



AUSTRALIAN STEM
**VIDEO GAME
CHALLENGE**

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Secondary

Game Design Document Template

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A game design document is as important as the video game itself. It tells judges what you planned to do, the ideas behind the content of your game and how you solved problems. Your GDD also helps judges understand what you wanted to develop and the reasons why things might be different to your plan.

Sometimes things don't go to plan, and that's okay, explaining what happened and how you changed things is an important part of video game development. Professional video game designers use GDDs to communicate their ideas and reflect on their work too.

Instructions

Try to answer all questions in each section of this GDD template

You can answer using full paragraphs or bullet points. You should aim for your completed game design document to be at least 8 pages long including images.

We would like to see pictures and diagrams with your explanations. This template is broken down into three sections:

- 1 Planning – complete this section **before** starting your game
- 2 Designing – complete this section **while** you are building your game
- 3 Reflecting – complete this section **after** testing your game

Planning

Tell us about your plan for developing your game.

To help you do this you might think about, and answer, some of these questions:

Organization

Responsibilities:

Project manager: Amelia

Manages and organizes the team ensuring the wellbeing and productivity of every member.

Programmer (lead): Zandy

Programs the game and always has access to original Godot file.

Programmer (Secondary): Libby and Amelia

Help with small inputs and opinions but focuses on other priority jobs.

Writer: Zandy

Writes the story line and is in control of the requirements of the cut scenes. Additionally writes up plans and is key editor of Game Design Document.

Level Designer: Zandy

Compiles graphics to design each level. Works in partnership with programmers and artists.

Character Artist: Libby + Amelia

Designs and creates character sprites for players and enemies. This includes animations for characters.

Environment Artist: Zandy + Amelia

Designing and creating sprites for general environmental features of each level, including rocks, seaweed, water etc. This includes creating animations for environmental graphics.

Resource manager: Libby

Finding music tracks, creating/finding sound effects, referencing materials, tutorials, responsible for sourcing all resources needed.

Alpha Tester: Amelia, Zandy, and Libby

Tests game design, sound effects, game mechanics and all other aspects of the game.


Beta Testers: tbc

Completes a run through or segment of the game and gives feedback about doubtful points or concerns.

Justification:

We decided these roles based on everyone's interests and what we believed needed to be prioritized. We thought that role such as programmers, testing and artists required multiple people to be assigned to the job. For testing we need as many people as possible to test our game so that we can get multiple opinions for how it should be run. We have divided the Artist role into two sections, environment and characters so that we can all have an input on the appearance of our game.

Submission guidelines:**How will you ensure your game meets submission requirements?**

- The Game is fully functional and performs well.
- The Game Design Document showing planning and organization of the game
- Reading and checking the submission guidelines, this ensures we know the requirements for submission.
- As per the ACER guidelines our game is G rated: Very mild impact level, at most can scare very young children.  Our game is also E rated and is suitable for all ages and may contain minimal cartoon, fantasy or mild violence and/or infrequent use of mild language.

- We have read and understand the ACER Guidelines, we acknowledge that our game meets the requirements outlined in the ACER Guidelines.

Workflow

In what order will you develop the components of your game?

First, we will plan and organize the Game design document, then we will gather resources (sound effects, music, tutorials, design inspiration etc.), afterwards we will develop our storyline (cut scenes and placement of levels), then we will develop the game and begin programming. Whilst programming character and environmental artists and the level designer will work together to create the graphics for the game. On the 2nd of June we will begin testing for the game and continue to develop and adjust it. We will continuously adapt the Game design document to changes in the workflow/plan.

Art -> programing

Sound -> sound effect programming

Research tutorials -> programming

Game design Doc -> research art sound program

Game -> Testing

What is the reason for this order?

This order is the most effective for our group as it allows us to work collaboratively at the same time on multiple, or the same things. Ultimately, our skill sets are best when used together and can support one another. To avoid potential bottlenecks, we will prioritize the character designs so that we can efficiently code because without the designs we cannot finish our code.

Timeline

When does your game need to be ready for testing?

The game will be ready for testing by June 2nd.

How long will you allow for testing and working on feedback? When does your game and GDD need to be ready for submission?

The game is to be submitted on June 23th, leaving us with 3 weeks to (beta) test and edit the game.

March 3-9	March 10-16	March 16-23	March 24-30
Everyone: Design Doc and Planning	Everyone: Design Doc and Planning	Everyone: Design Doc and Planning	Everyone: Design Doc and Planning and Research
March/April 31-6	April 7-13	April 14-20	April 21-27
Research	HOLIDAYS	HOLIDAYS	Term 2 begins 23 rd

April 4 th Term 1 ends			Zandy + Amelia: Storyline design Zandy + Amelia: Creating Arrays Libby: Design of characters
April/May 28-4	May 5-11	May 12-18	May 19-25
Zandy + Amelia: Creating Arrays Libby: Design of characters	Zandy: Program Libby: Design of characters Amelia: Level designing CHECK IN - Amelia Adjust design doc as necessary	Zandy: program Amelia + Libby: program + design of characters	Zandy: program Amelia + Libby: program + design of characters Libby: Sounds All: story board Storyline design if possible
May/June 26-1	June 2-8	June 9-15	June 16-22
Zandy Programming Libby and Amelia: character design Storyline design if possible June 1 st CHECK IN Adjust design doc as necessary	Ready for testing Libby: Cutscenes Zandy + Amelia: Everyone: talk to Miss Symons about Design Doc	Everyone: Finishing touches Testing on friends	Everyone: Finishing touches Testing on friends Class Game design doc due June 16th Game submission due date June 20th
June 23-29	June/July 30-6	July 7-13	July 14-20
June 27 th term 2 ends	HOLIDAYS	HOLIDAYS	HOLIDAYS
July 21-27			
July 23 rd term 3 begins Game submission for competition due July 24 th			

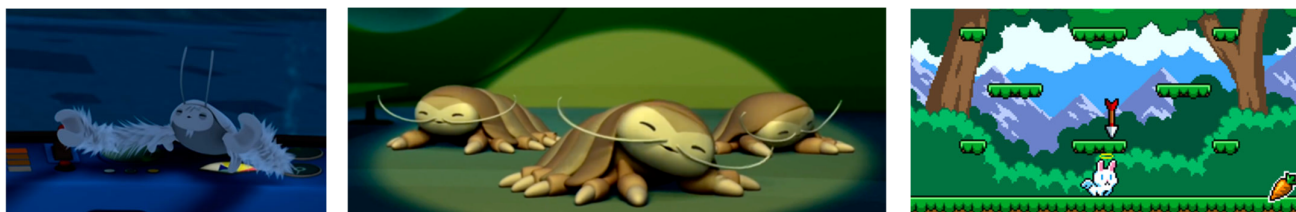
Work can be done on the holidays if necessary

Inspiration and points of originality

What has inspired your game?

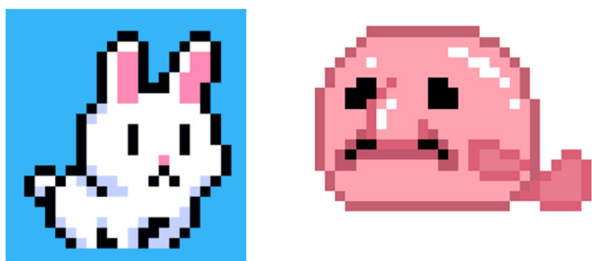
Are there any cartoons, books, movies or games that inspire you? – What are they?

We were inspired by several different games and Tv Shows/Films like Octonauts, Mario World, and Poor Bunny. We found the characters in Octonauts useful when deciding on animals to use in the different levels of our game. In the Hydrothermal level (level 1), Giant isopods and yeti crabs walk along the sea floor, especially around the hydrothermal vents. These creatures were directly inspired by their behaviour and depiction shown by the Octonauts. Additionally, we found the Octonauts to have useful information and reference photos of the Lionfish, Cookie Cutter shark, Coelacanth, Dumbo octopus, Sea otter, and the Carrier crab.

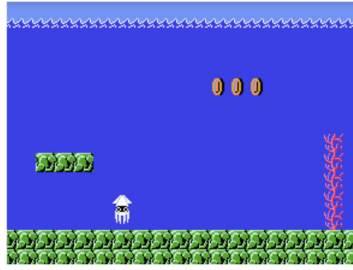


Poor Bunny is a platformer game where you try and collect as many carrots before dying. Originally we contemplated having small objectives (like the carrots) that you collect as you play the game. After further consideration we rejected this idea and instead made the goal completing each level. Poor bunny was further used as a reference for the style of pixel art that we used when creating our characters.

Below you can see an image of a character from Poor bunny (left), and one of the variants of Alfred: the fish (right). We have taken inspiration from the simplistic style shown in the Poor Bunny character to create our graphics. Alfred: The fish is a simple shape with limited detail – the detail consisting of shading on the forehead and nose. A key contrast between the two characters is the kind of shading, Poor Bunny characters have shadow, however our character has highlights.



Mario World, especially the underwater levels, was used to provide inspiration for the background and walls. In one picture below you can see the walls come down from the ceiling like a cave. This ceiling is implemented in every level of our game.



(Left to right, top to bottom:
Octonauts, Octonauts, Poor Bunny,
Super Mario Bros, Super Mario
Bros)

How do you plan to use this inspiration in your game?

We will implement the inspiration from these games/media by using similar styles in game mechanics, design of the environment, characters and levels, and enemy behavior.

What makes our game different?

- People would prefer to play our game over others because it is simple, easy and quite relaxing. It doesn't require much thought which makes it a perfect game to play when you're tired and bored.
- Our game is worth making because there are not as many underwater games as above water games, meaning it gives everyone a different kind of game than what they are used to playing.
- Other games that have a similar mechanics to our game is Super Mario, specifically the underwater levels because it has a drag on the movement, allowing the game to have a realistic and familiar swimming effect.
- Our game has a backstory on how our beloved blobfish Alfred ends up battling his way through the ocean, including a storytelling element which allows players to immerse themselves in the journey of Alfred: The Fish, further elevating our game through the original story.

Technical requirements

Development Environment

The game will be able to run on both Windows and Mac devices.

Our finished product will run on both Windows and Mac devices to allow for wider access to it. This also allows for more betatesting.

What platform will you use to build your game?

We will use the platform Godot to build our game because it is easy to use, particularly for beginners and there are loads of tutorials that we can use if we are ever unsure of what to do.

What are the advantages and disadvantages of this development environment? System requirements

The advantages of this development environment is that we will be able to easily figure out how to code each aspect of the game by using the tutorials and asking our teacher and peers. The disadvantages of this development environment is that it doesn't have a light theme which makes it harder to see. Another disadvantage is that we are new to this program which means we have more learning to do.

What sort of system, specifications or peripherals will the player require to play your game?

As our game is accessible through the web, our players can use all devices that have a screen

and keyboard such as a Windows computer or MacBook, as we use the A/S/W/D keys or Up/Down/Left/Right arrow keys to move the character across the screen; we chose to allow both sets of keys to be used for a more personalized experience. Players are also required to have a mouse or touch pad to click the start button or the mute button. This equipment is essential for the game to run without difficulty.

Resourcing/Capability

We used many tools to aid us in creating this game. These include Laptops, Whiteboards, the Godot Software Engine, Adobe Illustrator, Photoshop, Aseprite, and Paint.

Where will you learn new skills to help with your game design and development?

We will learn new skills to help with your game design and development, from classes at school, our Pixel Perfect teacher, and tutorials on YouTube. All of us already have small skills such as how to use Godot and have a general idea of how to navigate it. We have learned these skills by using tutorial in class and coding our own simple games.

Designing

Tell us about your game and your design choices.

To help you do this you might think about, and answer, some of these questions:

Game overview

Game title

What is your game called?

Alfred: The fish

Why did you choose this name?

Alfred is a Germanic name which many conquerors had. Alfred (the fish) conquers the ocean to save his family. Our game has many similarities to the life of one conqueror, Alfred the Great (c. 849 – 899). Alfred the Great was the King of the West Saxons (871 – 886) and later the King of the Saxons (866 – 899). Whilst Alfred the Great was born into royalty and had a privileged childhood, his mother passed away when he was six. Similarly, Alfred (the fish) experiences the loss of his parents as they are caught in a net and taken to the surface. This dramatic event begins the journey to reach the surface and save his parents from meeting the same fate as Alfred the Great's mother.

In another example, Alfred is the name of a talented water polo-ist and Alfred (the fish) reflects the qualities of water polo in the game through avoiding obstacles and having great character design (thanks Libby).

Does this name help players to know what the game might be about? Explain.

Our title includes a fish, which hints that the game is about a fish!

Game description

What is your game about?

Our game is about a Blob fish called Alfred who live at the bottom of the Mariana Trench. His

family was captured by fisherman and taken to the surface. Alfred sets out to save his family and travels to the surface to save them.

What will players do in the game?

Players will swim through levels as 'Alfred the fish' to progress through the game whilst avoiding projectiles, enemies and obstacles to reach the surface.

What is the objective of your game?

The objective of our game is for you – playing as Alfred – to swim to the surface of the ocean and save Alfred's family. This objective is linked to the objective of the movie "finding dory" in a way that a fish is looking for its parents"

What are the Aesthetics of the game?

Our games aesthetics are linked to the looks of super Mario bros in the way that our levels will follow the same general theme and we may incorporate environmental features from the game.

Who is your intended audience?

The intended audience for this game is children between the ages of 6 – 12, although this game will also be suitable for anyone with the ability to read, for example high school students.

What makes your game fun or interesting?

Our game is fun and interesting because you get to explore a story line while playing an easy and colorful game. Our game is relatively easy meaning it is perfect for playing when you are a tiny bit tired and don't want to use too much brain power.

Does your game have characters or objects and what role do they play in the story?

Yes, our game has characters such as Alfred and Alfred's family. Alfreds is the main character, and his purpose is to save his family. Alfreds family's purpose is for them to give the game a story line by being captured. We also have other characters that are in the game for the purpose of "killing" Alfred while he is on his journey.

What is the motivation for these characters or objects within the game?

The motivation for Alfred is to save his family before they die, and the enemy's purpose is to either eat you because they are hungry or they are just living life and get in the way.

Environment

Where does the game take place?

Alfred: The Fish, is set in an underwater theme.

Under what conditions does your game take place?

Our game is set under the conditions of water pressure and the areas of the sea that each sea creature lives in.

Do these conditions have any effect on the gameplay that you might need to consider?

The condition of water pressure means we need to adapt the appearance of Alfred throughout the game because in real life blob fish's appearance change as they get closer to the surface. Another effect on the gameplay is that in each level we need to think about which sea creatures live in each area of the sea.

Theme

This year's theme

Journey

Link to your game

How is the theme incorporated in your game?

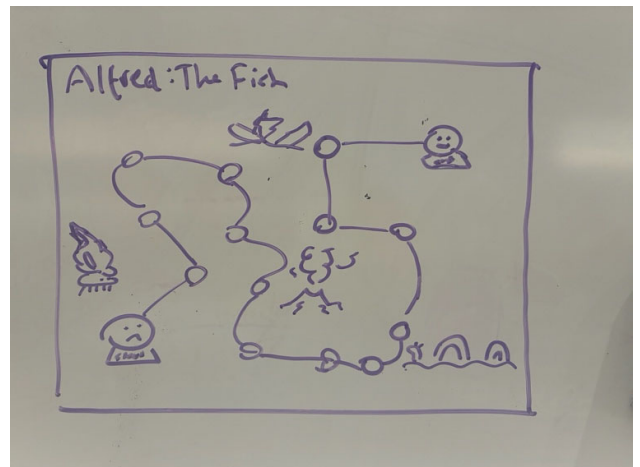
The theme of *journey* is integrated into our game using a storyline, the change in environment and character design as Alfred: the fish swims to the surface.

What parts of your game relate to the theme and why? Provide examples.

Our story line relates to the theme journey because it is a 'trip' or 'journey' from the bottom of the sea to the top of the sea, the character design and exploration of character with Alfred being depicted as heroic and brave to save his parents. We also could have incorporated the theme of journey in ways like an emotional journey with Alfred experiencing a range of emotions which could be influenced by the gameplay mechanics.

Other Ideas

We went through many other ideas of themes before picking the one now implemented into the game. To begin with, we thought a good way of showing a journey is through an overworld. With quite literally a path connecting levels to one another, which is a clear demonstration of a journey. See picture on left.



We decided against this idea because it had a different feel than what we wanted. The organization of having all the levels in front of you is something we didn't think was necessary. In fact, we preferred the mysterious and suspenseful element of not knowing what is coming next.

Knowing this, we decided to demonstrate a journey by showing progression of the environment/landscape and of the main character. Throughout the levels, Alfred: the fish's body changes color and shape.

Gameplay/mechanics

Objectives/Goals

What is the aim of the game?

The aim of the game is to reach the surface of the sea and find and save Alfred's parents. A player wins the game by successfully reaching the surface and saving Alfred's parents. A player does this by traveling through different levels of the sea and getting past all of his enemies.

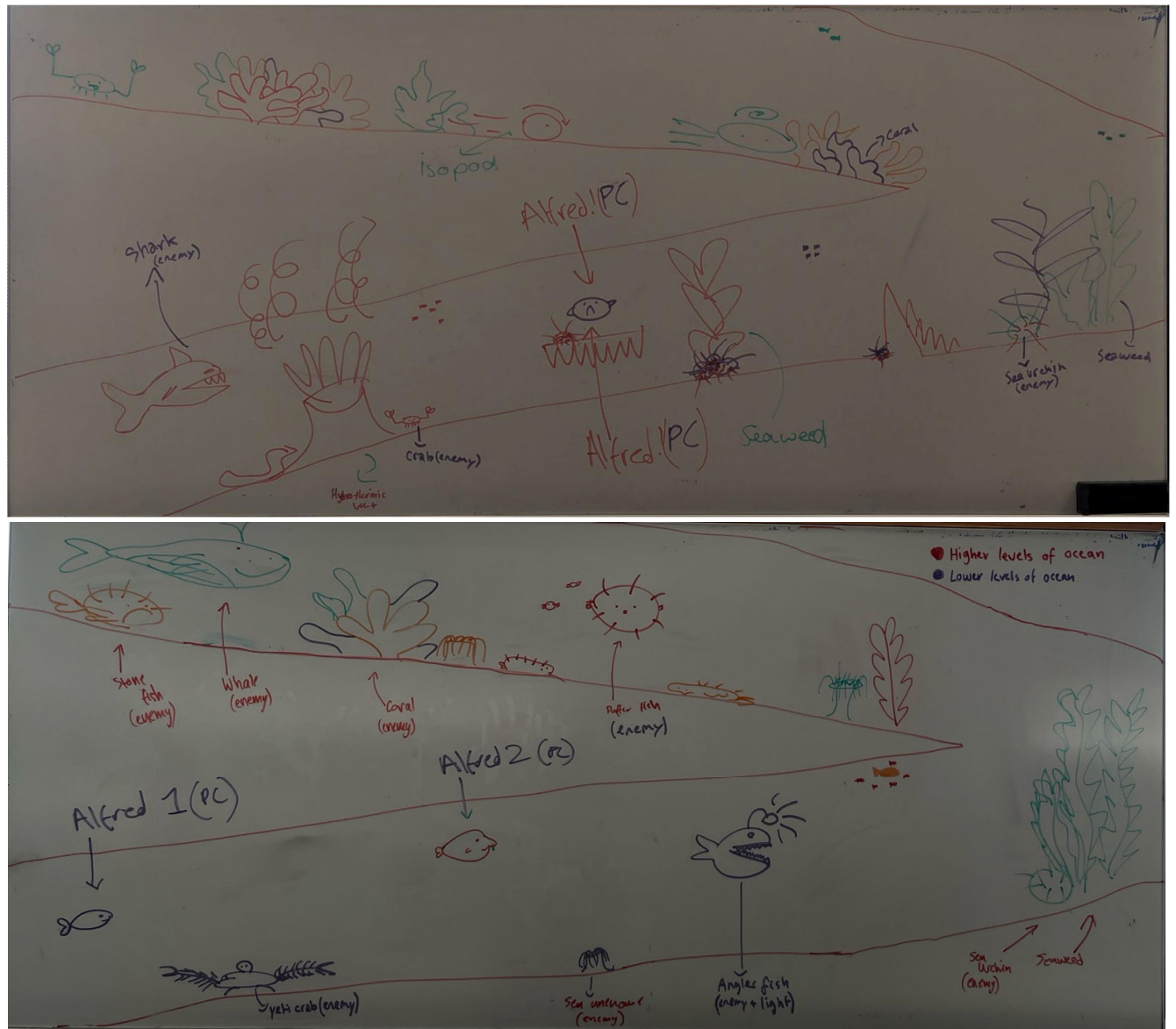
Can a player finish the game? How?

Once they arrive at the surface, the player will experience a cut scene which finalizes the story line and ends the game.

How does the player progress through the game?

The player progresses through the game by finishing each level. Levels change as the player progresses to the surface of the ocean, gradually getting lighter as the player gets higher in the level. The environment of each level changes every so often and is dependent on the layer of the

ocean (eg. a coral scene would only appear in the higher levels, as that is where it would naturally be found.)



Perspective

What is the players' perspective when playing the game?

- Our game is two dimensional and is a side-scroller which follows the player as they progress.

Controls

How do players actually play or interact with the game?

The players interact with the game by using a keyboard and mouse, and they play as Alfred the fish (meaning the buttons you press control Alfred's movement).

What are the controls?

The controls we will be using are the arrow keys or WASD keys

How do they work?

The arrow keys will work in a way that the 'up' key makes you swim up, the 'down' key makes you swim down, and the 'left' and 'right' keys make you go left and right. This applies the same way for the WASD keys.

Instructions/Tutorials

What features did you include to help the player learn to play the game?

In the first level we will include text to guide the player through the level, instructing them on what buttons to press to avoid enemies.

Visual and Audio Design

Style

What is the visual style of your game?

Pixel art

Is it inspired by an artist, art movement, time or place? Have you linked the visual design to this year's theme? Explain.

We've linked the visual design to this year's theme of "Journey" through the colour scheme of our game. The journey starts off with Alfred venturing to the top of the ocean, to save his family. We've implemented ideas of using lighter and darker colour arrangements to display Alfred's journey of travelling through the ocean. Tying it to the concept of a journey and voyage

How do your audio choices relate to your visual style?

Our audio choices tie back to the visual style of our game, as we plan on using sound effects and music to replicate the experience of swimming through the ocean (e.g. bubbles, water splashing, ect.)

Did you use any platform assets in your game?

We don't plan on using any platform assets in our game.

Fun fact!

Ludology is the study of games and other forms of play.

Process

How did you go about achieving your desired visual style?

We will experiment in multiple different platforms to make sure we get the best design for us.

How did you create your music and sound effects?

We found our music and sound effects through a website called pixabay.com where you can download music for free.

How did you get from the concept stage to the finished product?

We worked hard to put the plans into action and set aside time after school to continue coding each level.

Reflecting

Tell us your experience and what you might do differently next time.

To help you do this you might think about, and answer, some of these questions:

Testing, fixing and project execution

Testing

How many people tested your game?

Around 10 people regularly tested our video game throughout the stages of the creation. Ideally, we would have loved to have more testers, however we had great difficulty exporting our game across devices. Evidently, this limited the amount of people testing our game.

What did they need to focus on when testing?

They needed to test the level of difficulty and how fast/slow they completed each level. They listened to the sound and gave feedback on where enemies should be placed to increase/decrease difficulty creating an enjoyable experience for the player.

Fixing

What problems were found during testing?

During testing many problems occurred, including different enemies getting stuck in the walls due to the RayCast2Ds that when colliding with a wall they flip and the RayCast2D gets stuck in the collision boundary therefore making an infinite glitch. Another problem that was found is with the dying function with Alfred. We observed that sometimes when Alfred dies, he gets caught in a dying loop where the enemy continually "kills" Alfred before he can respawn.

How did you fix these problems?

We fixed these problems by shortening the length of the RayCast2Ds on the kelp fish so that when they collide with the walls they no longer get caught in the boundary. We also extended the width of some of the sections so that the enemy can't reach Alfred before he can respawn.

Project execution

Did you finish your game? Were you able to include everything you planned into your submitted game?

We did finish our game. Unfortunately, we did not include everything that we had planned to do as we were restricted on time. Some of these things include cutscenes at the start and end of the game to give the audience an idea of what occurs prior to and after the game's completion. We also would have liked to include some other enemies such as a giant squid that would lurk in a cave with tentacles extending out in the hydrothermal vent level. Other than that, our game is fully functioning and is enjoyable to play. We consider this a success.

What skills or abilities do you need to learn for next time?

Some skills that we need to learn for next time are how to create a cutscene and learning the skills required to animate one. We attempted to do this using Adobe After-Effects; however, we found our lack of prior knowledge burdened us in this endeavor. In the future it would be helpful to dedicate some time to learning how to use this program (or an alternative) to make a smoother process of creating a cut-scene. We attempted to do this for a few hours; eventually, we realized the amount of time it would take to fully create the cut-scene was not something we could spare given our time limit. We instead focused on completing the necessary elements of the game, like the coding and graphics for enemies.

Apart from this, we performed incredibly well considering our knowledge in programming, art, and sound design. Of course, every little piece of experience adds up, and this project certainly would have been easier if we were all experts in programming, art and sound design. As pleasant as this sounds, it is unfortunately unrealistic, so we made do with what skills and knowledge we possessed at the time. Thankfully, every experience adds up! If we were to attempt this project again, we would certainly find it much easier to program our characters, design elements of our

background, and create atmospheric sounds.

What worked well?

Things such as creating pixel art characters and coding each level worked well, as each person in our team had a different job which makes the creation process a lot smoother. While the game was being programmed the character designers were creating the enemies in accordance to what the programmers needed most (or what they planned on coding next) which made this whole process far easier. Another thing that worked especially well was the implementation of each variant of Alfred, as the varying Alfred designs that gradually change each level. This was dependent on the depth level that each environment would be in, hence the changing of color and shape until reaching the highest most level. The animations ran smoothly because of the program we used to design each frame and, like anything, the more animations we made, the better they got.

What would you do differently next time?

Next time we could set aside more time outside and during class to work on the coding and animations so that we could leave more time to prepare the cutscenes. We also could have watched more tutorials beforehand about how to code using Godot and all the small details that we missed. This would have made it incredibly easier in the long run, as we paid for our lack of knowledge wasting time fixing glitches, creating fades in between levels and adding in minor details such as mute buttons that can easily been solved by watching a tutorial before attempting this. Another difficulty we found was not recording all our work each lesson, which resulted in looking back weeks and weeks ago on different documents to put together a comprehensive logbook. If we were to do this again, we would have a set person doing the logbook each week, ensuring it gets done.

Logbook

3/3/25

All doing design doc

7/3/25

All doing design doc

10/3/25

All doing design doc

12/3/25

All doing design doc

13/3/25

All doing design doc

17/3/25

All doing design doc

21/3/25

All doing design doc

24/3/25

All doing design doc

26/3/25

All creating environment elements on Pixilart

27/3/25

All creating environment elements on Pixilart

31/3/25

All creating environment elements on Pixilart

HOLIDAYS

23/4/25

Finished off some environmental and character designs. Did research on kelp.

24/4/25

Everyone continued with environment and character design.

28/4/25

Everyone continued character design and started on background tiles

2/5/25

Zandy continued with environment designs and Amelia and Libby figuring out different character designs on levels

5/5/25

Character design and Zandy began programming

7/5/25

Continuing to program and work on character designs.

8/5/25

Zandy is programming and Amelia and Libby do character designs

12/5/25

Zandy is programming, Amelia and Libby did character designs

16/5/25

Zandy is programming, Amelia and Libby did character designs

19/5/25

Zandy is programming, Amelia researching for character designs, Libby did sound design

21/5/25

Zandy is programming, Amelia researching and designing characters, Libby on sound design

22/5/25

Zandy is programming and creating enemies, Amelia is designing characters, Libby is designing characters
We also created our story board for cut scene #1 and started the end cutscene

26/5/25

Zandy is programming, Libby is designing characters.

30/5/25

Amelia designing title screen, Libby is designing Alfred's parents.

2/6/25

Zandy is programming, Libby and Amelia doing design doc

4/6/25

Zandy is programming, Libby and Amelia doing design doc

5/6/25

Zandy is programming, Libby and Amelia doing design doc

9/6/25

All on design doc

13/6/25

Submitted game and worked on design doc

16/6/25

Work on Design doc (Document due date)