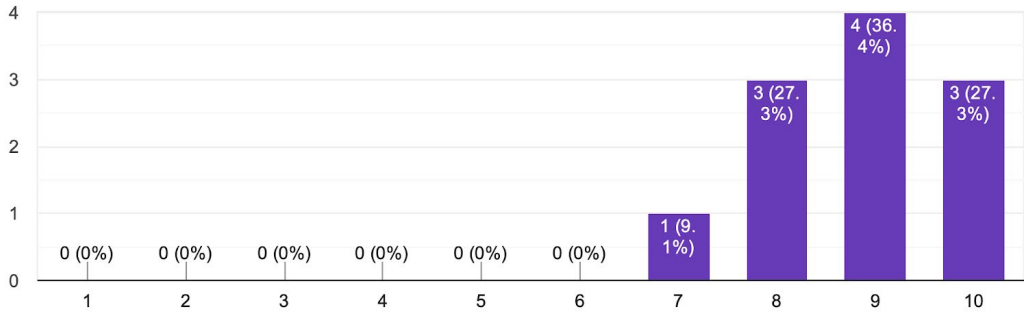
*Because the first version of the questionnaire didn't include the consent portion initially there are 8 respondents who didn't sign the consent form before answering the questions(. The consent form will later be sent to respondents to sign and in pdf with the signed consent forms shown in the appendix.

The following below shows the participants' results that had consented to the study with the questions and each option available to the participant included:



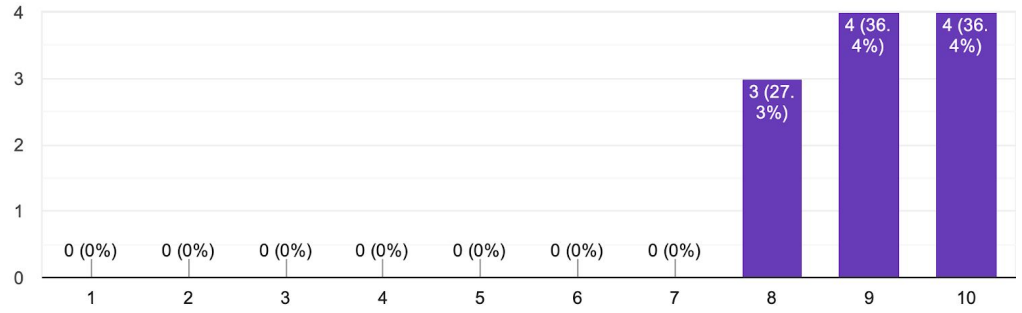
Application is easy to control (Application allow user to percieve that they are in control, and allow appropriate control of the application)

11 responses



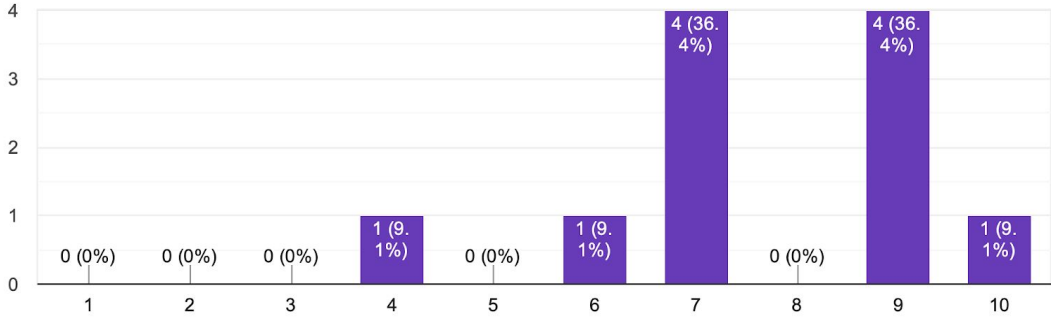

Application is simple (All functions and its buttons are easy to find and simple, easy to use)

11 responses



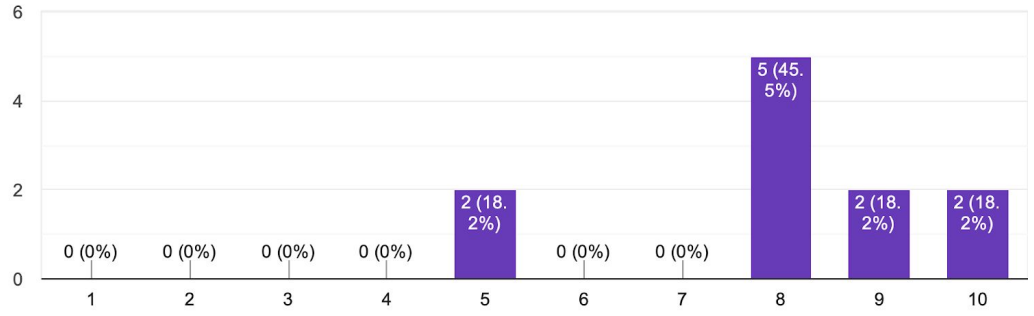

Aplication interface design (The interface presents elements simply, the layout suit user using haibit)

11 responses



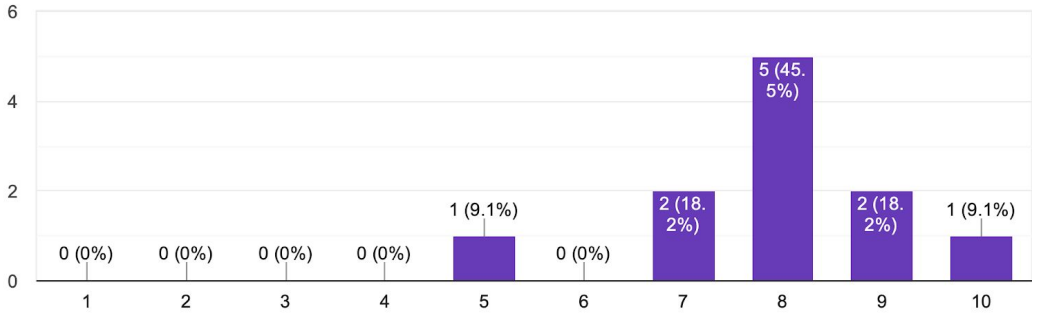
Application suit my daily use (The applciation fit individual tasks within whatever modaliuty is being used )

11 responses




User satisfaction of the Application (Rate from 1~10 your satisfaction with the software and whether you will continue to use it)

11 responses




What do you think is the advantage the application

| | |
|---|---|
| 1 | New users could pick it up and figure out how it works quickly |
| 2 | The function is clear and have all the basic needs for a player |
| 3 | Simple layout and easy to understand and use |
| 4 | Searches quickly, has a simple layout that is easy to get used to |
| 5 | Application is simple and easy to pick up |
| 6 | The list application have all the basic features for the player |
| 7 | All the key functions of a video player are implemented and the software is usable for daily use. |
| 8 | Good for casual editors with lots of videos in their library |

| | |
|---|---|
| 9 | Simple to use after being able to understand |
| 10 | Easy to view the different videos which would help if needing to edit |
| 11 | The application appears lightweight and therefore portable. |

What do you think we need to improve

| | |
|---|---|
| 1 | Add more functions such as classify the videos by location |
| 2 | The layout of the player need to change, the list above the play window is not suitable for user habits |
| 3 | Making the video progress bar smoother |
| 4 | Getting used to it to begin with was a bit difficult as all of the options aren't where they would be on other programs, UI is also quite bland due to white and grey UI |
| 5 | volume bar need to improve, and the playlist layout is at a weird location |
| 6 | The application UI is hard to pick up at the first time |
| 7 | Currently, the ui is very basic and not appealing to use, would love to see some improvement in the styling of the program. |
| 8 | Colour scheme |
| 9 | Volume bar placement is slightly weird |
| 10 | Hard to understand if wasn't told beforehand what the application was for |
| 11 | Possibly add hotkeys and maybe have a different/darker colour scheme for fullscreen UI elements so that there's no conflict. |

URL link to the questionnaire (Response acceptance closed on 09/12/2020 23:59 ):
**https://docs.google.com/forms/d/e/1FAIpQLSexY164Kgaf-EzjDgd36P56qYqXogUV1FuvFXw17TV6DJbsxQ/viewform?usp=sf_link**

**Code**

**Video: https://youtu.be/YPs1VMFXmlo**

**Code Link:**
**https://gitlab.com/Ben_Rowan/user-interfaces-cwk3/-/tags/Protype_Cycle_2**

## Cycle Three

**Prototype**

The main outcome of this third cycle is to improve the aesthetic of the software. By the end of this final cycle the aim is to have a program which looks beautiful and is immediately pleasing to the user. The appearance is something that led to a lot of feedback in previous cycles and it definitely could be improved. There is currently no discernable style or “brand” and the application in general could do with a few small tweaks to its organisation and structure in order to become really appealing to prospective users. The main means to

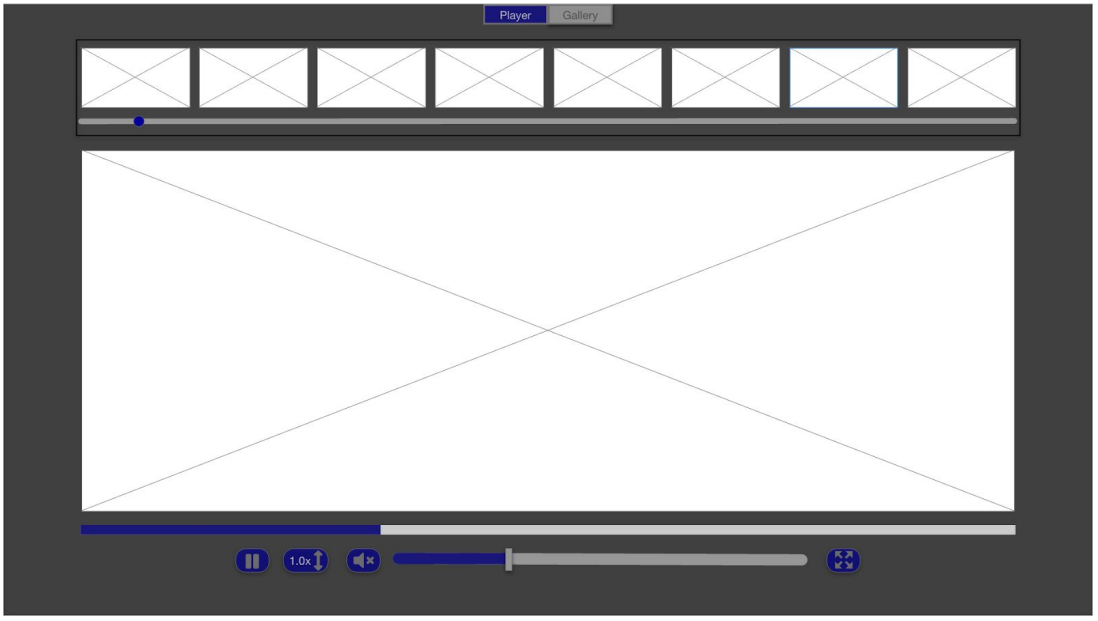
achieve this is to create consistency throughout the program. Consistency in colour, spacing, and grouping in particular. These tweaks will appear small for the most part but will make subtly significant changes to the appearance of the program.

This prototype was made using the specialist software Adobe XD, which allows for a higher fidelity prototype that can perform some very simple functions and which allows for nicer-looking design. Now that the product is more refined it made more sense at this point to use more specialist software and to create a more polished prototype to work from. Attached to this section is a video showing some interactivity and some of the stills from development. Please note that the colours in the video are a little off, and the stills show more accurate colours.

The prototype has a colour scheme of dark grey and blue. “Dark mode” colour schemes are particularly popular and seemingly pleasing for most users. This, as well as the addition of shadows to buttons and some items on the screen, leads to a much more visually appealing program. As well as this, the spacing and layout of the program has been improved in this prototype. Spacing and sizes were meticulously tweaked to find the best layout. There’s also a focus on consistency between each page and different elements keeping the same appearance, colours, and spacing. Visual elements have also been grouped in an appropriate way, and in a way that is intuitive and makes sense to the user as soon as they open the program up. In previous cycles there have been issues with the organisation and colours of the program, so solving these issues has been the primary goal of this cycle.

Video: https://youtu.be/tu1g8OVIBdc

The attached screenshots show the 3 pages prototyped as well as the “structure” of the prototype showing each page and how they interact with one another.



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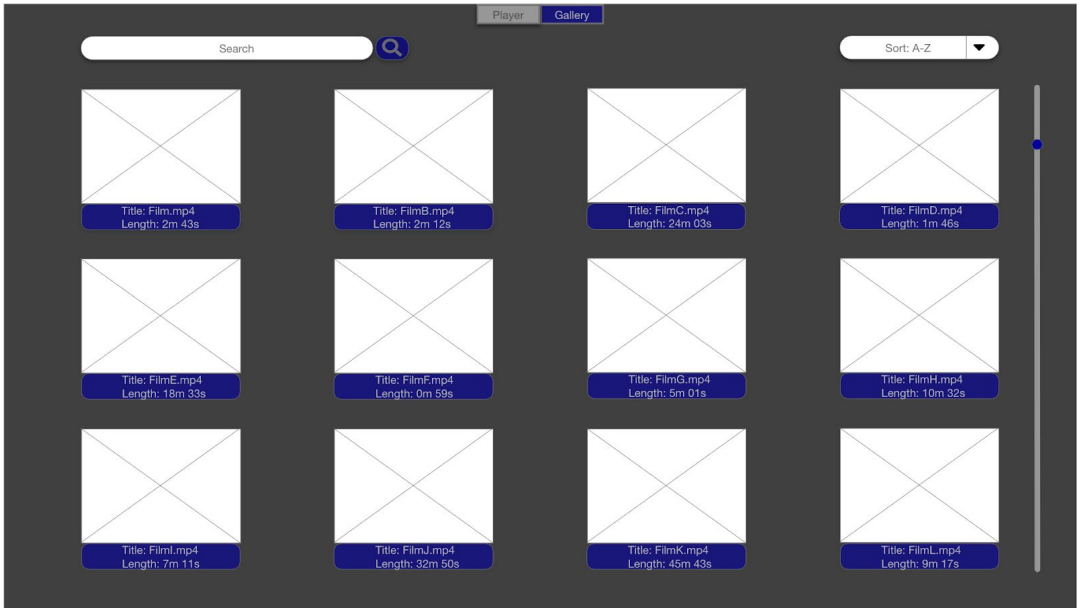
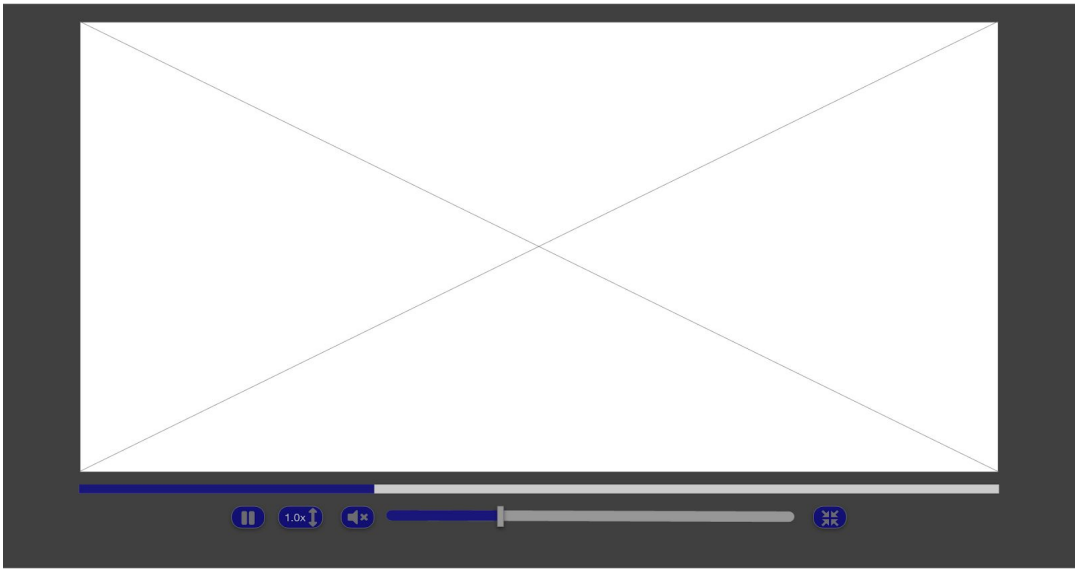
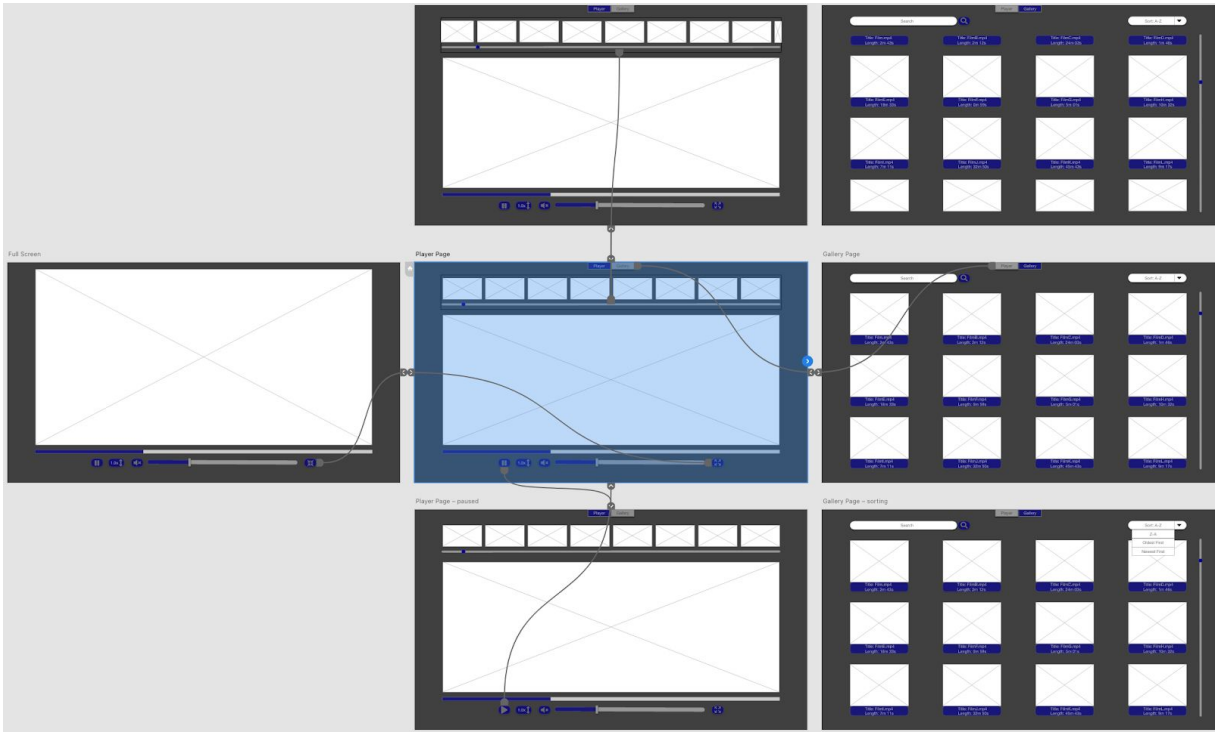





**Evaluation**

For this particular cycle, the focus was to get a deeper insight into how the application would fare against user tests and to gather feedback so that improvements could be made more towards the aesthetics of the application as well as to discover if any issues were overlooked.

To achieve the intended goal the mixture of interviewing participants and a heuristic walkthrough for the application was deemed most optimal as it gave real time feedback as to how a user would react to the application and from the data we could zone as to which aspect of the application needed to be worked on.

**Interview**

For the interview , given that the interviewer and interviewee were housemates no violation of rules were made as well as the consent of the participant to be filmed using the application was done beforehand.

The following questions were asked and kept as succinct as possible:

1.In your opinion it the application easy to understand with no help
2.What can be improved
3.What did you dislike most
4.Would you use this app? if yes/no why ?

From the feedback as shown below we discovered a few actionable items in terms of aesthetics but in terms of layout and functionality it was approved by the user.

**Results from interview**

*Q1.In your opinion it the application easy to understand with no help*

- Yes , because of the looks and it's simple and easy to understand.
- The user likes the clean layout and the color scheme and size of the buttons and the colour of the button
- One suggestion given was maybe make the label of the full screen and add video button bigger

*Q2. What can be improved*

- Suggestion for improvement is the control button in the time bar sometimes is hard to catch so it is not easy to move around at different parts of the video.
- Could add a timestamp for the video, volume timestamp.
- Mute button is a good touch

*Q3.What did you dislike most*

- Size of volume button is too big, can be shrunk

*Q4. Would you use this app? if yes/no why?*

- Would use, can tell its for travellers
- User showed liking to the gallery display
- Can see himself using its simple and easy to use for on go

The URL of the video is linked below:
https://youtu.be/AXqwVi87BEo

**Heuristic walkthrough**

For this portion the intended participants were now focused towards users that had higher technical capabilities to get a more indepth assessment and to uncover any underlying bugs that needed to be fixed.

At this point, the heuristic walkthrough aspect sheet was set up based on the goal we wanted to achieve that was mentioned earlier in the report. The heuristic evaluation focus are set up as follows:

| Index | heuristics | Description |
|---|---|---|
| 1 | Responsiveness | System keeps informing user on what's going on, feedback is provided in reasonable time |
| 2 | User Control | Interface allow user to perceive that they are in control, and allow appropriate control |
| 3 | Simplicity | The interface presents elements simple manner |
| 4 | Flexibility | The interface allows the user to adjust the size for custom use |
| 5 | Predictability | The interface behaves in a manner that allows the user to |

| | | |
|---|---|---|
| | | accurately predict what will happen next |
| 6 | Accuracy | The buttons are responsive and there is no misguided behavior |
| 7 | Aesthetic integrity | The interface has an attractive and appropriate design |
| 8 | User support | The interface provides additional help which concise and easy to understand to aid the user |
| 9 | Modal integrity | The interface fit individual tasks within whatever modality is being used |
| 10 | Fulfillment | The interface provides a satisfying user experience |

And the levels of severity are set up as follows:

| level | Severity Rating |
|---|---|
| 0 | don't agree that this is a usability problem |
| 1 | cosmetic problem |
| 2 | minor usability problem |
| 3 | major usability problem, important to fix |

From which the following results were obtained：

- No issues in regards to functionality.
- User likes the simple layout and can tell the purpose of the application with little to no guidance .
- Users can identify the purpose of the application and are willing to use the application.

Improvements considerations and implementations to be made in the next cycle:

- Mainly the current issues all lied in the aesthetics of the application.
- Improvement needs to be made on the control button in the progressbar, and volume and video timestamp could be added in as a visual aid for users.

Yea

Heuristic evaluation:

Results and Feedback:

| # | heuristic violated | issue | Severity (rate from 0~3 ) |
|---|---|---|---|
| 1 | Aesthetic integrity | Certain labels were found to be too small | 1 |
| 2 | Aesthetic integrity | User found the volume bar to be too big | 1 |
| 3 | Aesthetic integrity | User was okay with the horizontal volume bar but suggested for a smaller vertical bar | 1 |

**Code**
**Video:** https://youtu.be/OLoJTP0X51A
**GitLab Link:** https://gitlab.com/Ben_Rowan/user-interfaces-cwk3/-/tags/Prototype_Cycle_3

For cycle 3 we wanted to focus on improving the UI of the application as in the previous cycles we ensured that all the necessary features would be implemented.

We chose to go for a darker themed colour design so it would be easy to use on the eyes in both day light and night-time. We investigated creating a flat design like Visual Code Studio, as we believe that it looks professional and like a software a user is likely to use. When the user hovers over buttons we made sure they change colour to indicate that they are pressable. We also made sure to maintain a consistent colour scheme through the program.

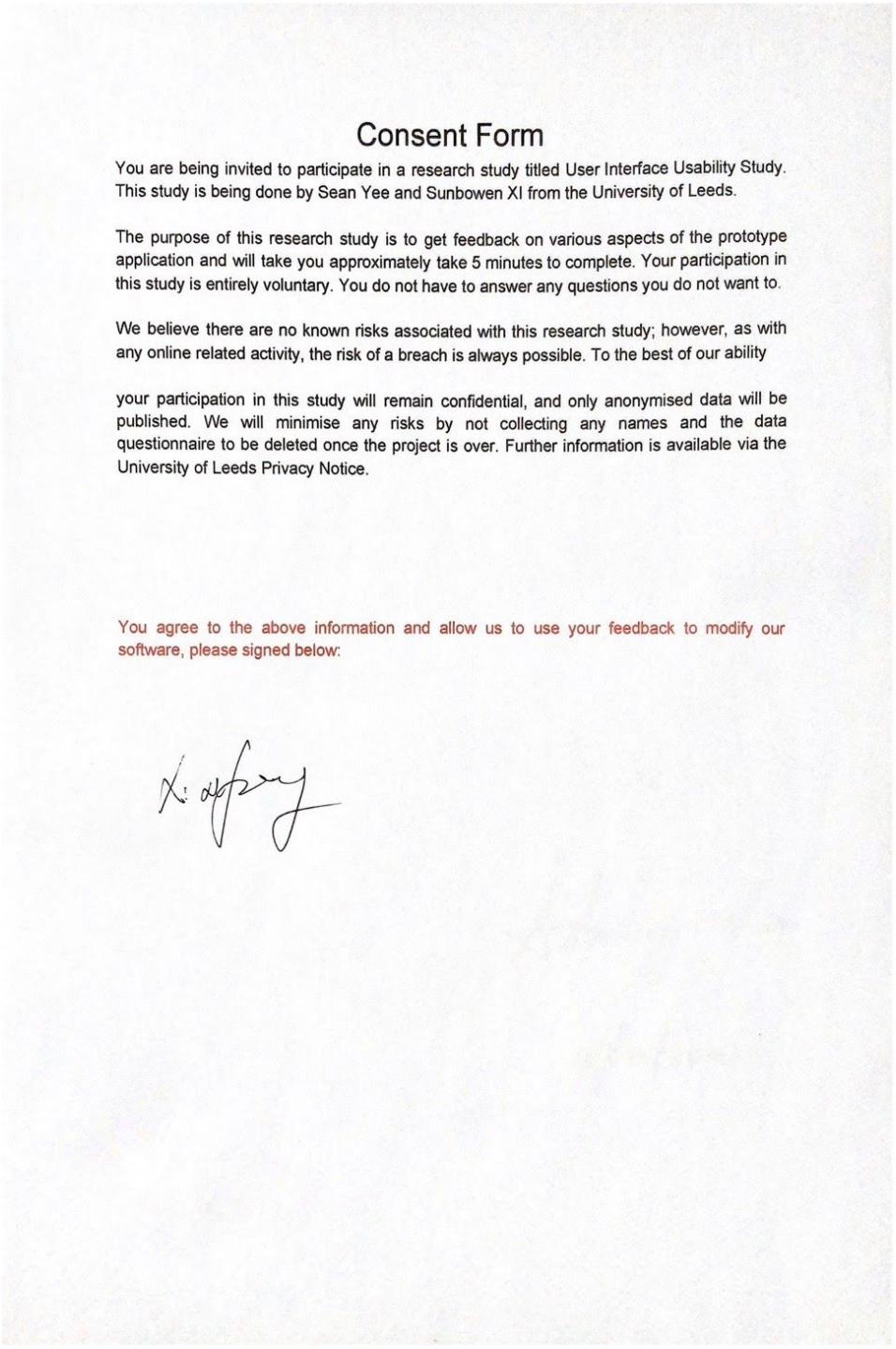
## Ethics

As our project had required user testing of the prototype through interviews and questionnaires for cycle 2 and 3 , we had complied with the university's regulations for ethical research by fulfilling the following:

- Participants personal details have been anonymised
- Consent is given by the participant on collection and use of the responses and they had the option to withdraw at any point
- Data collected would be deleted/removed after the project completion

Screenshots of each participant's consent can be found in the appendix below to show compliance.

## Appendix



Consent Form

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The purpose of this research study is to get feedback on various aspects of the prototype application and will take you approximately take 5 minutes to complete. Your participation in this study is entirely voluntary. You do not have to answer any questions you do not want to.

We believe there are no known risks associated with this research study; however, as with any online related activity, the risk of a breach is always possible. To the best of our ability

your participation in this study will remain confidential, and only anonymised data will be published. We will minimise any risks by not collecting any names and the data questionnaire to be deleted once the project is over. Further information is available via the University of Leeds Privacy Notice.

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Ashley Chun

10/12/2020

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2020/12/10

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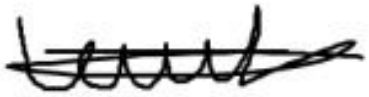

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School of Computing

UNIVERSITY OF LEEDS

**Template Participant Information Sheet**

The Privacy Notice for Research should be provided alongside the Participant Information Sheet.
Further guidance is available at http://ris.leeds.ac.uk/involvingresearchparticipants and at https://dataprotection.leeds.ac.uk/information-for-researchers.

Below are examples of the main points an information sheet should include:

**The title of the research project**

If the title could be difficult to understand then it should be explained in lay terms.

**Invitation paragraph**

Explain that the prospective participant is being asked to take part in a research project. For example you could say:
*'You are being invited to take part in a research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.'*

**What is the purpose of the project?**

The background, aim and duration of the project should be given here. Remember to be brief and don't use overly complicated language that a lay person wouldn't understand.

**Why have I been chosen?**

You should explain how the participant was chosen and say how many other participants will be recruited.

**Do I have to take part?**

You should explain that taking part in the research is entirely voluntary and that refusal to agree to participate will involve no penalty or loss of benefits to which the participant is otherwise entitled and the participant may discontinue participation at any time without penalty or loss of benefits to which the participant is otherwise entitled. For example:
*'It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep (and be asked to sign a consent form) and you can still withdraw at any time without it affecting any benefits that you are entitled to in any way. You do not have to give a reason."*

**What do I have to do?/ What will happen to me if I take part?**

You should state how long the participant will be involved in the research, how long the research will last (if this is different), how often they will need to participate and for how long each time. You should explain if travel expenses are available.

You should explain what exactly will happen (e.g. blood tests, interviews?)
Where a participant is to be interviewed, it might be helpful to explain the questioning style (e.g. clarify if questions will enable open as well as closed answers to be given in relation to a particular topic; e.g. clarify which aspects of the topic participants should be able to discuss in-depth and which not in-depth).

You should explain the participant's responsibilities, setting down clearly what you expect of them.

You should set out simply the research methods you intend to use.
State if there are any lifestyle restrictions as a result of participating.

**What are the possible disadvantages and risks of taking part?**

Any reasonably foreseeable discomforts, disadvantages and risks need to be stated.

**What are the possible benefits of taking part?**

Any benefits to the participants that can reasonably be expected should be stated. However, where there is no intended benefit to the participant from taking part in the project this should be stated clearly. It is important not to exaggerate the possible benefits to the particular participant during the course of the project, this could be seen as coercive.

For example you could say:
'Whilst there are no immediate benefits for those people participating in the project, it is hoped that this work will …'

**Use, dissemination and storage of research data**

This should be explained. Also explain your plans for future publishing, archiving and re-use of the data where known, or be explicit about the potential for this to happen.

**What will happen to my personal information?**

Clarify any limits to confidentiality and anonymisation. Explain how identifiable participants will be. Explain what will, and what could happen to the data.

**What will happen to the results of the research project?**

You should state that all information collected about them will be kept secure and explain how information will be kept confidential. Example paragraph:
'All the contact information that we collect about you during the course of the research will be kept strictly confidential and will stored separately from the research data. We will take steps wherever possible to anonymise the research data so that you will not be identified in any reports or publications'.

Sometimes it is not possible to keep everything confidential, for example if the participant discloses an intention to harm themselves or others. If you feel that your research data collection methods may well solicit information about potential harm or abuse or other situations that require reporting, then potential participants should be informed about this possibility/obligation in the consent process. Where, due to the nature of the research, it may not be possible to guarantee the anonymity of the data then the reasons for this should be stated here and any limits to anonymisation made clear to participants before they consent to take part. Furthermore, the consequences to the participant from data not remaining confidential should be provided here.

If a focus group is being used as a method of data collection, full anonymity cannot be guaranteed on behalf of the other focus group participants. The consent form should clearly note this limitation.

You should be able to tell the participants what will happen to the results of the research (i.e. when the results are likely to be published, whether they can obtain a copy of the published results) and add that they will not be identified in any report or publication.

Given the importance of research data for the future you need to include a statement indicating that the data collected during the course of the project might be used for additional or subsequent research (this should be explicit on the participant consent form).

**What type of information will be sought from me and why is the collection of this information relevant for achieving the research project's objectives?**

Please explain here.

**Who is organising/ funding the research?**

You should state the organisation or company that is sponsoring or funding the research.

**Contact for further information**

You should give the participant a contact point for further information.
This can be your name, address and telephone number or that of another researcher in the project. If this is a supervised-student project, the address and telephone number of the student's supervisor should be included as well. The use of personal phone numbers and email addressed should be avoided.

**Finally …**

The information sheet should state that the participant will be given a copy of the information sheet and, if appropriate, a signed consent form to keep.

Remember to thank the participants for taking the time to read through the information.

Version control is important. For example use a table like the one below to keep track of the various versions of your documents:

| *Project title* | *Document type* | *Version #* | *Date* |
|---|---|---|---|
| Tommeo Video Application – Group Project | Consent form for interview | 1 | 10/12/ 2020 |

**Additional question to include in an information sheet if the research involves producing recorded media:**

**Will I be recorded, and how will the recorded media be used?**

You need to obtain the participants' permission to record their activities on audio or video media. You must ensure that there is a clear understanding as to how these recorded media will be used. For instance, if you record a music or theatre performance, you must not publish or broadcast the recording, show it in public, or deposit it in an archive without the performers' permission. Storage (and eventual disposal) of interview recordings which contain sensitive material can also be an issue to address. For example:
*'The audio and/or video recordings of your activities made during this research will be used only for analysis and for illustration in conference presentations and lectures. No other use will be made of them without your written permission, and no one outside the project will be allowed access to the original recordings.'*

If you plan to use the recording in a publication or broadcast or deposit it in an archive, it is often better to prepare and sign a separate release form for each item used. You must ensure that all appropriate boxes have been agreed to, to avoid any future complications. For example, if an individual is not happy for data to be used in the future (even in an anonymised form) you should not consent them to the project.