Week 1 ideation and iteration

The beginning of experimentation

To begin my experimentation of game ideas, I started by looking at what kind of experimental games are out there. I explored indie games, avant-garde titles, and unconventional genres; this gave me some clues that it's not just about experimental mechanics but can be more artistry-based, incorporating elements like narrative innovation and visual aesthetics.

I brainstormed twenty-five rough ideas. Next, I'll narrow them down and focus on finding what makes each idea unique. I want to mention that my preference for trying out different game mechanics might come through in these ideas. However, that's simply because it's my personal passion and the area I'm excited to delve into.

Rough Ideation: 25 Ideas

1. Castle generator using L system.
2. Map creator -> Draw your own Risk game scenario.
3. Procedural quests based on player personality types.
4. Custom spell system -> combine spell components to create wacky and possibly useful spells.
5. Plant growth simulated through rule-based growth -> seeds dropped by birds act as mutations.
6. Spore like
7. non-Euclidean geometry puzzle game -> Shrinking game
8. First person first and top-down character
9. The player has access to the command console.
10. Road trip Zombie apocalypse
11. Arthurian AR project
12. Mariana trench Lovecraftian world
13. Time manipulation -> see past, present and future. Interact with past changes the present and future.
14. God like game where you are following a chosen one and must protect him.
15. Overfishing game -> Push your luck
16. A king who doesn't want to be king and tries to avoid work, while also avoiding being beheaded.
17. Uranium fever -> game about uranium collecting and its effects on the collector.
18. Turn based ship moving game -> player fights against the wind -> ship avoids rocks.
19. Evil Overlord public relations simulator
20. SETI finds aliens first contact -> puzzle game.
21. Loss of sight game -> detail remembrance.
22. Yoriki Samurai police detective game.
23. This day cant get worse -> the day gets worse.
24. Shelf stacking simulator -> my life in retail.
25. 4X spreadsheets ONLY

Chosen ideas to expand on: 10 detailed ideas.

I narrowed my ideas down to 10 ideas; I thought about what could be experimental and what I would like to learn from them. Some of these ideas have been developed and tested before and some of these ideas are not as strong as the others, I decided to narrow it down even further based of feedback. Green were ideas that was received well, red were ideas that could require more work and yellow was the highest rated.

1. Map creator -> Draw your own Risk game scenario.

My personal favourite it's something I wanted to develop for a long time, it uses the same technology of games I enjoy however they do not allow the player to have a build in map creation tool, this would be the unique element.
I enjoy creating D&D worlds and drawing maps, my favourite games are 4X map games I enjoy fantasy worlds, I would hope that my tool would help inspire others like myself.

2. Custom spell system -> combine spell components to create wacky and possibly useful spells.

   Many games have custom spell systems however I personally find them limited they normally focus on mixing different elements of spells together to create unique spells, my approach would be more like adding components to basic spells. For example, a base component might be beneath and a normal component might be dig combined these two would allow the player to dig beneath themself

3. Overfishing game -> Push your luck

   I was looking in the fish isle and saw that the price for fish has rapidly increased. I saw that a few of the major issues were overfishing and I thought that I could make a game around that issue, there are a few games about it but they normal approach it from a straight direct education approach, personally I feel like there is room to make a game where the player doesn't understand their actions until its too late which will allow the player to more deeply reflect rather than being told that its wrong. A play on the tragedy of the commons.

4. Plant growth simulated through rule-based growth -> seeds dropped by birds act as mutations.

   This was another idea that came to me while I was outside, I saw a snowdrop and was thinking about the rules of the plant and how I could recreate this led to me to thinking how games go about growing plants. Games normally abstract the approach of plant growth, into making a smaller version of the grown plant or grow the plant in stages. This arrangement doesn't show the real growth of the plant and can miss critical plant stages. I was also thinking how I can make this interesting maybe by adding mutations to the plant changing its natural structure by mixing different plants together.

5. non-Euclidean geometry puzzle game -> Shrinking game

   This has become more common nowadays but I still think there is room to possible development an alice in wonderland style type of puzzle game.

6. Mariana trench Lovecraftian world

   The theme is done before but it could be an interesting dive into the theme of overwhelming dread, the natural environment of the ocean leads well into the dark and crypt thematic and that it isn't fully explored offers lingering worry.

7. Time manipulation -> see past, present and future. Interact with past changes the present and future.

   There are a few games that offer puzzle games about being able to time travel but they normally fall into the police detective type of game where you solve clues. I was thinking about about exploring an alien tomb to open it up you would have to fight your way though the past for the present and that would change the outcome of the future.

8. Uranium fever -> game about uranium collecting and its effects on the collector.

   Like the overfishing game this would explore the effects of mining for dangerous materials and how it unknowingly affects people. I wasn't actually thinking about uranium but a town in Australia that mined asbestos that unknowingly spread asbestos around Australia.

9. Turn based ship moving game -> player fights against the wind -> ship avoids rocks.

   I was playing a ship vs ship turn based game was a trapped in a whirlpool which span the ship around, I got to thinking what if rather than fighting against another player you was fighting against the sea itself, the wind actively trying to prevent you from reaching home. The sea trying to drag you under, in an abstract way.

10. Castle generator using L system.

Once again this led back to my technical background it's something I want to look at and combined my passion for history and technology.

Detailed 3 games with experimental features explored.

Plant growth simulated through rule-based growth -> seeds dropped by birds act as mutations.

Most games have plants start out as a smaller grown-up version of the plant; I would create a simulation using rule-based growth to simulate actual growth. This could be used in games to better simulate plants in a more realistic manner. The prototype will come with a small-scale simulation showing it off and allowing players to edit the rules of the plant growth. I would also introduce an element of chaos to make the simulation unique each time by allowing birds to mutate the plant growth.

Map creator -> Draw your own Risk game scenario.

A tool which allows the player to create their own custom risk scenarios, players can draw their own countries and factions. The tool will allow players to act out their own imaginations in a world of their creation. I would also investigate adding resources and different terrain to make the gameplay more unique and customizable.

First stage will be a map drawing stage where the player creates the map, they assign names and factions to the place. The second stage will allow the player to take control of one of the factions. The game will then follow risk-like mechanics.

Overfishing game -> Push your luck.

I'm still thinking of the gameplay but there will be 3 factions you have to manage (Union, government, environment) each round you would set your workers to fish which would collect your money which will allow you to upgrade your gear to collect that fish. The fish price goes up as the fish becomes rarer, until one point the fish is all gone and all the money you spent upgrading because useless, the game will be about balancing the three factions and keeping them happy.

Each round will take place an in game year I'm thinking of implementing a newspaper system that will show the player their profits but in the smaller boxes the stock risk level. The world at large will have events that also effect the stocks. For example, market exits, oil spill and freak weather. Dynamic market prices of fish will fluctuate based on supply and demand.

The end game will either be doom or hope for example, players could face a collapse if they overexploit resources, or they could achieve a sustainable fishing utopia if they balance the needs of all three factions effectively.

Idea chosen and the reasoning behind it.

I chose to go forward with the Overfishing Game because it's about a real problem we're facing today. It's not just a game, but a way to show people what overfishing can do to our world. This makes it more endearing than the other two ideas.

Working with a serious game means that it will be much more challenging for me to plan around. There is much research done into serious games and raising social issues (Calvo-Morata, A. and Fernández-Manjón, B., 2023), However most of that research is directed into climate change or farming. Players managing different groups, deal with world events, and make sure they don't fish too much. This will also push me towards gameplay and narrative writing experimentation.

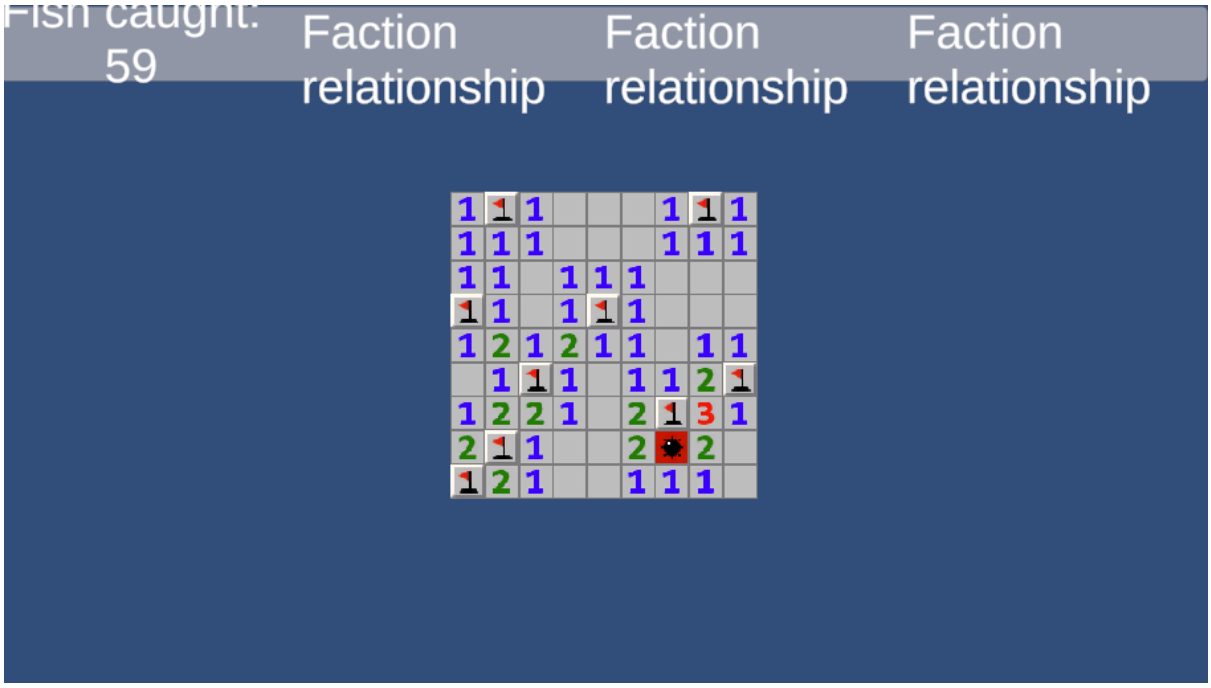
Week 2 - Ontology

Planning the game outline and the ontology

This week, I worked on prototyping the game and doing background research.

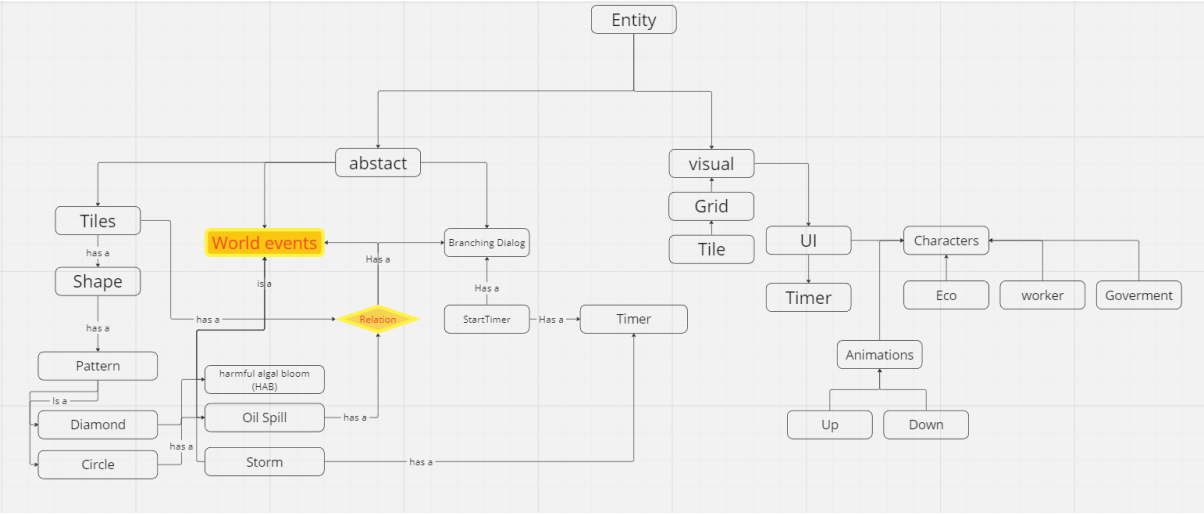
I made a small prototype really early on however it felt too similar to current fishing games, and it just felt overdone and underwhelming, so I decided to scrap a lot of my original idea, with gear upgrades and change focus to sustainability methods.

I was inspired by a comment to abstract and use mechanics from Minesweeper, I then developed the idea but with an added twist of adding “world events” that affect the game board. I wanted to create a game that was familiar but also innovative and challenging to tell my message of overfishing. I wanted my game to be a fun game at its core while also showing different methods of sustainability and how they can be rewarding in the long run.

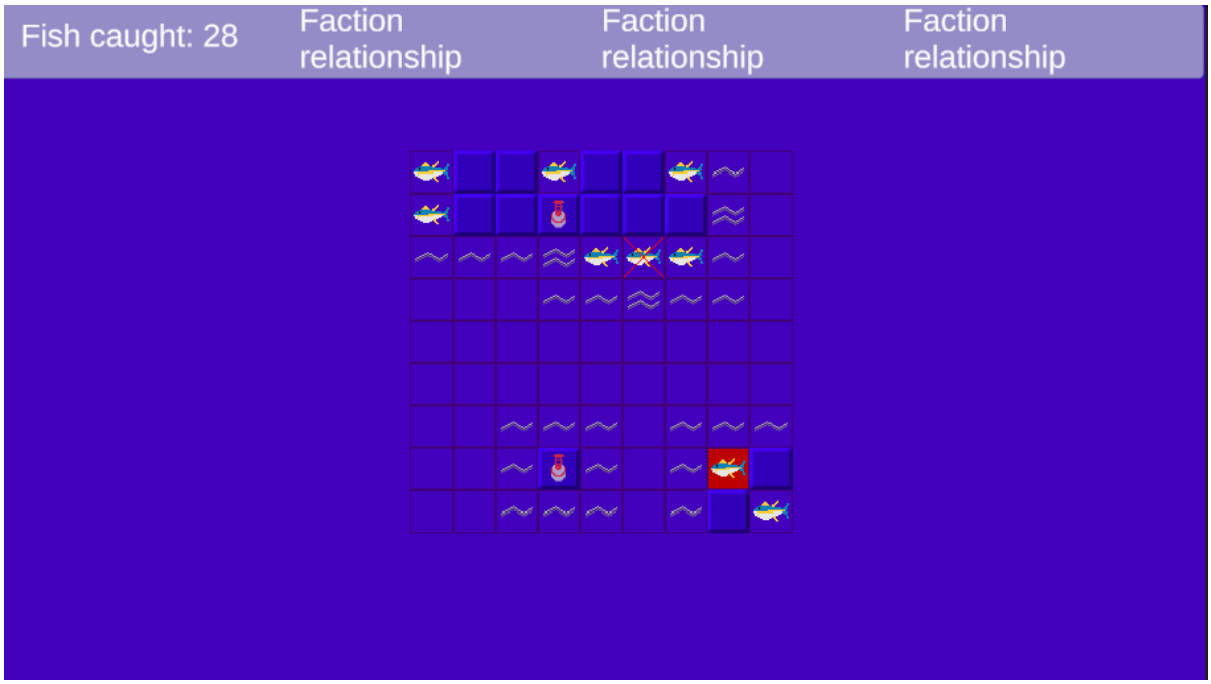


Ontology

planned out the ontology of my game.



I tested my prototype and received some feedback from my peers. The feedback pointed out some playability issues, such as the difficulty level, the user interface, and the response system. The feedback also suggested that the storyline of the game did not match the message I wanted to convey, and that I needed to revise it to make it more coherent and meaningful. I realized that I had to improve the game design and the narrative to create a more engaging and immersive game experience for the players.



Research

Serious educational game

Building on the foundation laid by Clark Abt's concept of Serious Games in his book "*Serious Games*" (Abt, C.C., 1987), my design incorporates the principles of game-based learning as proposed by James Paul Gee (Gee, J.P., 2003). The game is not just designed as a primary source of entertainment, it's a tool for education and learning new topics. However, Gee notes that games are

just a good way of learning new systems, and that poorly made games that are designed to teach people, can give people a lack of confidence something I will have to keep in mind while developing.

In line with the study “Engaging Students in the Learning Process with Game-Based Learning: The Fundamental Concepts”, (Adipat, S., et al., 2021) the game introduces relationships and knowledge training and emphasizes the role of game elements in player engagement and relates to educational gaming content interaction.

My game design also considers the concept of Situated Learning, which suggests that learning is most effective when it mirrors real-life situations and involves social interaction. Which I hope is the outcome from my storytelling.

In Honey and Mumford (1986) they identified four different ways people like to learn: by doing (activists), by watching and thinking (reflectors), by understanding the theory (theorists), or by trying things out practically (pragmatists). They suggested most people tend to prefer one or two of these styles.

In my design, the game themes revolve around the theory of overfishing and sustainability, it will appeal to certain types of learners may benefit more from the experience. Those who lean towards being reflectors and theorists might find value in the game.

The game integrates real-world events such as oil spills and algae blooms, further enriching the learning experience.

The “Reflectors” will find value in contemplating the effects of oil spills and algae blooms as they unfold in the game. By witnessing the consequences of these environmental disasters, they can reflect on the broader implications for marine ecosystems and sustainable fishing practices.

Similarly, theorists will appreciate the opportunity to delve into the underlying causes and effects of such events within the game. As they encounter scenarios involving oil spills and algae blooms, they can analyse the interconnectedness of environmental factors and apply strategies for mitigating their impact.

Aligned with the Kolb model of learning (Kolb, 2015), my game provides a platform for players to experience, reflect, conceptualize, and plan in response to real-world challenges. By immersing themselves in the game's dynamic environment, players can deepen their understanding of environmental issues and explore solutions in a hands-on, engaging manner.

Overfishing and sustainability

I learned about the different solutions for overfishing from various sources, such as articles, and websites.

Selective Fishing Gear: Using more selective fishing gear can help reduce bycatch, which is the unintentional capture of non-target species. This can include using fishing gear designed to catch only certain sizes and species of fish(Ocean Info, n.d). In my game the main failure comes from bycatching, currently implementing different fishing gear would be a challenge mechanically, due to the restrictive nature of minesweeper. However, they could take the form of powerups that influence the board.

Fishing Area Restrictions: Restricting fishing in certain areas can help protect vulnerable habitats and allow fish populations to recover. This can include establishing marine protected areas where fishing is limited or prohibited (Ocean Info, n.d). Our game will include protected zones, but at a cost allowing the fishing area restrictions takes up tiles on the board which prevents the player from fishing, possibly causing them to fail their quota, which would mirror the real-world cost of not fishing in abundance.

Individual Fishing Quotas: Quotas that limit the number of fish that each vessel can catch, helping to prevent overfishing by stocking up on fish. Quotas should be based on scientific assessments of fish populations (Priddle, n.d). The game includes the option to allow the player to be limited to catching a number of fish, this is a trade-off which makes the conservationists happy, but annoys the workers who get paid, it also upsets the government if you go over these quotas that you placed upon yourself.

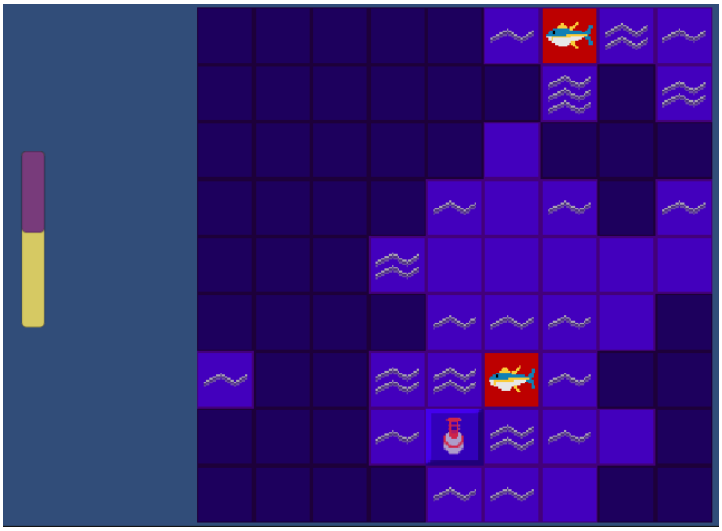
Then I moved into looking at the causes and effects of overfishing

What is Overfishing? Facts, Effects and Overfishing Solutions by the Ocean info (Ocean Info, n.d) explains the concept of overfishing, its impact on the ocean wildlife and the human livelihoods, and some of the actions that can be taken to prevent it, This shows some of the downsides and what it can lead to which I use when designing my events.

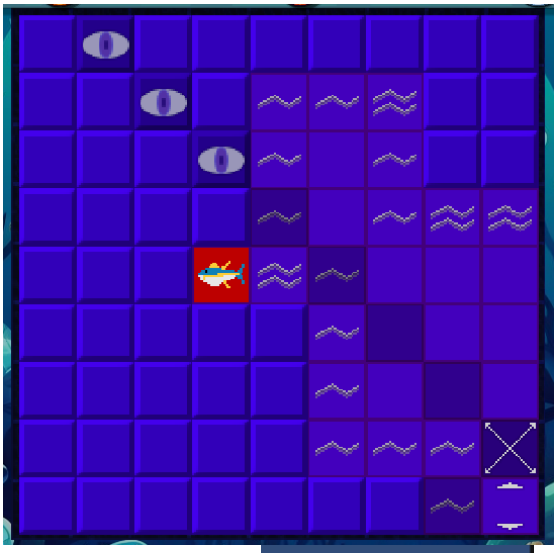
7 Different Overfishing Solutions for Conservation by Our Endangered World (World, 2023), which outlines some of the potential solutions to overfishing, such as fisheries management reforms, increased marine protected areas, sustainable fishing practices, consumer awareness and education, and fighting illegal fishing, which is kind of the things I want to show inside of my game.

Week 3 reading week

During the reading week, I continued to develop my game and added some new features and events. I wanted to make my game more relevant by incorporating some real-life issues related to overfishing and the ocean environment. One of the events I added was the algae bloom, which I learned from my research (US Department of Commerce, Harmful algal blooms (red tide), 2019) that it was caused by nutrient runoff from farming and that it could deplete the oxygen in the water and kill the fish. I used this event as a consequence for the player if they took too many fish from the board, as the algae bloom would block the tiles and prevent the player from using them. I hoped that this event would also raise the player's awareness of the environmental impact of overfishing. However, I also realized that this event was an abstraction of the real-world phenomenon, and that overfishing was not the direct cause of algae blooms but a stressor (Ocean Info, n.d). I decided to use this abstraction for the sake of gameplay, as it created a clear and immediate feedback for the player's actions.



I also wanted to make my game more dynamic and interactive by adding some power-ups based on fishing techniques. One of the power-ups I added was the Lidar (US Department of Commerce, What is Lidar 2015), which was a sonar device that could detect the bubbles from the fish. I thought this power-up would add some certainty and ease to the game. However, I realized that the power-up was not very clear or intuitive for the player, as they did not know what it was or what it did. I asked my roommate for feedback, and they suggested adding an icon to the power-up, such as an eye. I followed their suggestion and created some iconography for the power-up, which made it more visible and understandable for the player.



Another feature I added was a timer, which would end the game when the player ran out of time or cleared the board. I added this feature to create a sense of urgency and agency for the player, and to differentiate my game from the traditional Minesweeper gameplay. However, I encountered some problems with the timer, such as the speed and the visibility. I learned that the timer was too fast for some players and that they did not notice it or know how much time they had left.

The last feature I added was a rogue fishing boat, which would roam around the map and catch fish randomly. The rogue fishing boat could also catch the endangered fish, which would affect the player's score and relationship. The player could deter the rogue fishing boat by placing buoys on the map. I added this feature to reflect some of the real-world issues of illegal fishing and foreign vessels (Alberts, 2021). I wanted to give the player an option to protect their fishing area and the endangered fish from the rogue fishing boat by placing buoys however in reality that wouldn't deter them but was added for the sake of gameplay.

I also experimented with different art styles for my game, as I was not very confident in my 2D cartoony art skills. I used an AI tool to generate the background and icons for my game, and then I edited them in photoshop to fit the size and theme of my game. I learned how to use AI art as a creative tool and how to modify it to suit my game vision. I was pleased with the results, as they gave my game an appealing look.

Feedback:

I had the opportunity to test my game and get some feedback from college students who visited the university during the reading week. The feedback was insightful, as it revealed some of the strengths and weaknesses of my game. The feedback showed that the students enjoyed the game and found it fun. They also understood the message of the game about overfishing, which was one of my main goals. However, the feedback also pointed out some areas for improvement, such as the timer, the game ending, and the power-up. The feedback suggested that the game was not very user-friendly or accessible, and that it needed some more explanation and guidance for the player.

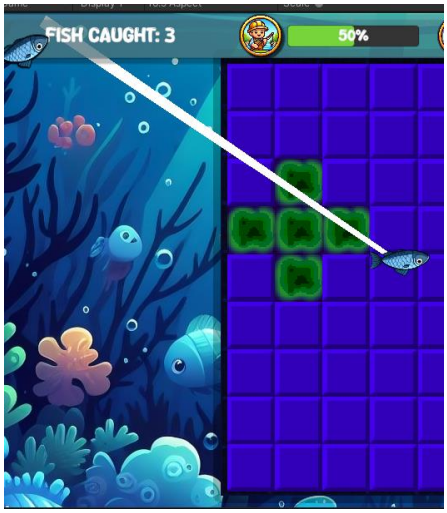
After feedback

I worked on developing some tooltips for the players based on my feedback, I used an asset pack from the store to speed up development, however that had some issues with the rect transform not correctly positioning itself so I had to manually change it up, so it would be more dynamic for my game. The tooltips would be placed on relevant tiles and objects, telling the player what they are and why they happened. This is meant to help inform the player of what the tiles are.

Week 4 First Iteration

I presented my game to my class and asked feedback from my peers and instructor. I was able to implement most of the previous feedback and improve the game experience. I got some new feedback so one of the changes I made was to add a visual effect of a fish spawning from the tile that the player clicked on, instead of from the side of the screen.

This was an iteration from my original design, where the fish would spawn at the side of the screen and be reeled to the top of the screen nearby the fishing counter. I realized that this design did not make the game feel smooth and engaging, and that it did not communicate the causal link between the player's action and the tile click Therefore, I decided to change the spawning location of the fish to the tile that the player clicked on, which helped to create a clearer connection and enhanced the game feel.

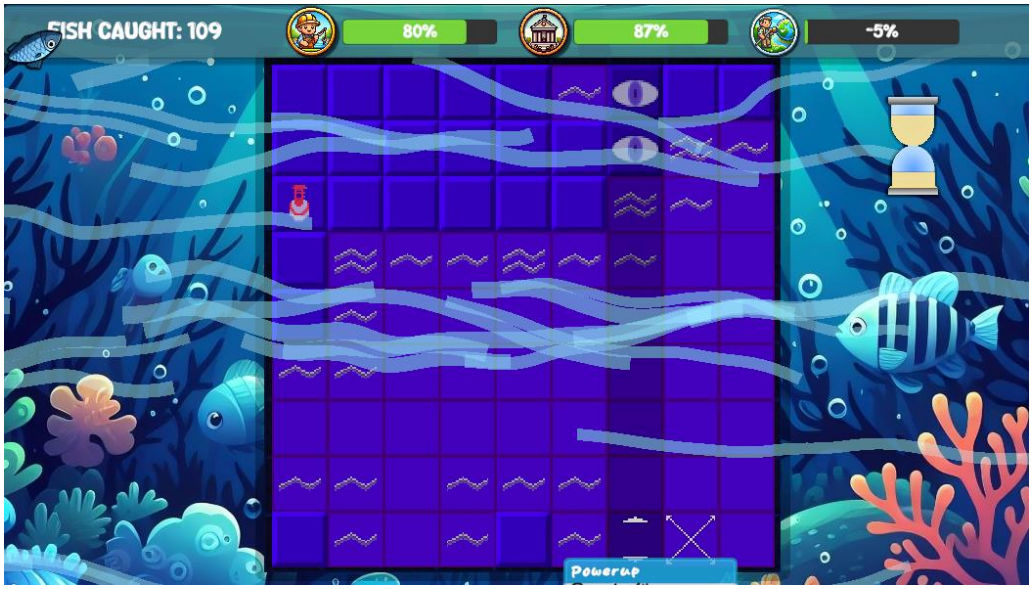


Also based on previous feedback I made the powerup wiggle a little to seem more clickable and separate from the game board.

Another change I made was to add an objective panel that showed the quota requirements for each relationship, which was consistent with the fishing industry theme (EU, 2024). The objective panel gave the player a clear goal and a sense of progress.

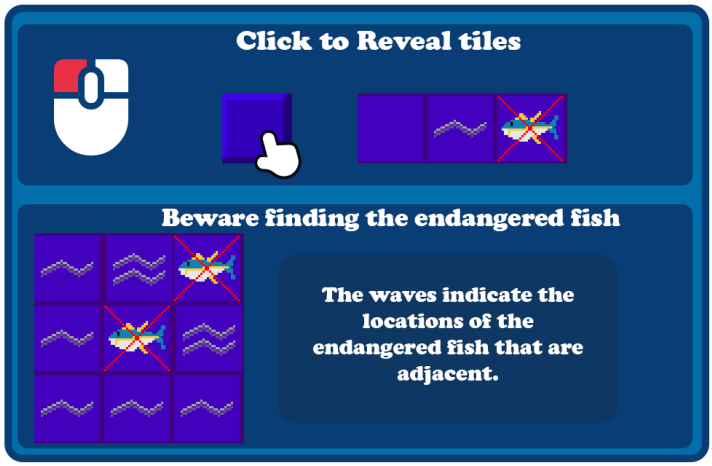
However, I also received some feedback that indicated some areas for improvement. Some of the feedback was about the user interface, such as adding a timer that showed the remaining time and adjusting the speed of the storm event.

Some of the feedback was about the game difficulty, such as adding a tutorial and a difficulty progression system. These feedback points suggested that the game was not very accessible or intuitive for new players, and that it lacked a proper learning curve and challenge balance. I realized that I need to pay more attention to these aspects of game design to create a more engaging and satisfying game for the players.



Week 5 Second Iteration

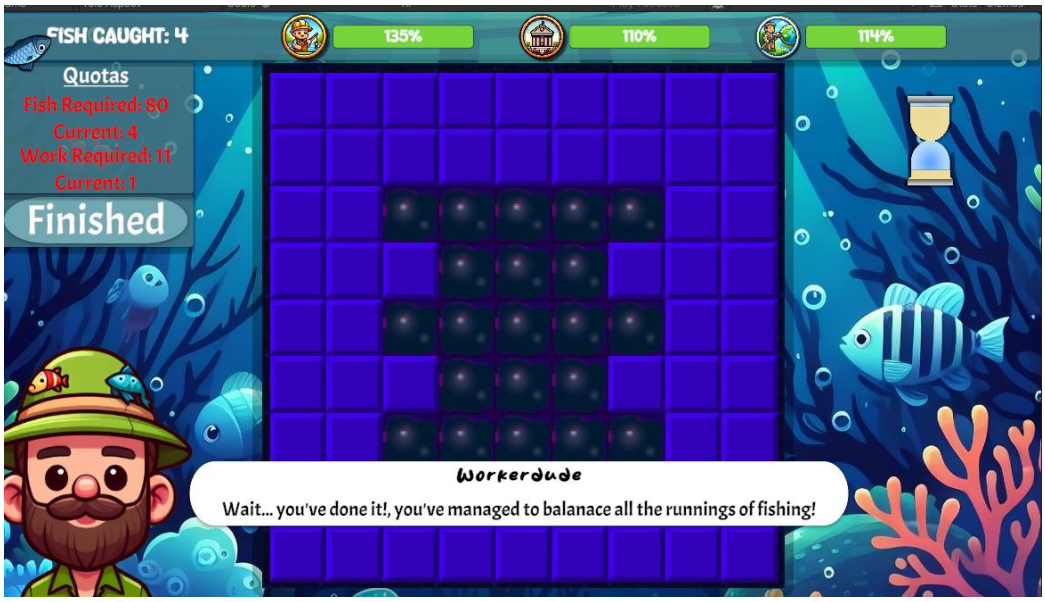
This week, I worked on improving the game difficulty and accessibility based on the feedback from last week. I reduced the quota requirements for the player, so they would have an easier time to catch and click on the tiles. I also added a non-diegetic tutorial to the game, which would explain the game rules and mechanics to the player. I tried to make the tutorial consistent with the game theme, so it would not break the immersion.



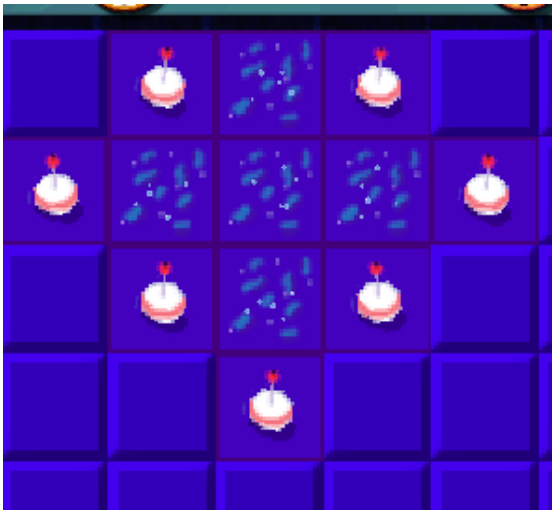
I also worked on adding some popup dialog effects to my game, which were related to the different solutions for overfishing that I wanted to explore. The popup dialogs consisted of three characters representing different perspectives: the environmentalist, the government official, and the worker. Each character would comment on the pros and cons of the proposed solutions, such as establishing protected areas, banning certain fishing methods, and implementing strict catch limits. I wanted to use the popup dialogs to create a dialogue between the characters and the player, and to encourage the player to reflect on the trade-offs and implications of each solution.

The reason why I added this is because I wanted the game to be more educational and to better relate to the issues that are currently affecting the fishing industry.

I felt that I had reached a point where I had added enough features and events to the game, and that I needed to focus on polishing and refining what I had. I wanted to make the game smoother and more enjoyable for the player, and to fix any bugs or issues that might affect the game quality.

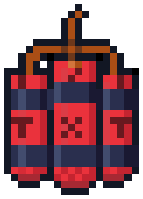


I continued to work on the polish of my game and changed the shape of the protected zone along with the oil spill to reflect what they look like in real life better.



Week 6 third Iteration

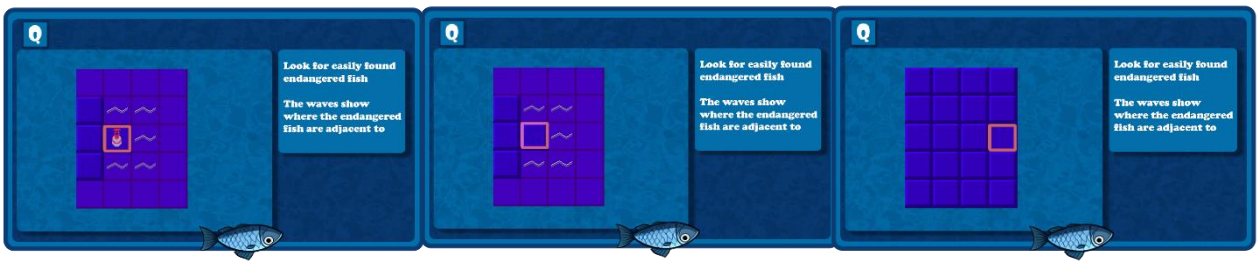
I spent most of my time this week polishing and testing out possible features to add such as Dynamite fishing and plastic pollution, however keeping in mind my core pillars of sustainability and overfishing, these ideas don't lean towards them, so I decided to cut them, unless I find a good way to implement them that fits the pillars.



The logic for the dynamite would have been a large explosion that kills the fish requiring the play to move their mouse over the fish to collect them, contrasting the normal line to the top method. It would of make the Workers (+10) happy but serious upset the Conservationists (-20), and slightly upset the Government (-5).

The logic for the plastic would have been a tile that can drift and expand and kill whatever fish including the endangered fish, it would not add to the player's fish count and would remove the tile from play. However, it could be removed at a cost of time (-2 seconds) for each tile.

I also worked on developing a "best strategy guide." To help guide the players on where to place the buoys.



Week 7 Reflection and final thoughts

As I reflect on who this game is designed for and looking back at my type of learners, I have in mind two different personas.

Alice: A reflective learner who likes strategic and meaningful games that challenge her to think and plan ahead. She enjoys exploring different scenarios and outcomes. She prefers a game that adapts to her skill level and progress and has a coherent and engaging storyline that relates the game to the real world and the environment.

Ben: A theoretical learner who likes realistic and relevant games that challenge him to apply his knowledge and skills. He enjoys seeing the consequences of his actions and learning new facts and concepts. He prefers a game that is complex and realistic and has a coherent and engaging storyline that relates the game to the real world and the environment.

Looking back, I realize that choosing to focus on overfishing and sustainability for my game was a considered decision. This topic allowed me to build a game from scratch, tailoring the mechanics to fit the scope of the project. This approach seemed less overwhelming than adapting preset mechanics from my other ideas. However, I see value in those other ideas and plan to carry them forward into my next module for a group project.

This project has been a valuable learning experience and a significant addition to my portfolio. It has deepened my understanding of fishing and game creation, resulting in a highly engaging and playable game.

Reflecting on areas for improvement, I believe the game dynamics could have been enhanced. For instance, implementing a tick-based system for tile shifting or exploring cellular automata could have made the environment more experimental and less reminiscent of a typical minesweeper board.

In the future I could look at creating a form to check for player experience and whether my message is understood, this would hopefully lead to getting funding to develop this game further.

I think my game has a clear message and a fun gameplay that can appeal to a wide audience. I hope that my game can raise awareness and inspire action on the issue of overfishing and sustainability methods.

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