ART 405 Pre-Production Portfolio

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Important Links

- Sketches
- Pure-Ref Board
- Figma Wireframe Video Folder
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- Gantt Chart

Project Overview

Project Overview

Project Aim

The aim of my research project is to investigate how the user experience and user interface can be improved for young people in education (11-16).

Research Questions

1. **How can user interfaces be improved for younger audiences?**
2. **How can User Experiences/User Interfaces be used for effective educational purposes?**
3. **Explore User Experience/User Interface Design for young people in education.**
4. **How can Environmental Education be implemented into a User Interface?**
5. **What makes a good User Experience/User Interface?**
6. **How iterative design can inform the user experience.**
7. **How prototyping can solve initial problems.**

Project Overview

Honours Project Brief

Design Research Project

Project Objectives

1. Literature Review – Undertake UX/UI research to help inform me of good/bad UX/UI design. What the current trends are and how to balance cognitive load for a better user experience.
2. Practical Concepting – Following on from research, I can develop pre-production concepts/mock-ups of a user experience flow and user interface design. I can do this via paper/digital prototyping.
3. Game Analysis - Undertake game analysis to develop an understanding of pre-existing game/apps user flows and user interfaces.
4. Iterative Design – Using the iterative design process to conceptualize, prototype, test and evaluate my project.
5. Post-Mortem – Conduct a post-mortem on my work from start to finish covering all the above objectives.

Critical Analysis - Game/Apps

Game Analysis - Carto

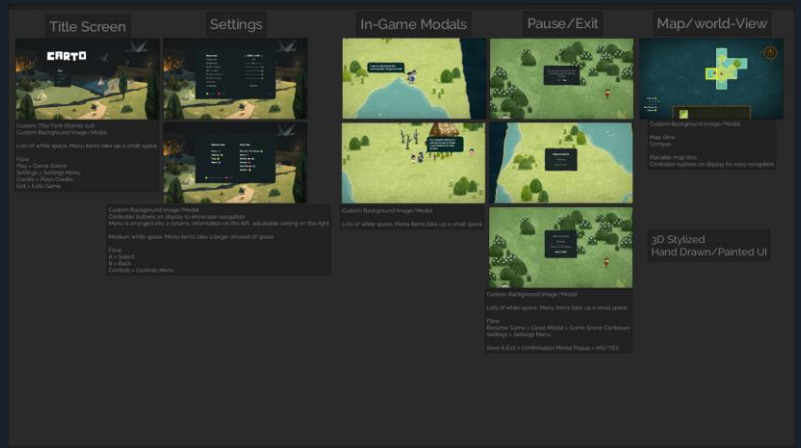
Carto is a “Puzzle, Exploration” game. I decided to analyse this game due to it falling under the “puzzle” category.

Carto’s UI can be simplified into “3D Stylized” with a hand drawn/painted look to it.

Carto made use of “Modal” windows, allowing them to re-use the same background for each menu, pop-up etc. This keep the consistency across the different scenes within the game.

The majority of these pop-ups take up very little visual space, helping to declutter their UI.

Overall the user-flow for Carto is very simple and straightforward. No unnecessary menus or forced sign-in/sign-ups



Game Analysis - Dorf Romantik

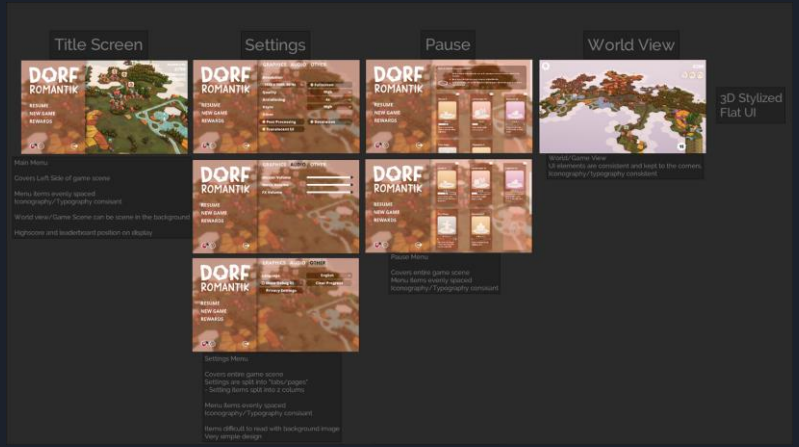
Dorf Romantik is a “City builder, Puzzle” game. I decided to analyse this game due to it falling under the “puzzle” category.

Dorf Romantiks UI can be simplified into “3D Stylized” with a flat look to it.

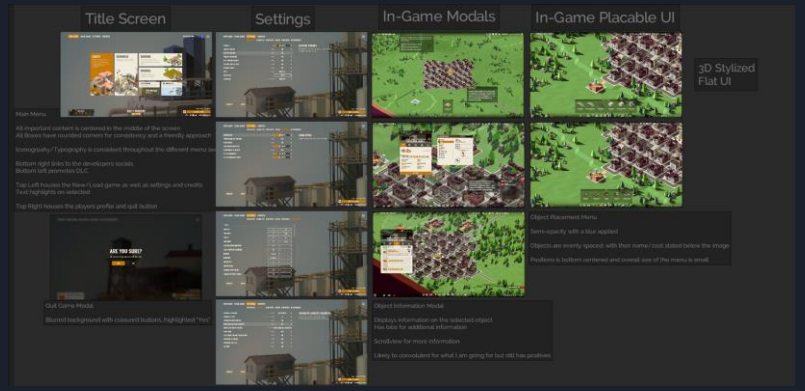
Dorf Romantiks UI is very simplistic. I find the Colour choice plus the opacity to be difficult to look at. The choice of white font on this off-colour background is not great. The options available to the users are kept simplistic but again improvements could be made to make them more accessible.

The Menu UI occupies the left hand side of the screen, then fully occupies the screen once a sub-menu is selected.

The in-game UI is kept to the corners of the screen to allow for the main gameplay to be seen in the centre, this game also implements diageic UI in the form of pop-ups on land tiles to give the player some feedback as to what is happening.



Game Analysis - Rise of Industry



Rise of Industry is a “Strategy” game. I decided to analyse this game due to it falling under the “puzzle” category.

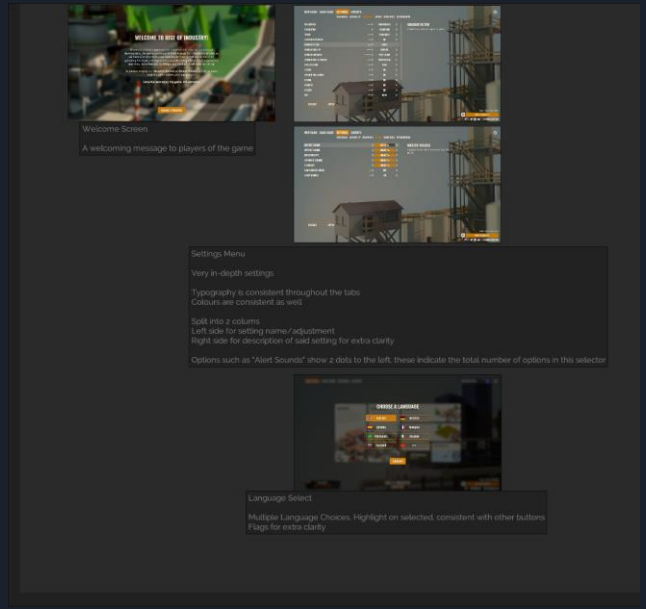
Rise of Industry’s UI can be simplified into “3D Stylized” with a flat look to it.

The Main Menu UI goes for a Grid/Tiled UI approach. Keeping them centered and the main focus.

The settings are very in depth, with lots of customizability, any setting with multiple choices have a “dot” to indicate how many options there are. The settings menu also has a 2 column approach, with the right side being used for explanation.

The game supports multiple languages.

Across the menus and in-game scene, the colour palette is kept consistent. The typography and iconography is also consistent across the game.



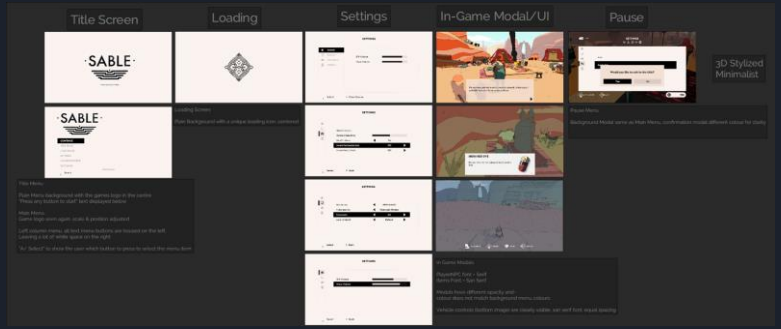
Game Analysis - Sable

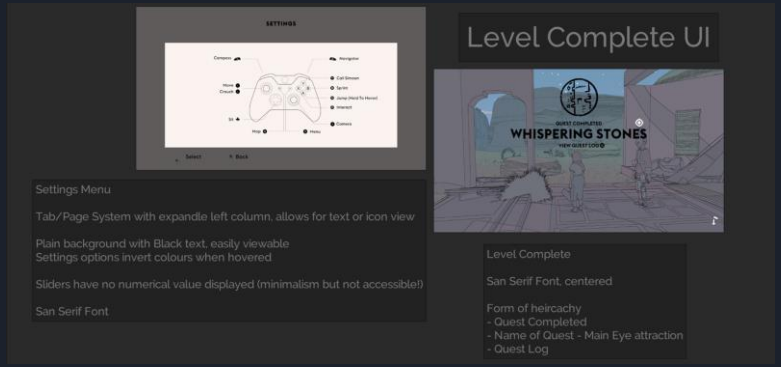
Sable is a “Puzzle, Exploration” game. I decided to analyse this game due to it falling under the “puzzle” category.

Sables’s UI can be simplified into “3D Stylized” with a minimalist look to it.

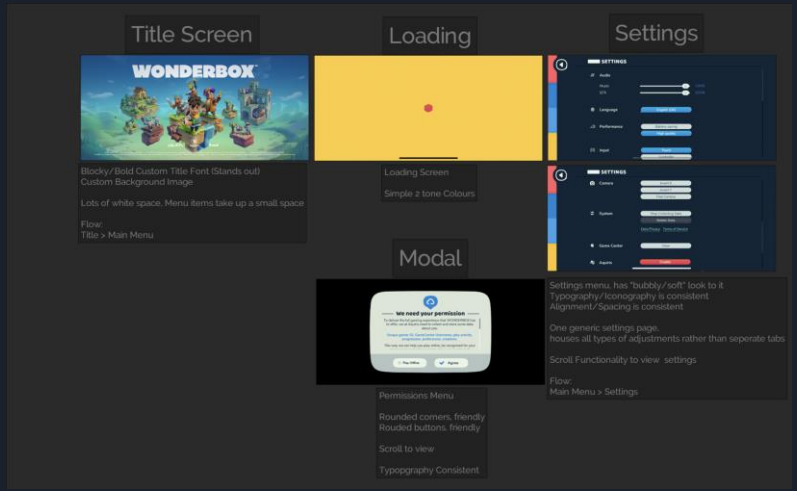
Sable has a soft look to it, with a off-white colour as the background throughout it’s menus with a dark black font for great contrast. Sable also utilizes the use of white-space in its menus.

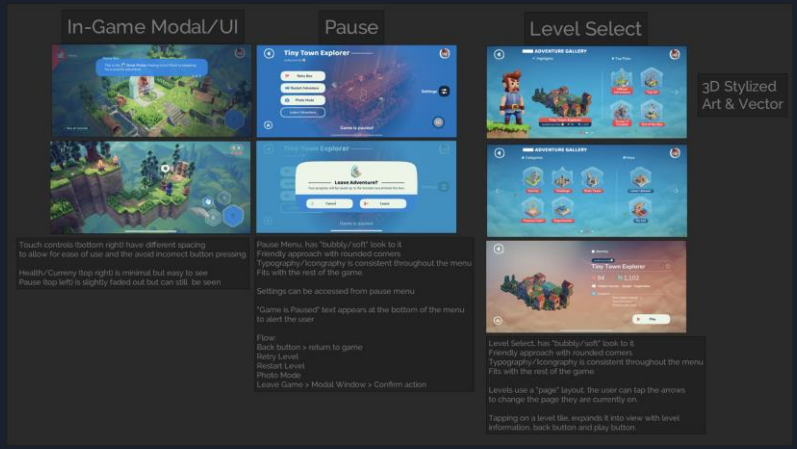
Sable’s settings menu have the options for both Iconography and Typography view allowing for a better user experience by improving the accessibility.





Game Analysis - Wonderbox





Wonderbox is a “Puzzle, Exploration” game for mobile. I decided to analyse this game due to it being targeted at young people (9+) and families. Wonderbox is a action-adventure game.

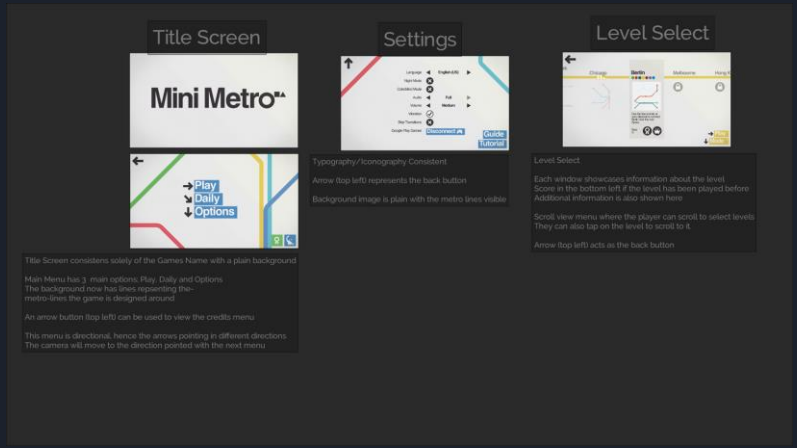
Wonderbox’ UI can be simplified into “3D Stylized” with a hand vector art look to it.

Wonderbox makes use of plain colours, bubbly text and rounded UI, this helps to give it a “friendly” look.

Due to this app being on mobile, their settings menu is housed on 1 scroll-view page, keeping settings simple.

Their in-game UI is consistent with the rest of the app, modals and pause menus/options are rounded. While paused the character is kept in focus with a vignette background.

Game Analysis - Mini Metro

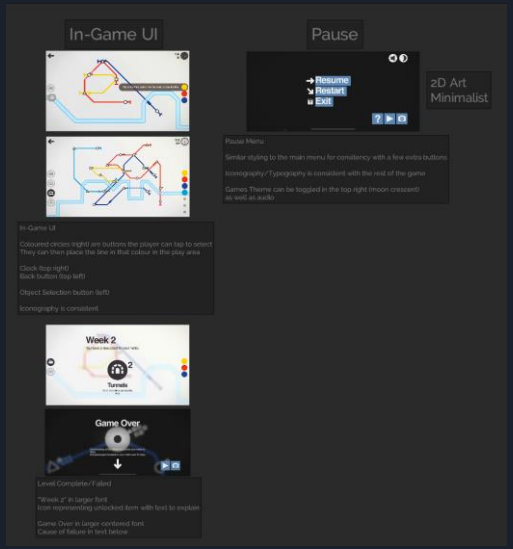


Mini Metro is a “Puzzle, Strategy” game. I decided to analyse this game due to it falling under the “puzzle & strategy” category. It has an age rating of 4+

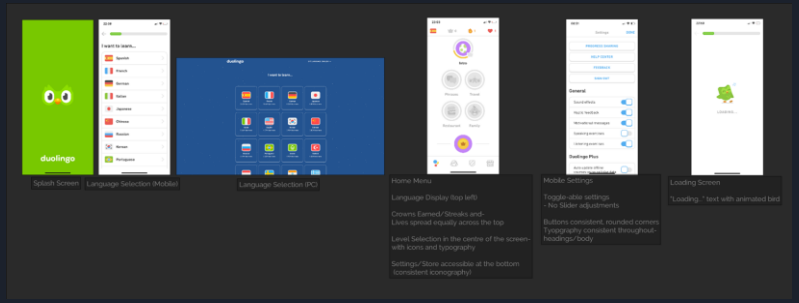
Mini Metros UI can be simplified into “2D Art” with a minimalist look to it.

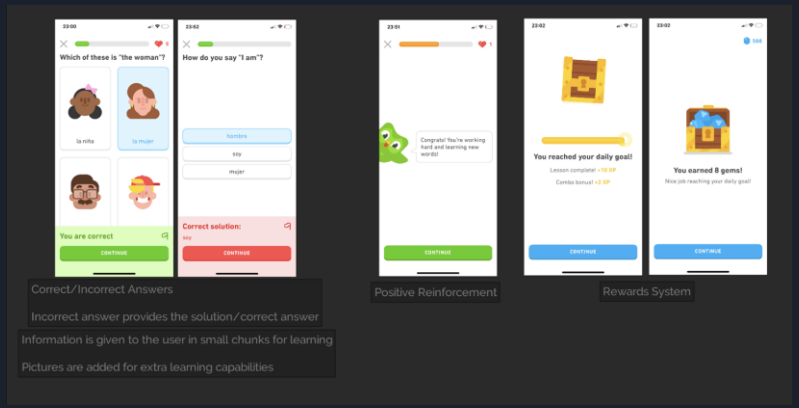
Mini Metro has the most unique UI I have analysed, the menu is “directional”, meaning when a main option is selected the camera physically moves through the scene.

It uses clear and blocky fonts, greatly contrasting colours to help with visibility. Mini Metro has a dark/light mode, inverting the colours to help with eye-strain.



Game Analysis - Duolingo





Duolingo is the first solely focused educational genre app I have analysed. Duolingo does a great job of information digesting, teaching users complex things in short bursts.

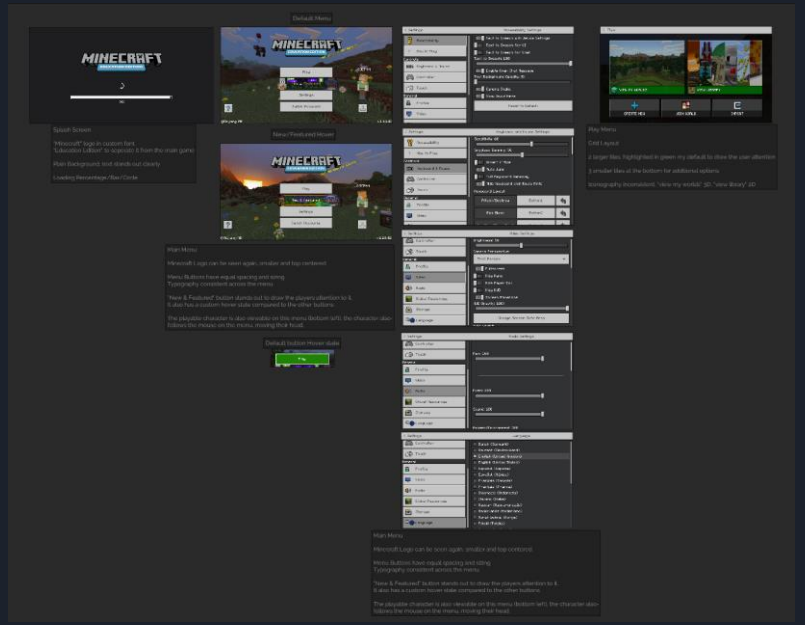
Duolingo enforces positive reinforcement to allow the user to try again by showing them the correct answer if they get an answer wrong.

Duolingo has a reward system that helps to make the player feel more rewarded upon reaching their self-set daily goal.

Duolingo also have a leaderboard, users can progress up the leaderboard by completing lessons.

Duolingo has a bubbly UI and font, with simple vector art.

Game Analysis - Minecraft Educational Edition

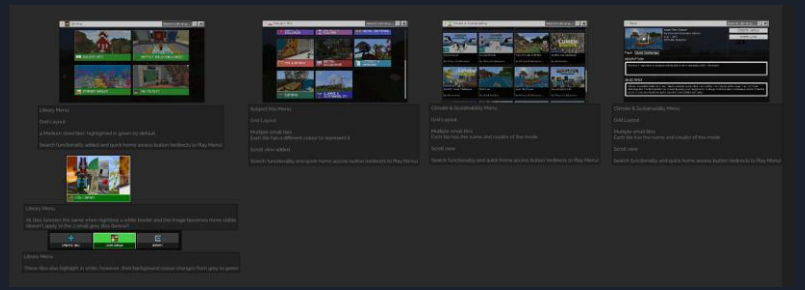


Minecraft Education Edition is the second solely educational genre app I have analysed.

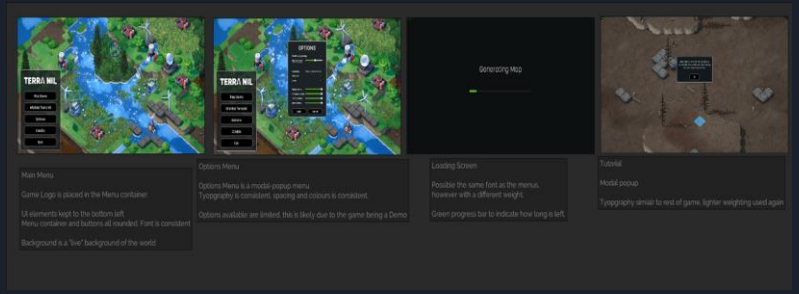
A general agreement among multiple class mates is that the UI is not great, there is icon inconsistencies, some being 2D some 3D. The menus system to access a level is tedious and unnecessarily lengthy.

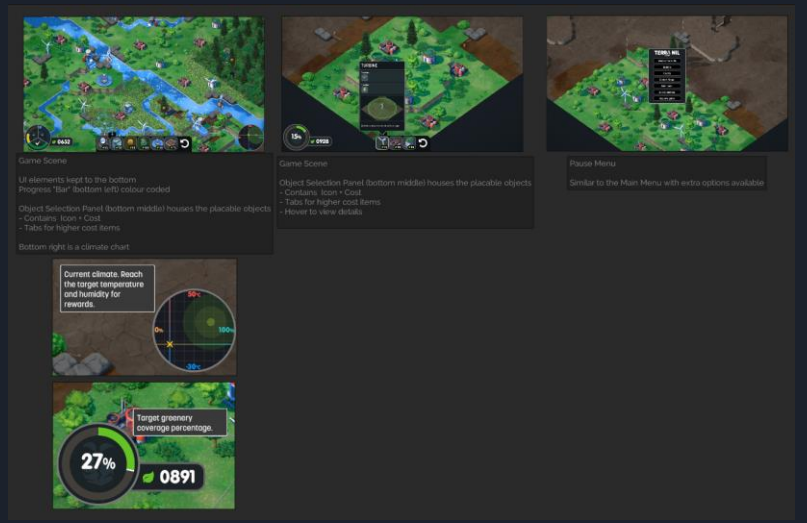
It does have some perks, each category is displayed with a related image to help. Interactions are simple and the flow whilst lengthy is straight forward.

It includes a lot of options that can be adjusted to improve the users experience. Text to speech is implemented in this app, multiple control methods are supported and the Video/Audio can be adjusted as well as the language of the app.



Game Analysis - Terra Nil





Terra Nil is a game only available as a Demo, therefore the UX/UI is not final for this game, however I thought it would be good to analyse a game in this state as it shows what a possible MVP for UI could possibly be.

The UI is currently simplistic, using rounded edges and plain colours and minimal UI animations.

They have kept the current menu styles consistent throughout the game, One single font is used with slight changes but only their font weighting seemingly.

Key Takeaways

- Bubbly Interface
- Readable Fonts
- Clear Icons
- Accessibility Options
  - Text
    - Scale
    - Colour
  - Voice
- Simple User Flow
- Easy to digest information
- Simple is better

Critical Analysis - Readings/Videos

Academic Reading

Norman, D.A. (2013) The design of everyday things . Rev. and expanded ed. London : MIT Press.

- Affordances, Signifiers & Constraints - Applying this section to my work, it talks about objects needed signifiers to understand how they function, an example for this can be a button, adding visual/audible feedback to the button will signify the user that this object has a function. Constraints can be used to prevent the player from doing the wrong thing.
- Natural Mapping - This section covers the natural mapping of everyday objects, it shows multiple images of the same object, each with a different layout. What might be natural to me could be unnatural to someone else. However, there is still many “default” ways of doing things in video games such as the “Play” button starting the game scene. The same can be applied to Icons. Many today are seen as natural such as a “cog” which represents settings.

Academic Reading

Hodent, C. (2018) The gamer's brain : how neuroscience and UX can impact video game design.

- 3 core Pillars of engageability
  - Motivation
    - “Motivation is the core pillar of engageability”
    - Intrinsic Motivation
    - Extrinsic Motivation
  - Emotion
    - Player feedback
      - Visual
      - Audio
  - Game Flow
    - Flow is a state of enjoyment

- 7 Pillars of Usability
  - Signs and Feedback
  - Clarity
  - Form follows Function
  - Consistency
  - Minimum Workload
  - Error prevention and Error Recovery
  - Flexibility

Authoritative Reading

Hyndman, S. (2016) Why fonts matter. Berkeley, CA: Gingko Press.

- Typefaces are interacted with everyday, people just don’t pay attention to them. Typefaces is what draws people's attention to products. Different people are drawn to different typefaces, they act like a “personality”.
- Fonts help to create a visual hierarchy. The example given is Road Signs, the font is blocky san-serif to help with readability.
- Type is used for efficiently displaying words, allowing the users to quickly read and understand what they are looking at.
- Instinctive responses, people respond to the shape of typefaces. Round shapes are perceived as friendly while jagged shapes are perceived as dangerous.
- Genres have related typefaces and fonts, some work better for others and using the best fitting one helps to get your product to the intended user.

Authoritative Video

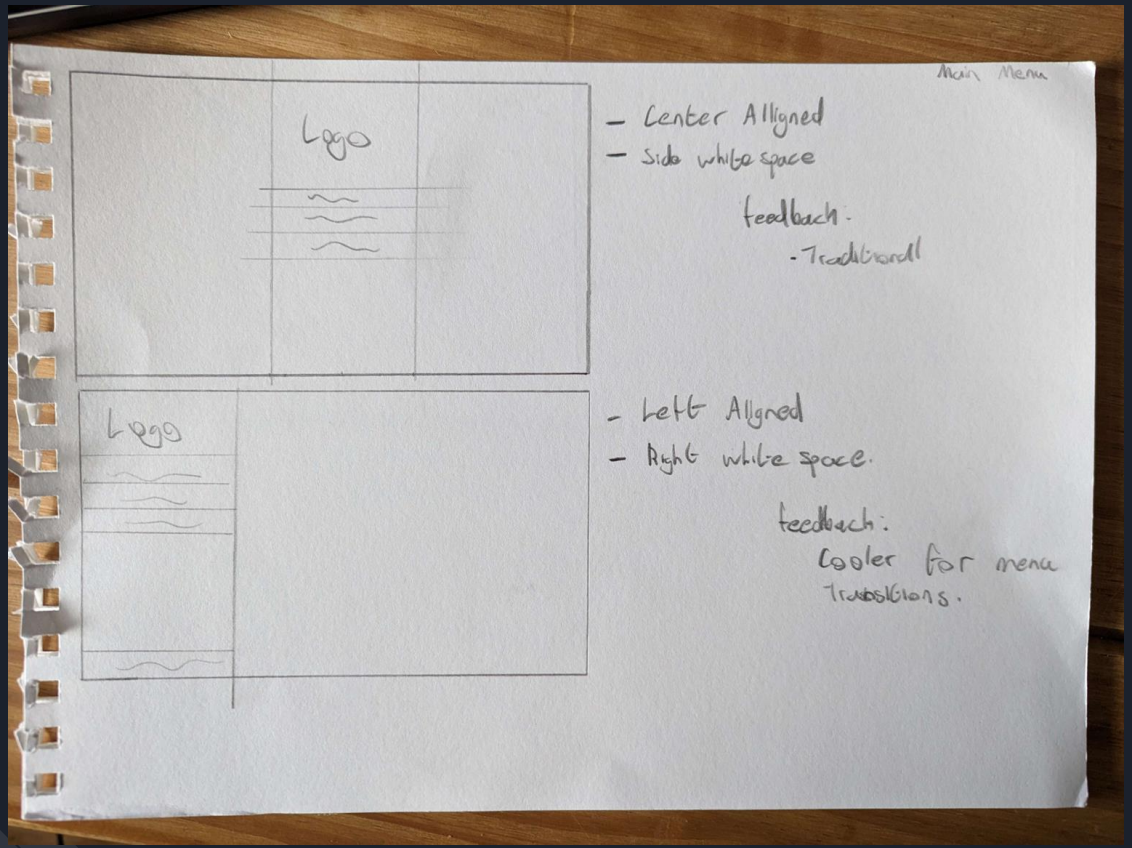
UX/UI Design Principles for Kids Apps | Ashley Samay

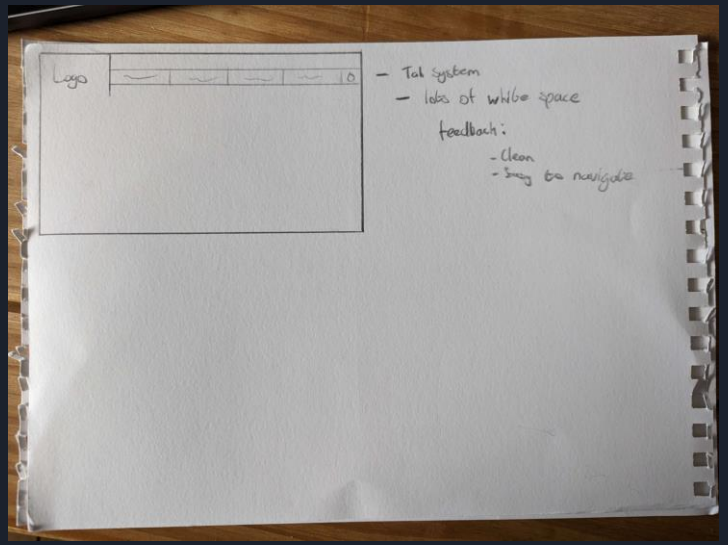
- Adult Retention techniques don't work on kids
  - Notifications, Emails, Customer Support etc.
- Ad-Free space
  - Don't try to sell a product to kids, 1 time purchase or monthly subscription.
- Putting a face on it
  - Videos / Pictures.
  - Interactive.
- Onboarding
  - Profile personalisation.
- Engagement
  - Unique learning paths per user.
- Motivation
  - Rewards are not always necessary.
  - Extrinsic motivators may not always work for education.
  - Positive affirmation boosts motivation.
  - Tutorials may also not work, kids may not understand their purpose and just want to play.

Pre-Production & Iteration

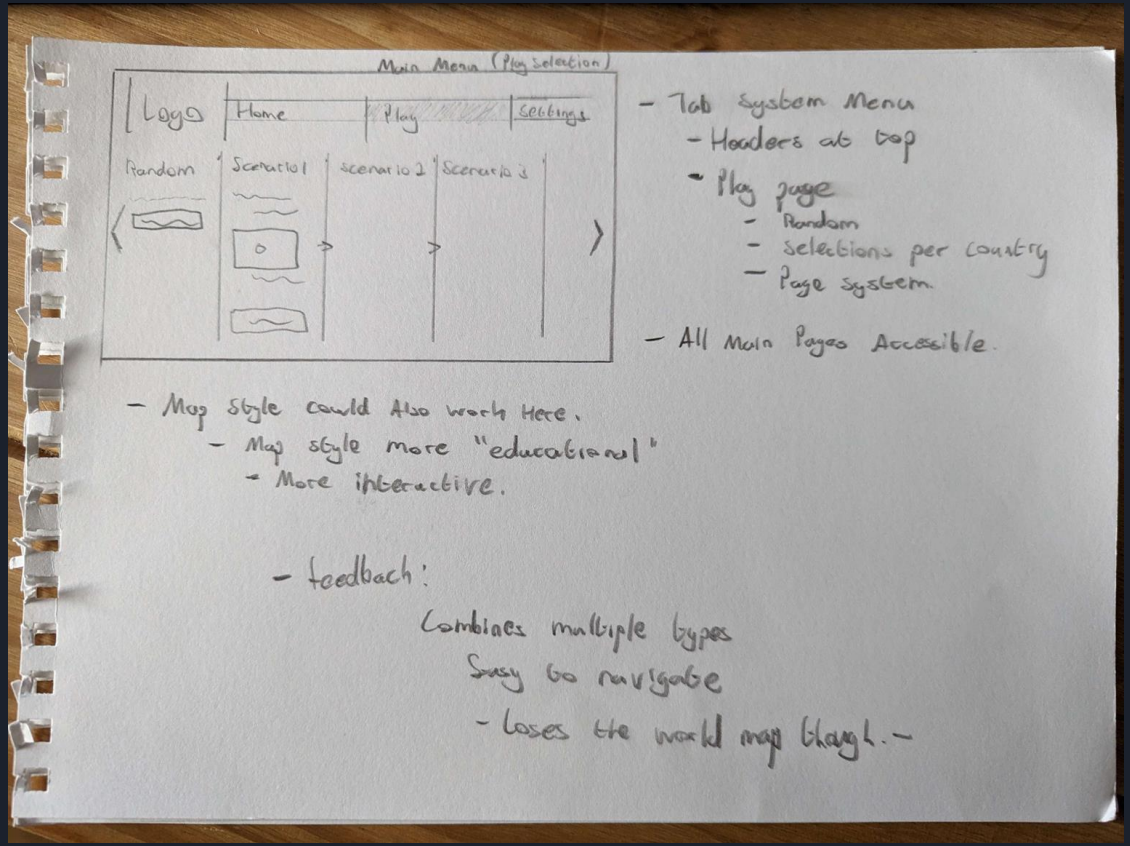
CDD

Project Concept Development Document can be found here, this document is a work-in-progress document outlining the hypothetical game my user experience and user interface is being designed around.

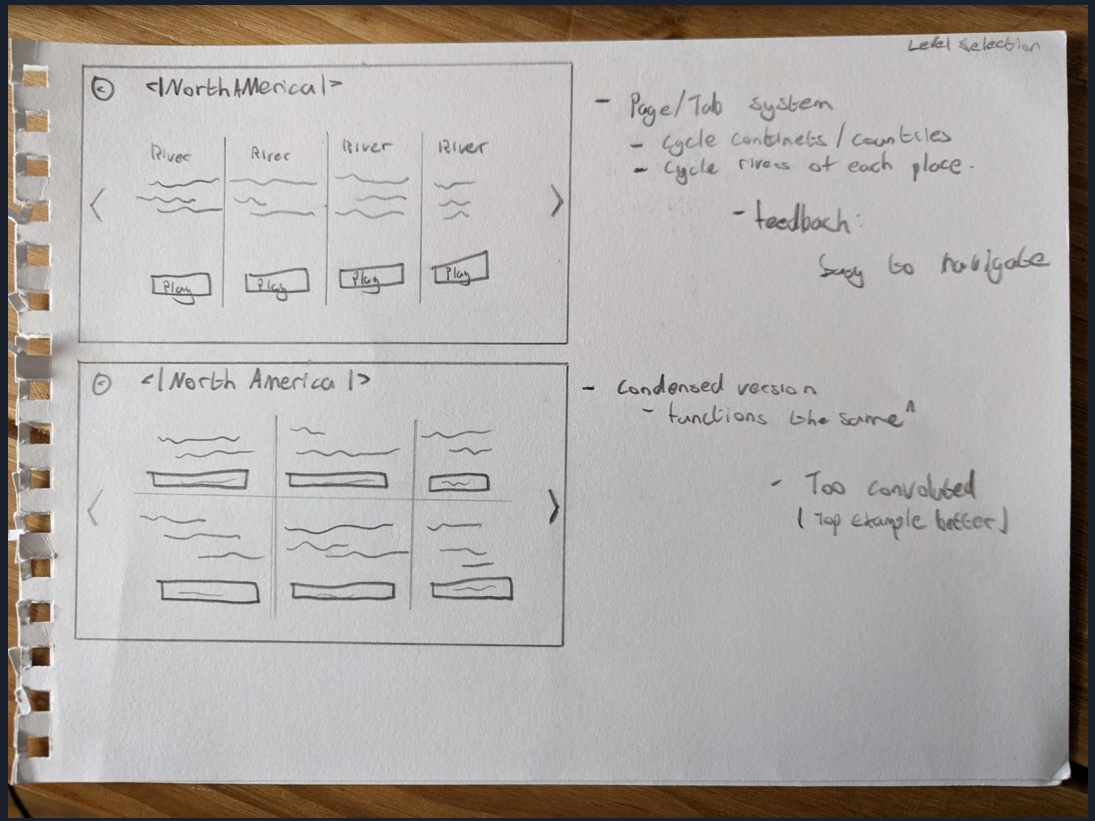




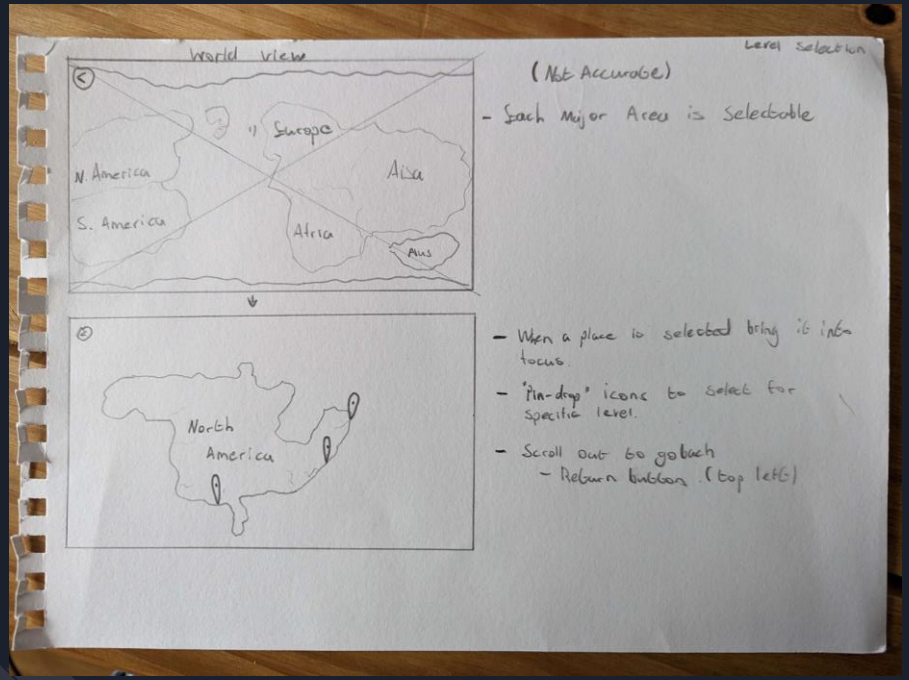
Main Menu Sketches

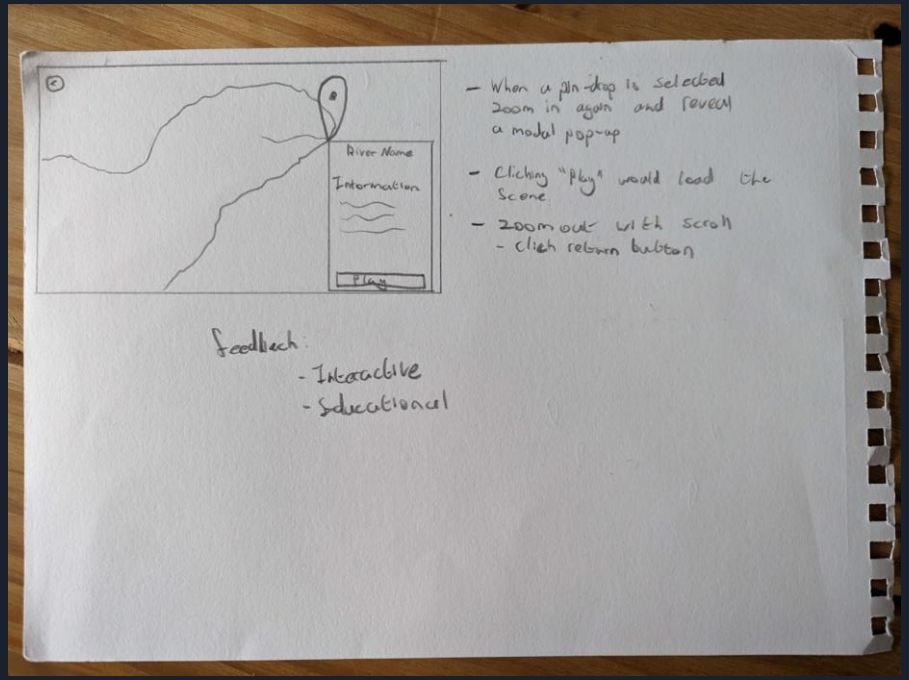


Main Menu Sketches



Level Select Menu Sketches





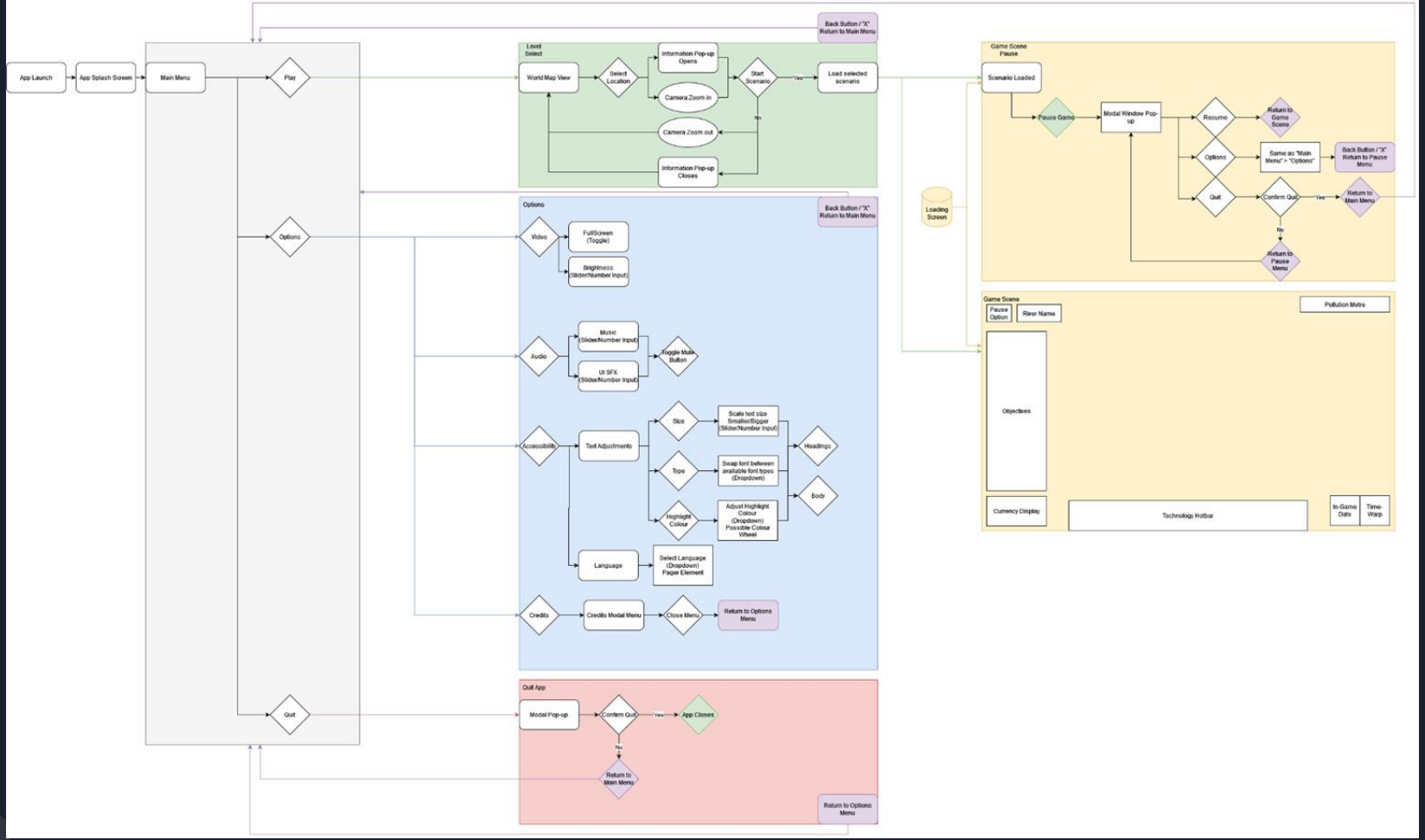
Level Select Menu Sketches

I developed sketches based upon the analysis I conducted.

I noticed trends in the menu designs and their layouts. I also experimented with my own layouts and styles. Mainly the “worldview” as I thought it would be an interesting way to display the levels, as it would show the users where in the world the rivers are located, adding onto the educational premise of the project.

Other Menu styles follow more “traditional” layouts that most people are used to.

I experimented with combining both the worldview and traditional layouts together to see what could potential be done. This resulted in a “Tab view” styled layout.



User Flow Charts - Draw.io First Pass

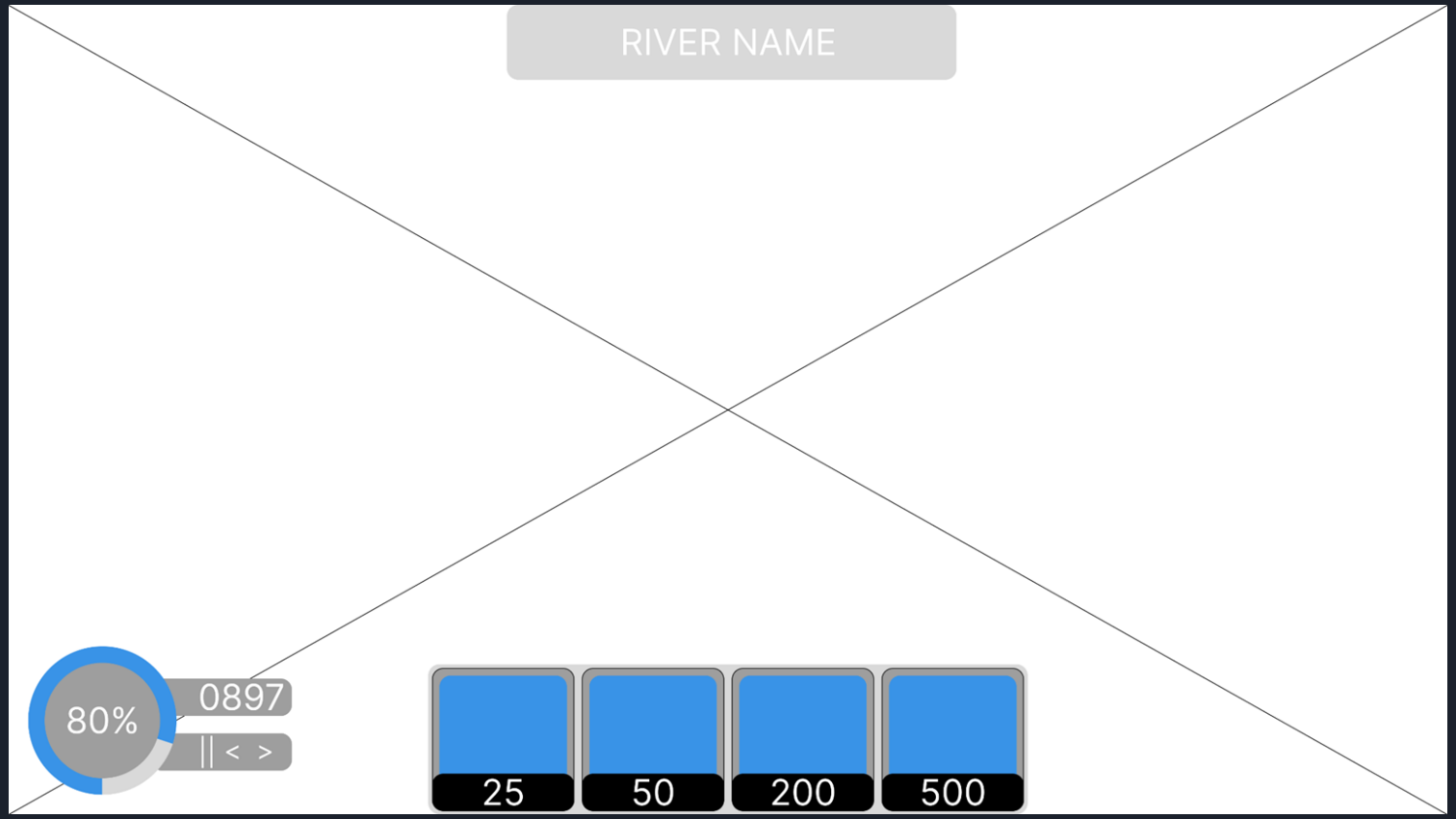
The most important part of my first pass user flow chart is the “Level Select” I wanted something interactable and unique.

I mocked-up a paper version to begin with. This variation of level select is the most beneficial to education, as it showcases where the River is in relation to the world. This benefits the users as they can not only know the name and general location, but the exact location of the river.

Accessibility is an overlooked aspect in games, so I would like to be as inclusive as I can when. Not every accessibility feature will be included as there is way too many to reasonable do, however, common accessibility features can be included as development goes on.

I have also decided to nest the credits inside the options menu, as the it is not a main part of the game, keeping the flow straightforward for the target user.

I also experimented with a HUD layout for the game scene, however, it is too cluttered so I will need to work on it to minimize the screen space.



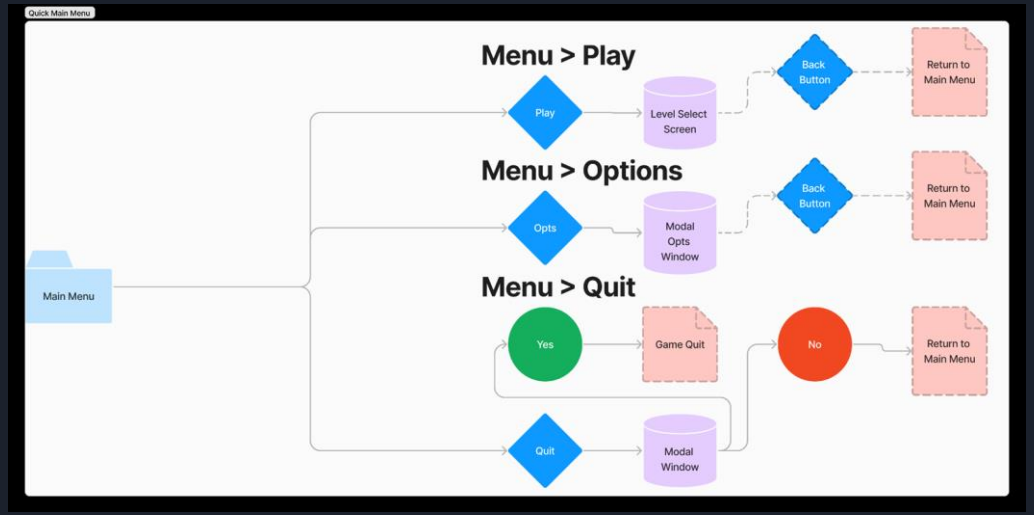
Improved UI for the Game Scene HUD. scale, positioning, colours not final.

Figma User Flow - Main Menu

A simplified user flow of the Main Menu created in Figma.

Based on my analysis, the users want to play the game, not have to sign-up to anything or be taken to external websites for things. Keeping the user in the app is necessary to their experience.

A link to the user flow project file can be found here

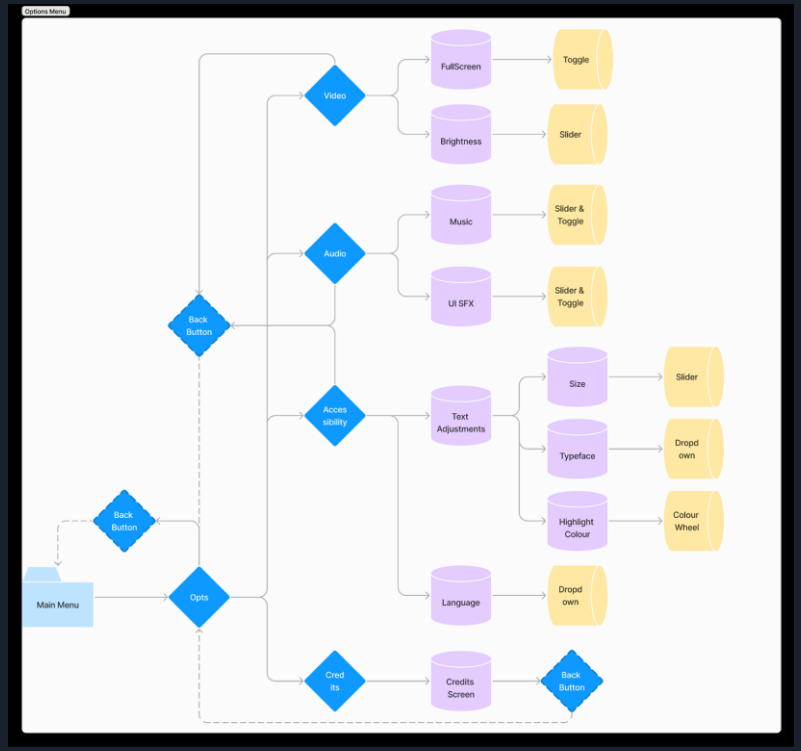


Figma User Flow - Options Menu

A simplified user flow of the Options Menu created in Figma.

Options here are not final, some may get dropped or more may get added later in development. For now these are the options included.

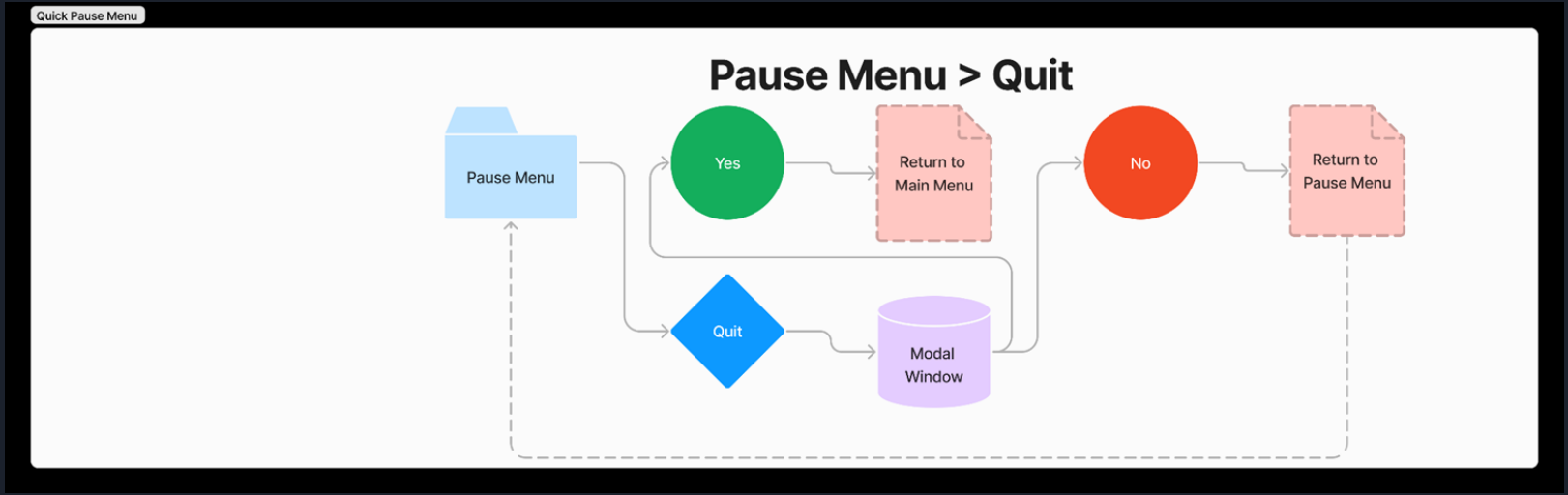
Based on my analysis, the options needed aren't always necessary, especially for my target audience. Therefore keeping these simple is key to their experience.

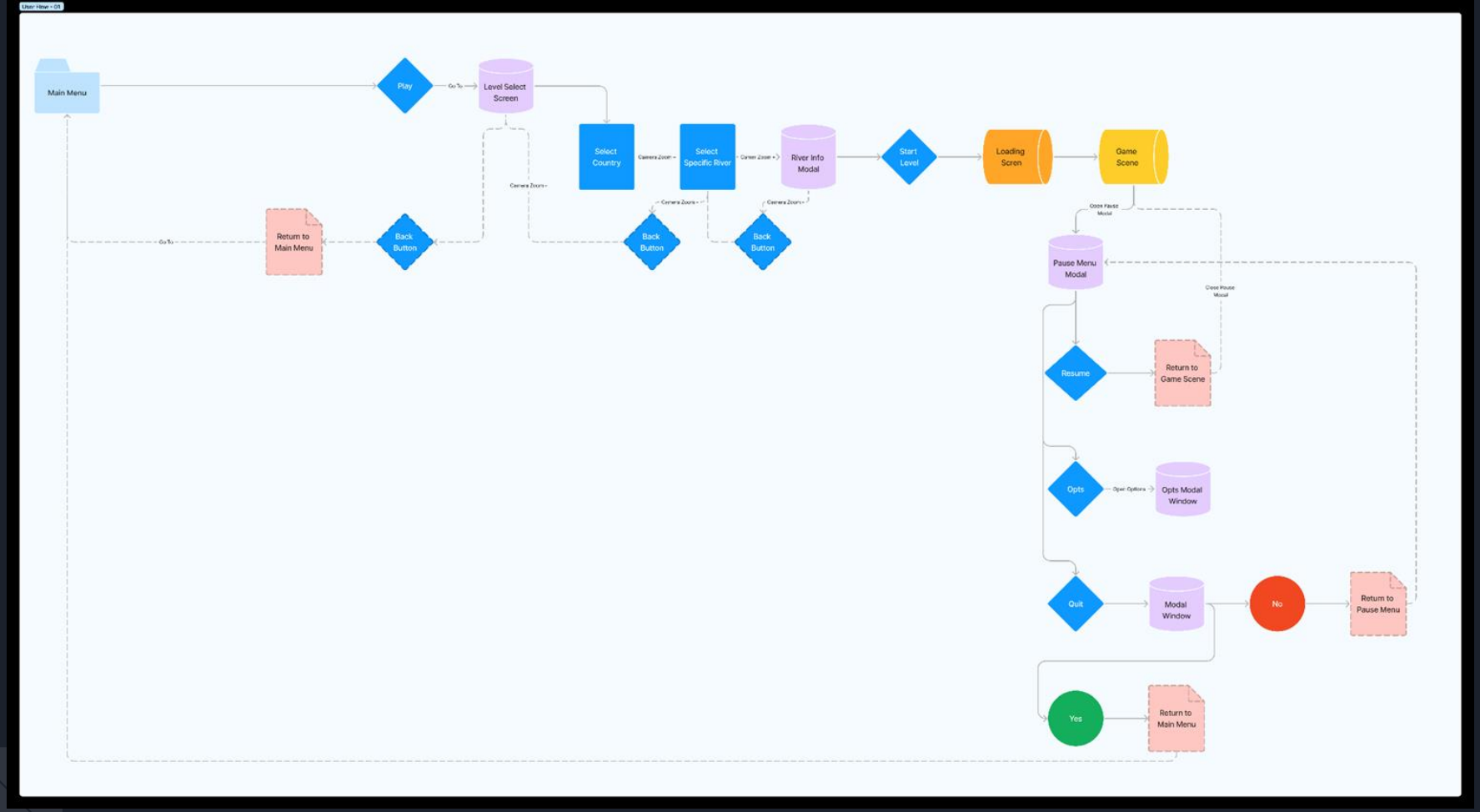


Figma User Flow - Pause Menu

A first pass of the Pause Menu > Quit user flow.

Whilst the user is in the game if they wish to quit then can pause the game and select the “quit option” and it will return them to the Main Menu.



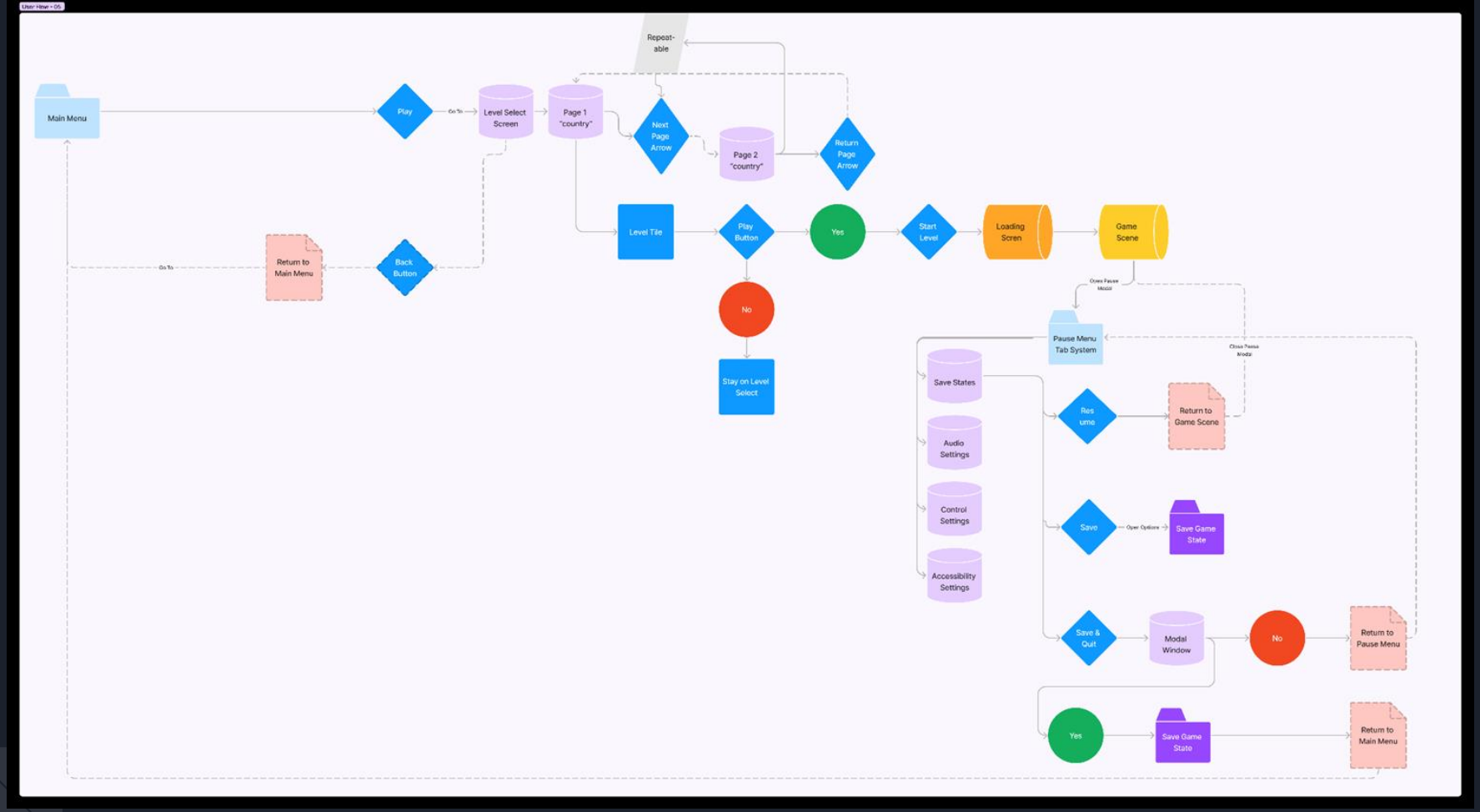


Figma User Flow - 01

I want to make the experience for users as simple and easy as possible. That is why my user flows focus on game launch to game scene. I want to optimise as much as possible to keep the user engaged.

This User Flow is based on my “Worldview” mock-ups. Early feedback provided that it was the most favoured for its education benefits and intractability.

Paper Mockup



Figma User Flow - 05

Flow 05 showcases a different variation of the level selection, this version works with “pages/tabs” allowing the users to click there multiple pages to select the level they want. This view takes away the world view, however, the country the river is situated in is noted at the top, to still keep the educational aspect there.

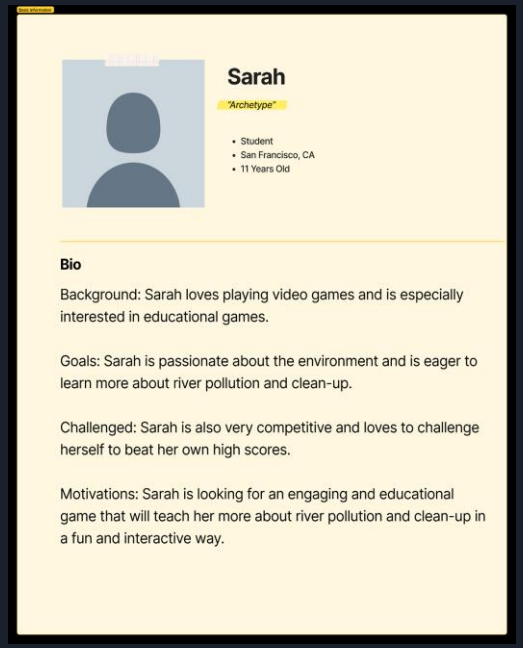
The pause menu also got adjustments here, I added a save / save & quit option, allowing the users to save their progress and quit the game if they need to, beforehand they had no save option losing all their progress in a specific level, not a good user experience.

Paper Mockup

User Personas

I generated user persona based upon my target audience (11-16) and I also included one for a Teacher to showcase the needs and challenges they may face.

A link to the user persona project file can be found here



Sarah

"Archetype"

- Student
- San Francisco, CA
- 11 Years Old

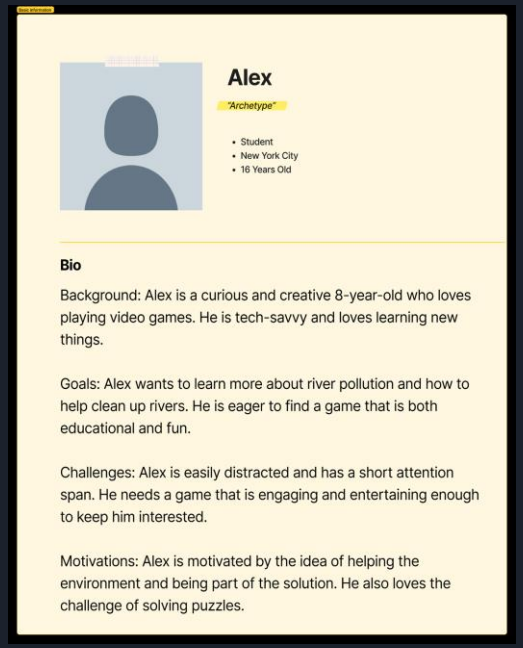
Bio

Background: Sarah loves playing video games and is especially interested in educational games.

Goals: Sarah is passionate about the environment and is eager to learn more about river pollution and clean-up.

Challenged: Sarah is also very competitive and loves to challenge herself to beat her own high scores.

Motivations: Sarah is looking for an engaging and educational game that will teach her more about river pollution and clean-up in a fun and interactive way.



Alex

"Archetype"

- Student
- New York City
- 16 Years Old

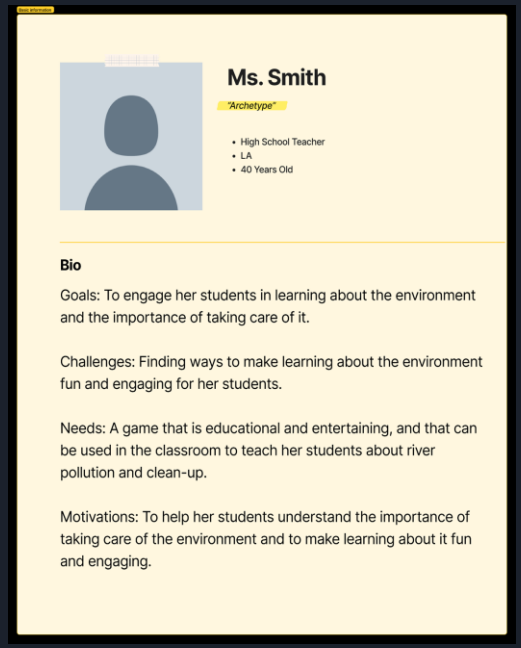
Bio

Background: Alex is a curious and creative 8-year-old who loves playing video games. He is tech-savvy and loves learning new things.

Goals: Alex wants to learn more about river pollution and how to help clean up rivers. He is eager to find a game that is both educational and fun.

Challenges: Alex is easily distracted and has a short attention span. He needs a game that is engaging and entertaining enough to keep him interested.

Motivations: Alex is motivated by the idea of helping the environment and being part of the solution. He also loves the challenge of solving puzzles.



Ms. Smith

"Archetype"

- High School Teacher
- LA
- 40 Years Old

Bio

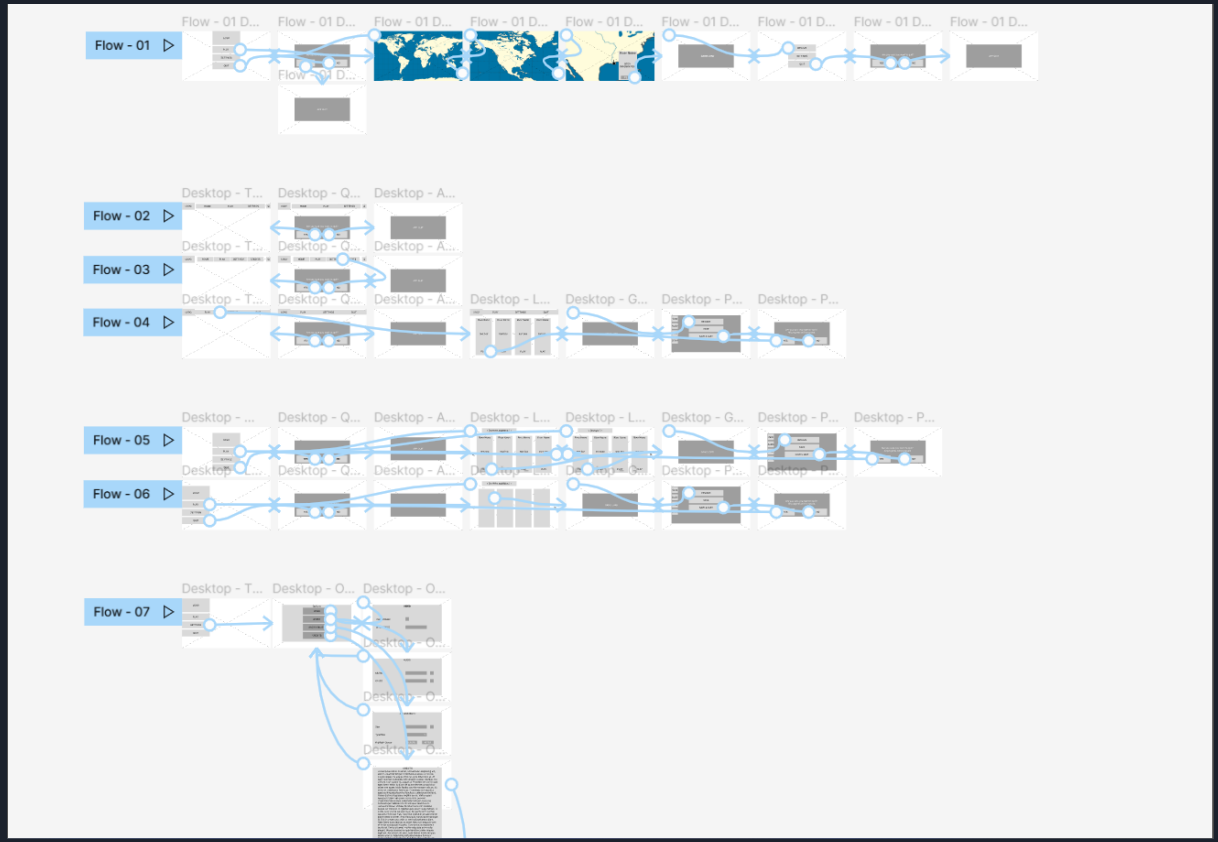
Goals: To engage her students in learning about the environment and the importance of taking care of it.

Challenges: Finding ways to make learning about the environment fun and engaging for her students.

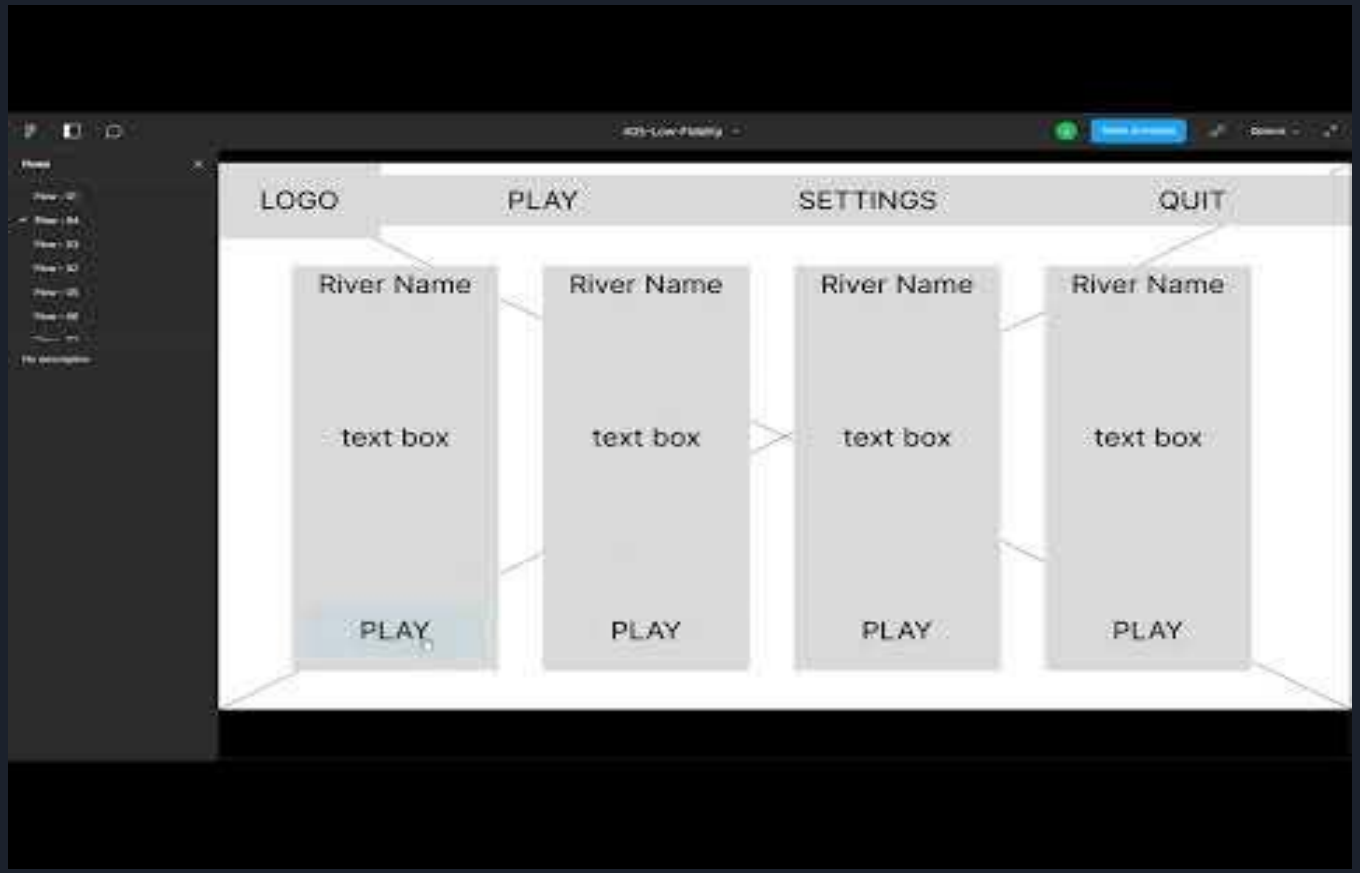
Needs: A game that is educational and entertaining, and that can be used in the classroom to teach her students about river pollution and clean-up.

Motivations: To help her students understand the importance of taking care of the environment and to make learning about it fun and engaging.

Figma Wireframes

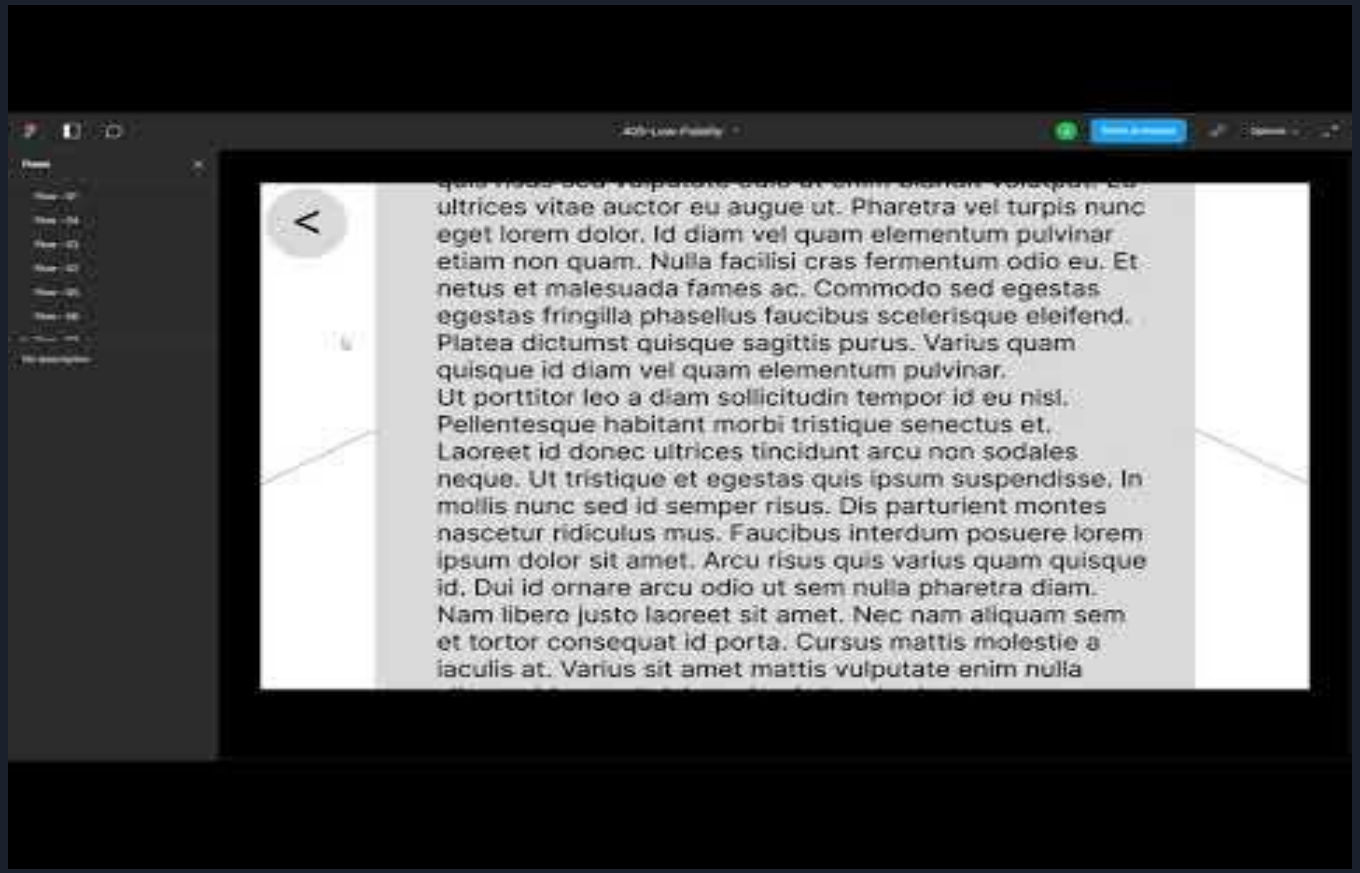


User Flow - 01 - Worldview Level Select, User Flow 01 and Paper Mockups



User Flow - 04 - Tab Layout, Paper Mockups

User Flow - 05 - Page Layout, User Flow 05 and Paper Mockups



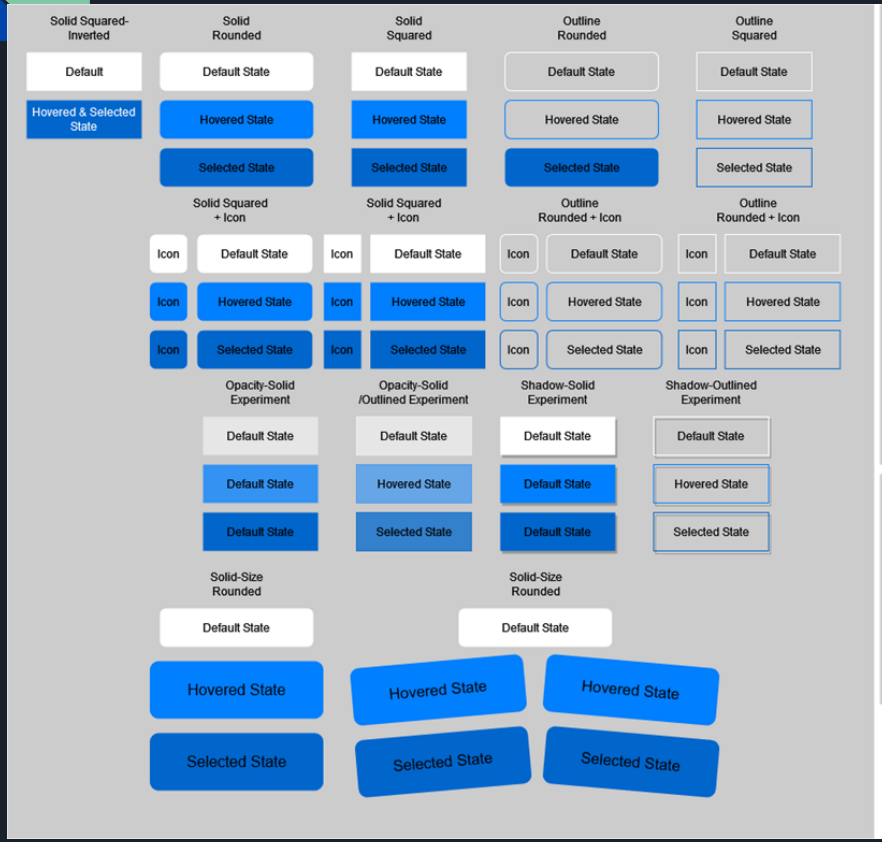
User Flow - 07 - Options Menu

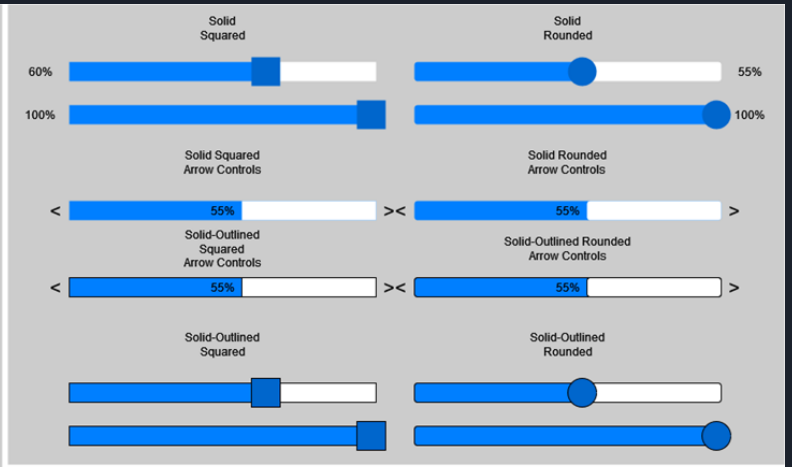
The wireframe showcased in the previous slides are multiple variations of Main Menu Layouts, levels selects and Pause Menus.

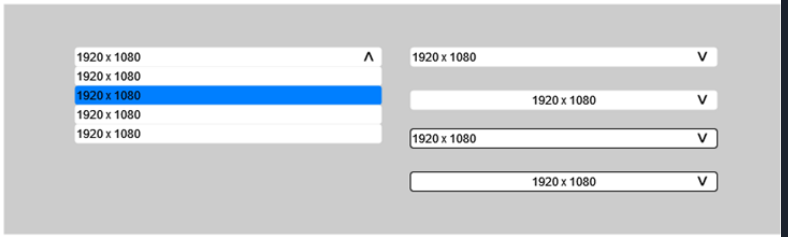
Taking into account the research I have conducted, I was able to produce these wireframes and user flows to better the experience, none are final and I expect many changes to happen in the production phase. As of now the worldview level select is the most favoured version for the level selection.

I split the wireframes up to better manage them. That is why the settings is a separate flow. In Adobe XD I will finalise the flow and it will be a single user flow/wireframe.

Button Design Exploration







Based upon my critical game/app analysis, I developed low fidelity button, sliders and dropdowns.

I mocked-up multiple variations of each type, none of which are final, however, it puts me in a good place for testing and implementing in the production phase.

The buttons functionality remains the same, only their styling changing, however, this is not the case for the sliders. The sliders provide different functionality, the standard “drag & slide” but also the “click” an “input” functionality, allowing for various ways of changing these levels which in return makes for a better user experience.

Typography Exploration

Upon doing some initial typography research, I came across the “Atkinson Hyperlegible Font” developed by the Braille Institute. This font is targeted towards people with vision impairments. The font’s goal is to improve readability by increasing the distinction between characters.

I believe having this font be the default, testing provided or have it as an option for users who may need it will be necessary for better accessibility and improving the overall user experience.

Along with these fonts I have also included variations of Helvetica (Neo-grotesque sans-serif) and Montserrat (geometric sans-serif). Two popular font choices for digital work.

ATKINSON HYPERLEGIBLE

ATKINSON HYPERLEGIBLE BOLD

HELVETICA

HELVETICA BOLD

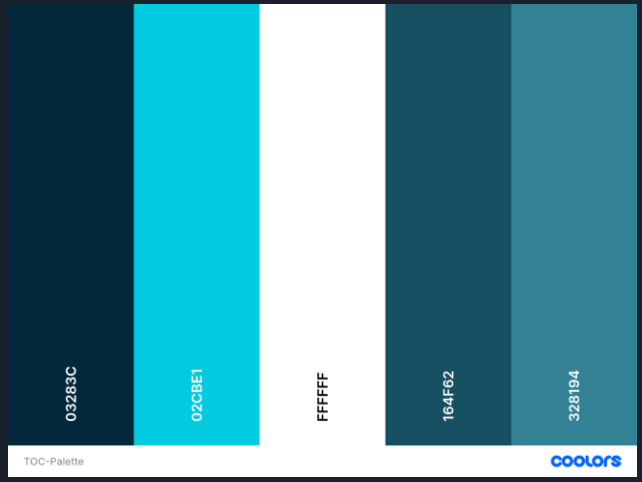
MONTSERRAT

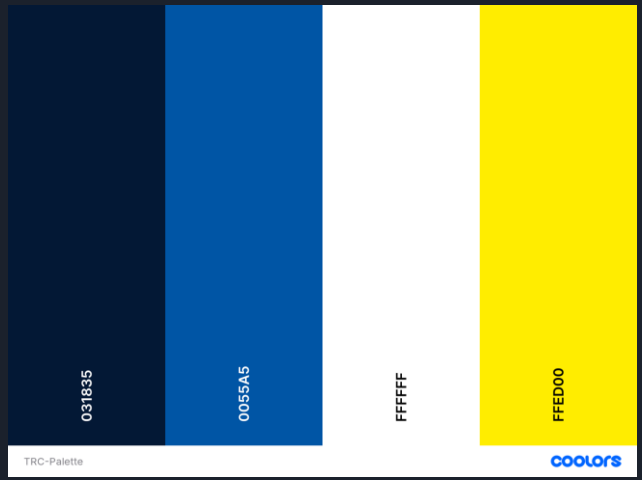
MONTSERRAT BOLD

Colour Palette Exploration

Using Coolers I generated colour palettes based off of The Ocean Clean and The River Cleanup websites.

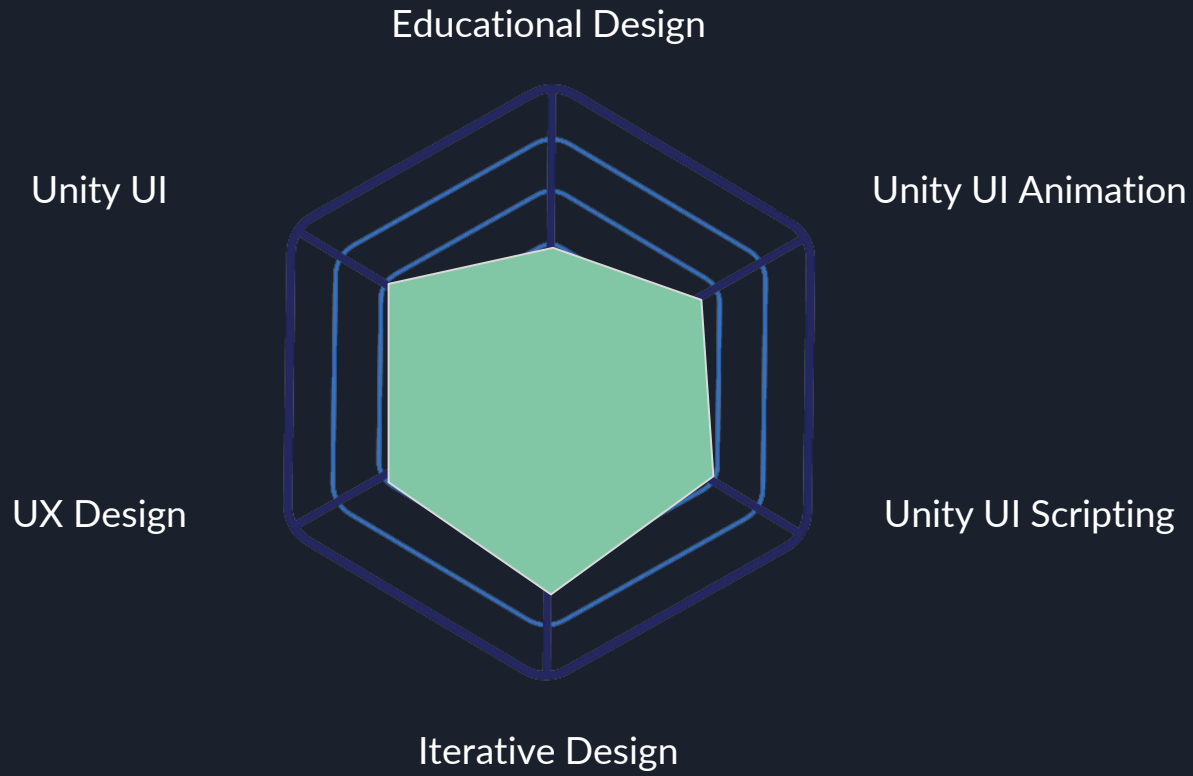
A noticeable colour is variations of the colour “Blue”, many fitting colours for a river/ocean themed application. The River Cleanup uses “Yellow” for their highlights and buttons.





Technical & Practical Skills

Skills Diamond

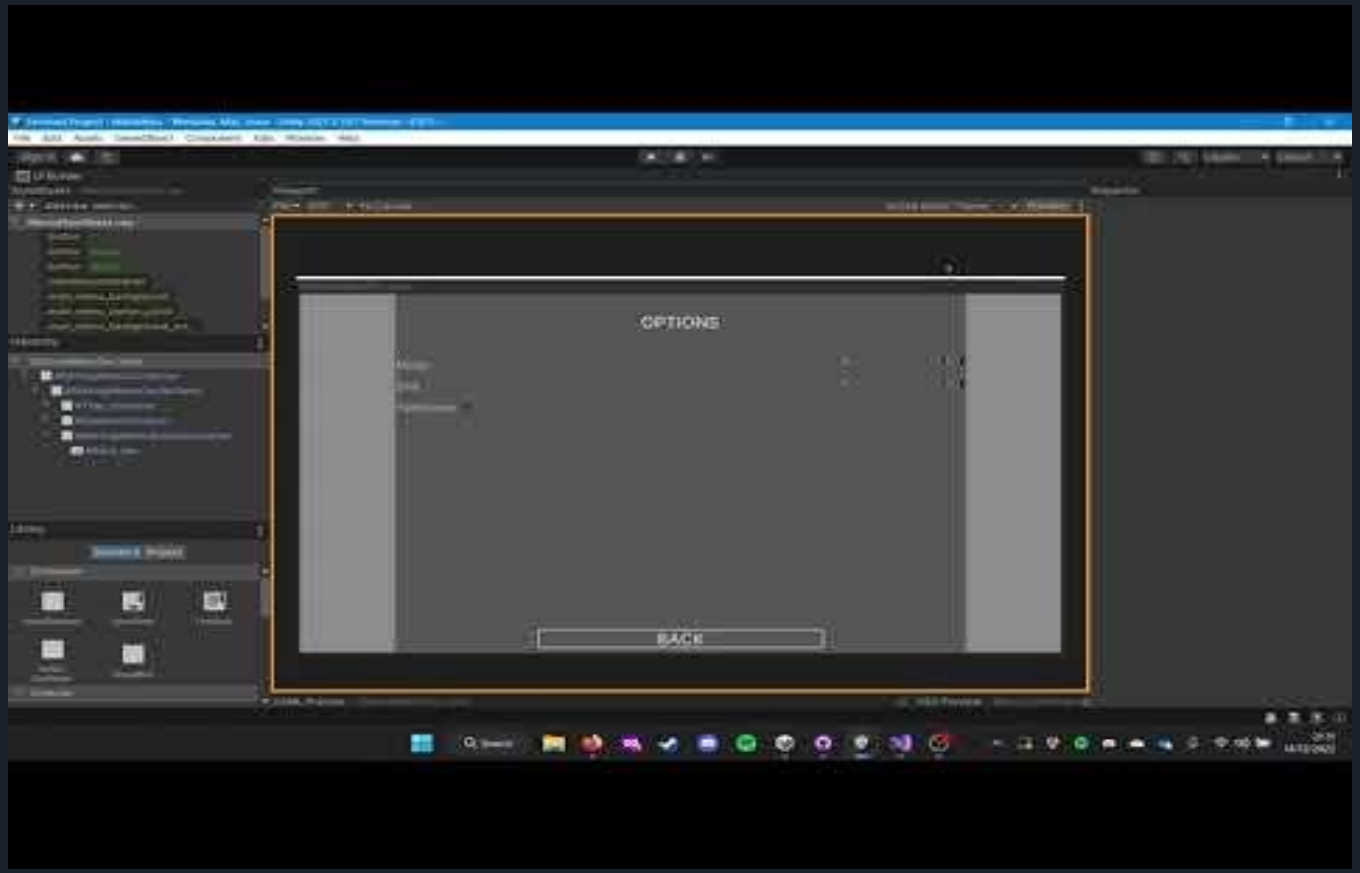


Skills Gap

For this project I would like to learn Unity's new UI development toolkit. However, this toolkit is still in early stages of development and resources available are lacking, if it becomes to unclear or not compatible with what I want, I will switch back to the old system.

Educational design is a new challenge as well. I've never worked on an educational focused game/app before so it will need improving.

The other skills are all skills I have worked on in the past years, I believe there is still improvements to be made and will do what I can to improve them.



Unity UI Toolkit - De-Risking

Unity UI Toolkit

The previous slide showcases my basic User Interface that I created using the new UI Toolkit. I have never used it before so it took some time to understand it. It works very similarly to CSS which I have experience with. Unity Style Sheet (USS) is the new way to customise anything UI. Which is a great addition and very helpful as it allows you to essential create “prefabs” of buttons and apply them to any other button if needed.

The downside to the new system is the scripting methods has changed so I will need to take more time to learn and understand how they function now as each sub menu is housed separately.

I do think it is very possible to use this system to develop my UI in unity for this project.

Project Plan

Deliverables

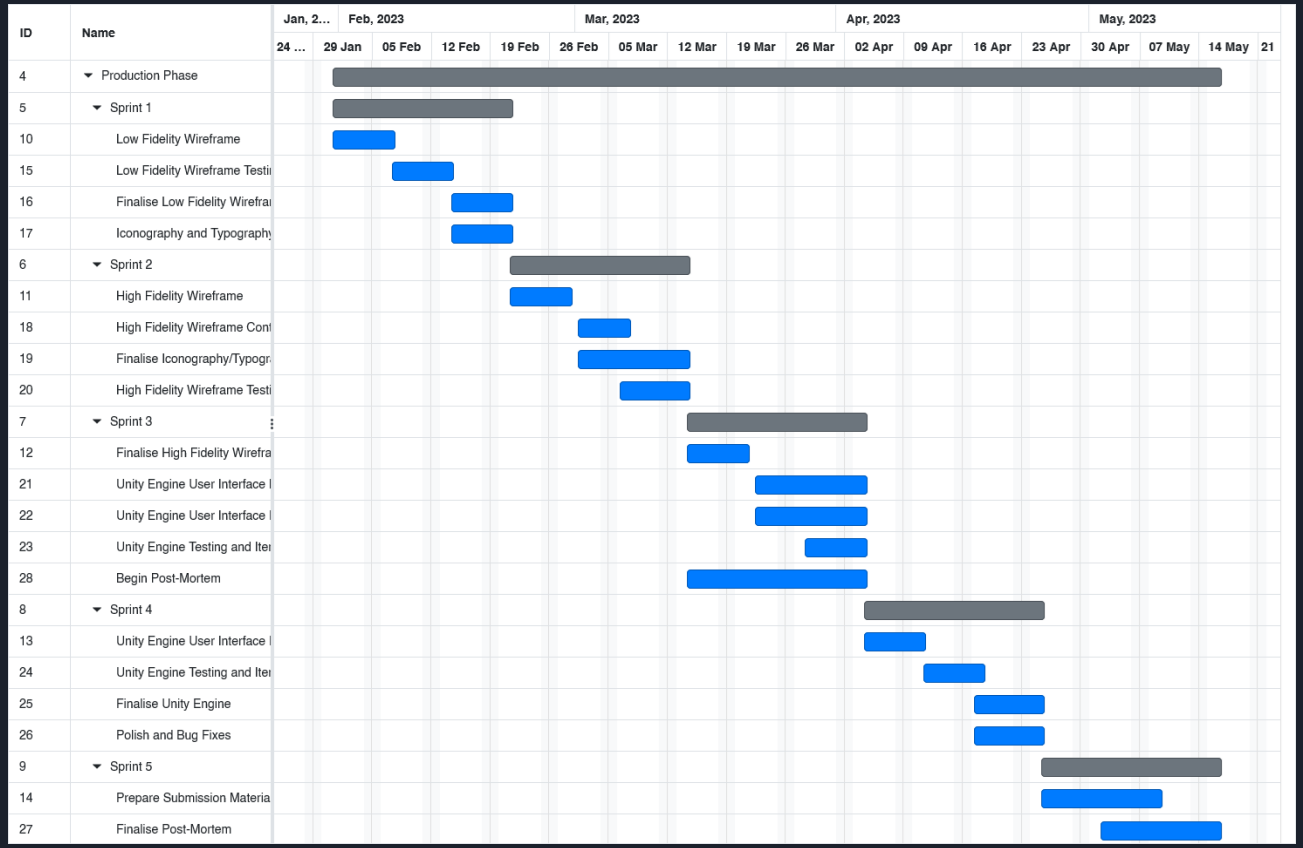
Adobe XD Project, Unity Engine Prototype build (Project.exe) Portfolio of Development, Design Documentation.

The final deliverable will be an in-engine prototype of the developed user interface.

In addition to the final in-engine prototype, I will also include supporting materials such as:

1. A full playthrough of the prototype
2. A video showcasing the iterations of the prototype (Sketch's, Figma, Adobe XD and Unity)
3. A design document outlining the hypothetical game the experience is designed around.

Project Write-up (post-mortem)



Gantt Chart - Estimated Project Schedule

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Authoritative

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