Sashimi is a 2D water-based puzzle platformer designed for 9 to 11-year-olds, created during the second half of my first semester in a Master's Game Design program. Players control a rainbow trout navigating pools of water, solving puzzles, and collecting fish-inspired power-ups to progress through multiple chapters. The game emphasizes creativity, problem-solving, and precision platforming tailored to the target audience.

[Gameplay Video](#)

Inspiration and Research

To understand our audience, we worked with a campus-based lab elementary school class. We brought in existing games for the students to play, observing their preferences and engagement levels. Surprisingly, many students gravitated toward *Celeste*, influencing our decision to incorporate similar precision platforming and rewarding gameplay loops. Balancing difficulty for this age group was a unique challenge, requiring constant iteration and adjustment.

Concept and Core Mechanics

The initial concept for Sashimi was developed collaboratively within a three-person team. We envisioned a game where each chapter introduced a new power-up, expanding gameplay possibilities while maintaining a cohesive progression. The core mechanics revolved around

dual water/air movement systems and platforming, with unique fish-inspired abilities unlocking new paths.

Our original plans had 4 chapters, the first dedicated to getting the player used to the base, core movement systems and rudimentary puzzle solving aspects, the second dedicated to the glide power-up, the third, to a charge-up dash power-up, and the last dedicated to a 'pufferfish' power-up that allows the player to bounce and absorb and release water, changing the level in the game. These powerups all had implications for both the platforming and movement, as well as the puzzle solving aspects of our game.

I proposed the **glide** power-up, allowing players to control their descent, and a modification to a suggested dash power-up, changing it to a **charge-up dash** inspired by Hollow Knight, enhancing movement precision and puzzle-solving opportunities, as well as the water movement ability of the pufferfish sort of like a **sponge**. I also designed all interactable elements, including:

- **Movable Rocks**: Used to block or unblock pathways or hold down buttons.
- **Toggle or Hold buttons**: Mechanisms that opened doors or redirected water currents.
- **Water Currents**: Added environmental challenges by influencing player movement.

Level Design Process

I took the lead on level design, crafting every level from initial concept to final implementation. My process began with rough block layouts in MS Paint, where I used simple color-coded rectangles to sketch the intended player route and puzzle layouts. These preliminary designs served as the foundation for building levels in Unity.

Level Block Design for Chapter 1:

Level Block Design for Chapter 2:
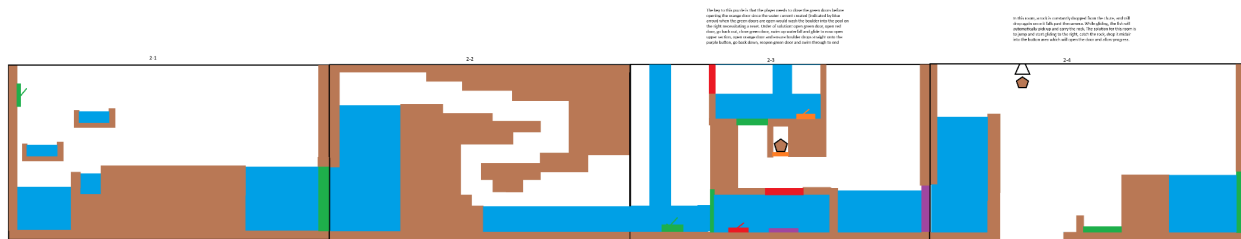
Final Level 2-3:
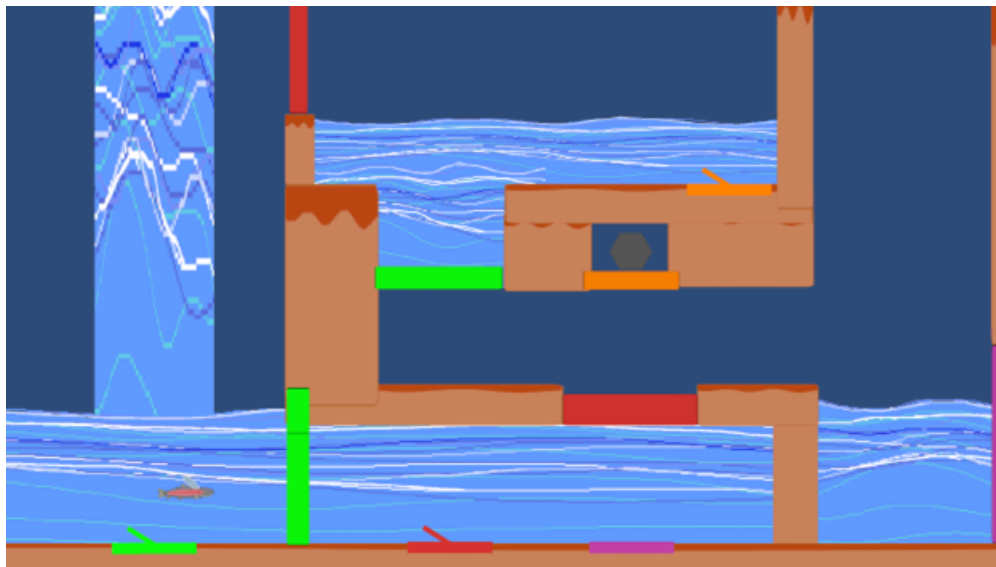
Key considerations in my design included:

- **Contradicting Decision Points:** Creating puzzles that presented seemingly conflicting choices to engage critical thinking.
- **Iterative Playtesting:** We conducted three rounds of playtesting, focusing on:
    - Identifying and resolving sticking points.
    - Gauging the balance of puzzle complexity and platforming difficulty.
    - Ensuring levels remained accessible and enjoyable for 9 to 11-year-olds.

Each playtest informed adjustments to level flow, puzzle design, and challenge pacing, ensuring the game hit the right difficulty curve for the target audience.

Collaboration and Roles

Our team split responsibilities after the initial brainstorming phase:

- **My Role:** Level design and implementation in Unity.
- **Shuchen Liu:** Software development, including creating base prefabs.
- **Robby Oh:** Art and animations, as well as interfacing with the San Francisco Conservatory of Music, which provided the game's music and sound effects.

I worked closely with Shuchen to integrate mechanics and ensure smooth gameplay. Once prefabs were ready, I implemented my designs directly in Unity, iterating on layouts and mechanics based on team feedback and playtest results.

Challenges and Lessons Learned

A key takeaway from this project was the importance of scope management. With only 2.5 months to develop the game from scratch, we had to prioritize essential features and mechanics, leaving what turned into 'stretch goals'—such as the latter 2 chapters and power-ups—unrealized. Despite these limitations, we successfully delivered a relatively polished experience that highlighted our creativity and technical skills.

Reflection

Sashimi was an invaluable learning experience in collaborative game design, level creation, and audience-focused development. It exemplified my ability to design engaging levels, contribute innovative mechanics, and adapt to feedback in a fast-paced project.