Technical Design Document

Group 3

June 8, 2022

Contents

Revision History

Revision	Date	Author(s)	Description
0.1.0	10.11.21	PG850	Doc created
0.1.1	12.11.21	PG850	Added Definition Section, filled Design Overview Section.
0.1.2	13.11.21	PG850	Filled Project Timeline and Gantt Chart
0.2.0	1.12.21	PG850	Full Restructure of Document, add to User Requirements and UI Sections
0.2.1	8.3.22	PG850	Update Gantt Chart, Timeline Section
0.2.2	25.4.22	PG850	Editorialise & Reformat Slightly, Add to Notes in User Stories.
0.2.3	3.6.22	PG850	Final Edits and Formatting, Adding to Notes in User Stories.

1 Definition of Terms Used

Term	Definition
Card	The scene that textual, graphical and multimedia objects can be displayed on.
Stack	A series of cards that form a presentation.
Presenter	A user sharing a card stack with "Viewers" in a presentation-format.
Viewer	A user viewing the card stack shared with them by a "Presenter"

2 Design Overview

SuperPres is designed to be a highly interactive and intuitive scripting engine, allowing for the creation of scenes, known as "cards", on which multimedia elements, such as images, video and audio can be placed, as well as graphical elements such as shape and text. These cards can together form a presentation, known as a "stack", to allow many scenes to be joined together.
The user will be able to share the card stack with "viewers" in a presentation format. These viewers will be able to look at the cards the "presenter" has made, but not make changes to the originals. They will be able to make local edits on their own copy, however. Elements on each card will have the capacity to parse scripts written in Python or JavaScript, and the program will run these through the Jython library. These will allow for macro-esque automation to be created, as well as many other, more technical and interesting actions, such as automatically opening files, the creation of interactive tools such as calculators, and the ability to make elements react to mouse and keyboard inputs in different ways.

3 User Requirements

The user of SuperPres will be able to create their own graphical applications and presentations through scripting and designing a card stack. To this end, many aspects of the software must be considered for the user:

- Create a Stack of cards
- Edit a card
- Add an element to the card
- Edit an elements size, location, colour.
- Add a script to an element
- Save the current stack
- Open a previously saved card Stack

3.1 User Stories

User Story	Program Functionality	Success Criteria	Notes
It will be necessary for the user to create a new stack when they want to create a new application or presentation.	The user will be able to create a new card stack through the use of a clearly signposted button.	Upon pressing the button, a new card stack is created.	The user may be prompted to save the current card stack, if there are unsaved changes.
The user will need to be able to switch between editing and viewing the card.	In an options menu, a toggle between edit mode and view mode is needed.	Upon switching to edit mode, the user must be able to add to and edit items on the card. The toggle must be in a quick and easy to reach location.	A secondary button has been added in the edit pane to the left of the card.
The user will need to be able to add elements (text, graphical shapes, images, video, audio) to the card.	The user will be able to add elements to the card through a menu specifically for the elements.	Upon pressing the relevant element, it is added to the card, and the user is able to edit its size, location and colours.	More ways to customization for the elements may be added in future.
Elements must be able to be edited by the user.	Upon clicking on an element whilst in edit mode, a menu below the edit pane will appear with options for the elements colour, size and location.	The user should only be three clicks away from editing - one for opening the options menu, one for toggling edit mode, one for clicking on the element to be edited.	Now the users can toggle edit mode directly from the edit pane.
The user must be able to add scripts to any element on the card.	Whilst in edit mode, a button to add scripts appears on the edit pane for that element, which opens the scripting window.	The scripting window should be easy to access, and with proper feedback for errors.	An error window now appears if the users scripts fails in any way.

User Story	Program Functionality	Success Criteria	Notes
The user must be able to save their work on the current stack.	In the options menu, a button is available to save the current card stack.	An easy to navigate to button is required for the user to save their stack. A file menu should open so that the user can choose where to save and what to name their file.	The card stack is saved as a .spres file.
The user must be able to reopen their saved card stack.	In the options menu, a button is available to open a card stack.	An easy to navigate to button is required for the user to open a stack. A file menu should open so that the user can choose where to open the card stack from.	The software can open stacks in a .spres and .zip format.

4 User Interface

The design for the user interface is to be simple to navigate, easy to understand, and quick to learn. To achieve this, no more than three clicks are to be required to reach any item in the software. The initial plans for the interface lay out the main sections for each feature according to the functional specification. This has been further developed to include specifics of the side panes and top function bar, and the slide transition section at the bottom of the window has been redesigned. This has then been realised in the final product.

4.1 Initial Plan

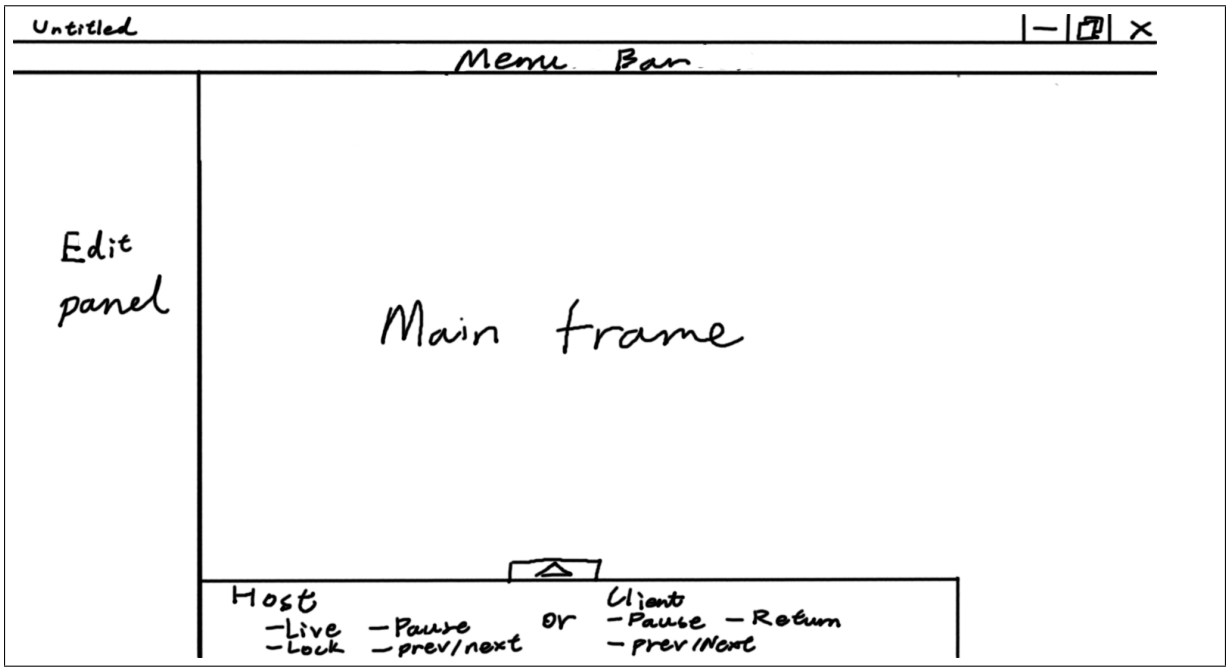


Figure 1: Initial Draft for the User Interface

The initial draft for the user interface shows our intended design for the software, and for what parts of the screen each section will occupy. The specifics of this have not yet been decided on, but will be in future.

4.2 Further Development

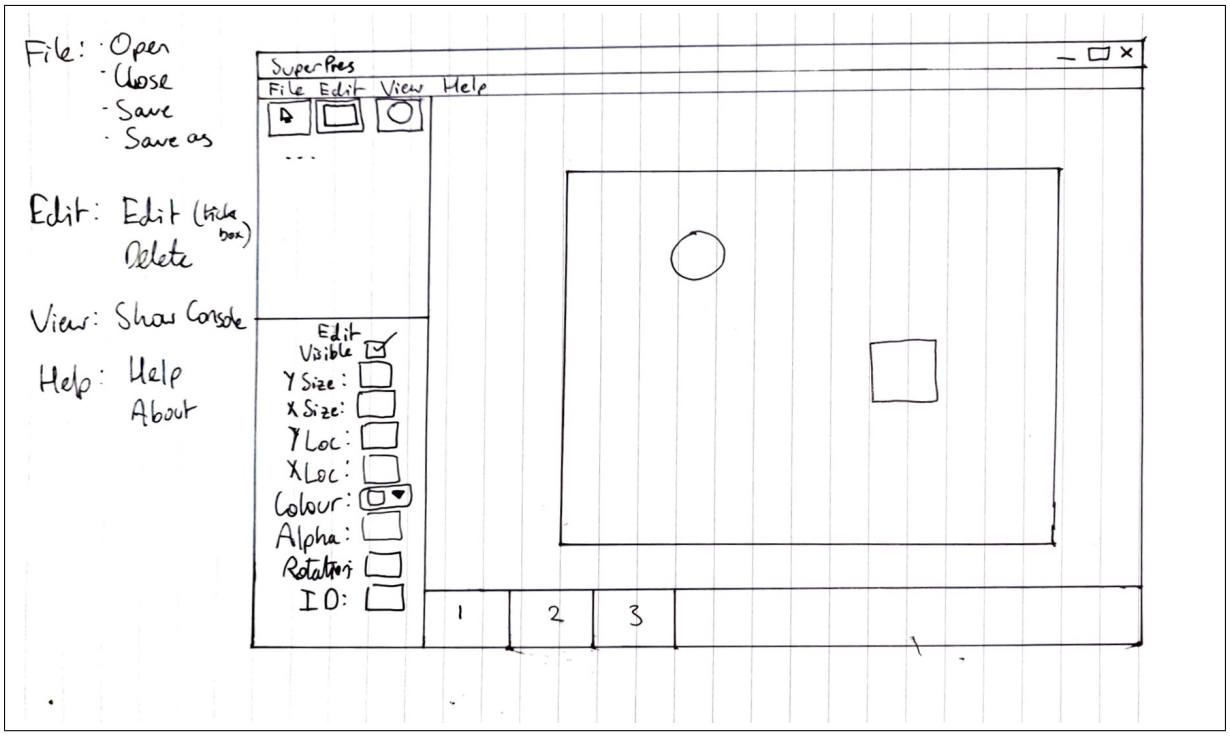


Figure 2: Second Draft for the User Interface

The second draft for the user interface goes into further detail about the aspects outlined in the initial draft, such as the edit panel and the menu bar. The slide choosing section along the bottom has also been changed to show each slide as a number/name, rather than only having a previous/next button.

4.3 Current Design

Figure 3: The user interface realised in our software

The final user interface realised in our software follows the design of that in the further development section, with the addition of a introductory splash screen, to allow for opening or creating new files without having to navigate any menus.

5 Goals & Timeline

5.1 Project Timeline

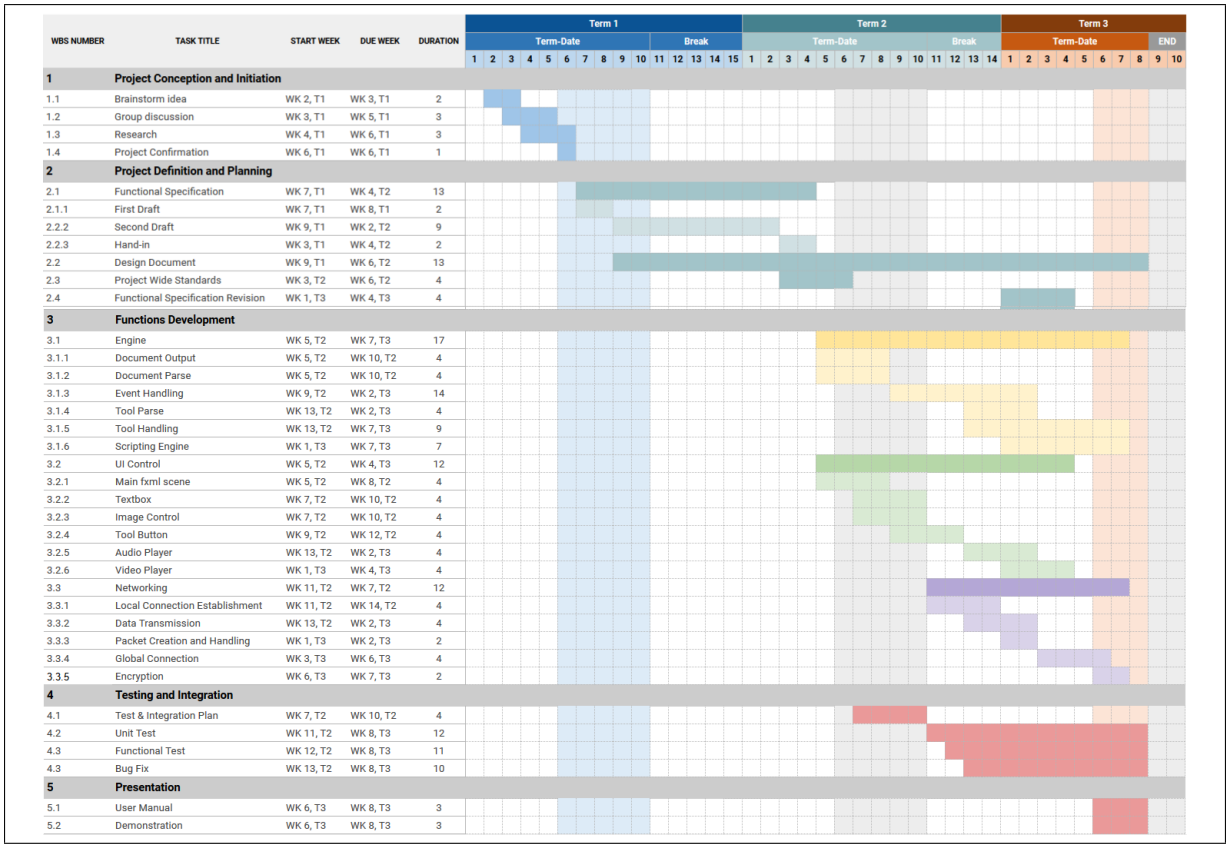
The development timeline for SuperPres is set in two different parts, the development of the documentation and the development of the software. Development begins with the documentation, where the product will be planned out in detail in the functional specification and this document. These plans will then be fulfilled in the second stage, with the development of the software, although documentation will continue to be worked on as necessary throughout the timeline of the project,

5.2 Documentation

The project began with planning what we were to create in the first weeks of the timeline. Once confirmed, the functional specification was created to plan, in detail, the aspects of the software that is planned to feature in the final product. The design document was then created to assist the development cycle in adhering to the plans set out in the functional specification.
The functional specification was later revised in Term 3, and so the design document has been slightly revised to match that, to continue aiding the development of the software.

5.3 Software

Development of the software will begin roughly halfway through the timeline for the project, beginning with the Engine and User Interface Controller, with the networking beginning development after sufficient work has been done to the Engine and UI to allow for networking.
Testing will also be carried out once the software has gotten to a sufficient point, which will be after the engine is able to parse and output documents, and once the main FXML scene has been developed. Until then, the test plans will be developed in accordance to the development planned.



WBS NUMBER	TASK TITLE	START WEEK	DUE WEEK	DURATION
1	**Project Conception and Initiation**			
1.1	Brainstorm idea	WK 2, T1	WK 3, T1	2
1.2	Group discussion	WK 3, T1	WK 5, T1	3
1.3	Research	WK 4, T1	WK 6, T1	3
1.4	Project Confirmation	WK 6, T1	WK 6, T1	1
2	**Project Definition and Planning**			
2.1	Functional Specification	WK 7, T1	WK 4, T2	13
2.1.1	First Draft	WK 7, T1	WK 8, T1	2
2.2.2	Second Draft	WK 9, T1	WK 2, T2	9
2.2.3	Hand-in	WK 3, T1	WK 4, T2	2
2.2	Design Document	WK 9, T1	WK 6, T2	13
2.3	Project Wide Standards	WK 3, T2	WK 6, T2	4
2.4	Functional Specification Revision	WK 1, T3	WK 4, T3	4
3	**Functions Development**			
3.1	Engine	WK 5, T2	WK 7, T3	17
3.1.1	Document Output	WK 5, T2	WK 10, T2	4
3.1.2	Document Parse	WK 5, T2	WK 10, T2	4
3.1.3	Event Handling	WK 9, T2	WK 2, T3	14
3.1.4	Tool Parse	WK 13, T2	WK 2, T3	4
3.1.5	Tool Handling	WK 13, T2	WK 7, T3	9
3.1.6	Scripting Engine	WK 1, T3	WK 7, T3	7
3.2	UI Control	WK 5, T2	WK 4, T3	12
3.2.1	Main fxml scene	WK 5, T2	WK 8, T2	4
3.2.2	Textbox	WK 7, T2	WK 10, T2	4
3.2.3	Image Control	WK 7, T2	WK 10, T2	4
3.2.4	Tool Button	WK 9, T2	WK 12, T2	4
3.2.5	Audio Player	WK 13, T2	WK 2, T3	4
3.2.6	Video Player	WK 1, T3	WK 4, T3	4
3.3	Networking	WK 11, T2	WK 7, T2	12
3.3.1	Local Connection Establishment	WK 11, T2	WK 14, T2	4
3.3.2	Data Transmission	WK 13, T2	WK 2, T3	4
3.3.3	Packet Creation and Handling	WK 1, T3	WK 2, T3	2
3.3.4	Global Connection	WK 3, T3	WK 6, T3	4
3.3.5	Encryption	WK 6, T3	WK 7, T3	2
4	**Testing and Integration**			
4.1	Test & Integration Plan	WK 7, T2	WK 10, T2	4
4.2	Unit Test	WK 11, T2	WK 8, T3	12
4.3	Functional Test	WK 12, T2	WK 8, T3	11
4.3	Bug Fix	WK 13, T2	WK 8, T3	10
5	**Presentation**			
5.1	User Manual	WK 6, T3	WK 8, T3	3
5.2	Demonstration	WK 6, T3	WK 8, T3	3

Figure 4: Gantt Chart for the development of SuperPres