**Progress Report**

**- Increment 1 -**

**Group #28**

*Please use this template to describe your progress on the group project in the latest increment. Please do not change the font, font size, margins or line spacing. All the text in italic should be removed from your final submission.*

# Team Members

*William White, WSW21, sheldon904; Ben Semenov, BMS21C, Directs1;* *Julian Schumacher, jgs21h,* *julian1111111; Reid McClellan, rtm21a, Reid McClellan.*

1. **Project Title and Description**

***Adventure Jump:*** *A platformer game where player must avoid and deal with aggressive mobs, and collect tokens, progressing through increasingly difficult levels to reach an eventual final boss and defeat it, winning the game.*

1. **Accomplishments and overall project status during this increment**

*Thusfar, we have:*

* *Set up the core elements of our 2D platformer game, including initializing the project in Godot 4.0.*
* *Created the main scenes for gameplay, including the menu system with functional "Play" and "Quit" buttons.*
* *Implemented basic player functionality with a character that can idle, run, jump, and fall, complete with respective animations.*
* *Added collision shapes and basic physics to the player and environment.*
* *Developed a parallax background to enhance the game's visual depth, utilizing multiple layers that move at different speeds.*
* *Established basic level elements, including adding a static ground and initial tile maps for the environment.*
* *Integrated an animation player to manage character animations more effectively.*

*The project is in excellent standing for a first iteration. It is playable and stable. Mobs are not present yet, but this aspect of play will be integrated shortly.*

1. **Challenges, changes in the plan and scope of the project and things that went wrong during this increment**

*Challenges during this increment were many. We had to first establish a means of dividing labor and selecting a framework to begin working on a game. We landed on Godot because of its relative ease in operation compared to unity. We had to get accustomed to its proprietary language, GDScript. I found that lots of online research was required to be familiar with how to operate and set up the platformer format on this engine. We went into it with little to no knowledge of the Godot ecosystem but overcame this by referencing freely available digital resources. We landed on emulating existing platformer games online and changing core components once we had a stable framework to distinguish the project and integrate our creativity into the game.* *We faced difficulties in syncing the correct animations (idle, run, jump) with the player’s movements due to the unfamiliar nature of Godot’s animation system. To overcome this, we switched from using the AnimatedSprite node to using the more powerful AnimationPlayer and AnimationTree nodes, which allowed us greater control over transitions between animations and improved the overall smoothness of gameplay. Setting up the parallax background was also challenging, as we had to finetune the motion-mirroring settings to achieve desired behavior in the background layering.*

*- We changed our method of animating the player, as described above in the challenges section. The decision was made to first build up a stable game from digital resources, then tailor the product to our desired mechanics in the end stage, and art. We chose to do this because it would allow us to learn the mechanics of the engine, while establishing a stable platformer to build off in later iterations.*

*- We were able to mitigate much of the wrongdoings in this iteration. What was very frustrating is trying to follow instructions online and having to start over again when something unfamiliar was changed, and broke everything, leading us to start again at step one. It was also frustrating that much of the resources online were based on depreciated elements in the engine, and older versions of the Godot engine. We had to read between the lines on much of this.*

1. **Team Member Contribution for this increment**

***Sheldon***

* *Wrote the Progress Report, made the sequence diagram.*
* *Set up the Godot project and engine.*
* *Designed and built the menu with help from Ben*
* *Made a functional scene*
* *Designed and made character object*
* *Added collision bodies to everything*
* *Integrated basic functionality for the "Quit" button by writing a script that allows the game to quit when the button is pressed.*
* *Added signal connections to the buttons, enabling interaction between the user and the game through the UI.*
* *Implemented a basic scene transition system, enabling the game to switch from the main menu to the world scene when the "Play" button is pressed.*
* *Designed the world scene and added placeholder elements, such as labels to identify the current scene.*
* *Downloaded, imported, and organized assets for the project. This included setting up necessary directories and ensuring that all art assets were properly aligned and prepared for further use.*
* *Started building the player character by initializing a CharacterBody2D node.*
* *Organized labor and delegated roles*
* *Set up GitHub and Discord for communication*
* *Continued building the player character by refining the CharacterBody2D setup. This included adding a sprite and animations for the player’s idle, run, and jump actions using the AnimatedSprite2D node.*
* *Provided action items to be posted on issue tracker*

***Julian***

* *Added functionality to switch between animations (idle, run, jump) based on the player’s movement state.*
* *Set up an AnimationPlayer to handle the player’s various animations more efficiently. This included managing transitions between idle, run, and jump states to ensure fluid animation during gameplay.*
* *Introduced directional flipping, allowing the player sprite to change orientation based on movement direction.*
* *Created a simple static ground with collision shapes to act as the platform for the player. Added a basic wall and floor system, ensuring the player could interact correctly with the environment without passing through objects.*
* *Implemented a parallax background using the ParallaxBackground and ParallaxLayer nodes. This provided depth to the game environment by making background layers scroll at different speeds relative to the player’s movement.*
* *Adjusted the background elements and fine-tuned the speed of different layers to create a smooth parallax effect.*
* *Integrated the player and environment elements into a cohesive scene, ensuring that the game could be played with the basic movement, jumping, and collision mechanics in place.*
* *Made the RD and IT document*
* *Made a use case diagram*

***Ben***

*- Continued the development from 1 hour and 15 minutes into the tutorial, starting with the implementation of the game's saving and loading functionality.*

*- Set up the global file access system, enabling the game to save player data (such as health, score, and inventory) using Godot's JSON handling through dictionaries.*

*- Created the save system, where player data is written into a JSON file, and ensured that it can be accessed globally from any scene within the game. This system stores essential player information, which can be used across multiple sessions.*

*- Implemented the file reading system that allows the game to load saved player data into the game state when reloading or starting from the previous session, ensuring continuity of the player's progress.*

*- Integrated the saving and loading functionality with the game's user interface, providing feedback to the player when progress is saved or restored.*

*- Refined the JSON handling, ensuring that the data conversion from dictionaries to JSON files and back is efficient and bug-free.*

*- Debugged and optimized the save/load feature to ensure it worked seamlessly across all levels and game scenarios.*

***Reid***

* *Made the Demo video*
* *Managed issue tracker*
* *Tested code and identified bugs, noted them.*

1. **Plans for the next increment**
2. ***Art Asset Overhaul***

* *We wish to replace the placeholder graphics with art more becoming and original of what we had in mind with a story arc.*
* *We will create unique character sprites, enemy designs, and environmental assets to enhance the visual appeal of the game.*

1. ***Progressive Story Arc and Level Design***

* *A key focus in iterations to come is the implementation of an engaging progressive story arc. We wish to make a survival-based mechanic and narrative that challenges the player while they progress through different levels. Each level will introduce new challenges, enemies, and specific objectives t that phase of the story.*
* *The levels will increase in difficulty. New mechanics and environments will come as the player passes benchmarks for the game’s progression.*

1. ***Custom Mobs and Boss Fights***

* *We will create custom mobs with individual capabilities, and threats to the player to provide a varied challenge throughout the gameplay. We will design and implement bosses for key phases of the story, each specifically designed to be unique, with unique damaging abilities.*

1. ***Survival Mechanics and Additional Functionalities***

* *We want to design and implement a health system to deplete during damage, and increase with health pickups, etc.*
* *We want to introduce some sort of resource gathering system to the game, to let the player scrounge to create useful tools to defeat powerful mobs.*
* *We want to design a dynamic day/night cycle to vary the visual experience of game play, and introduce night-specific mobs, like in Minecraft.*

1. ***Better Enemy AI***

* *We want to enhance the way the enemy AI interfaces with the player, to make the game a more challenging experience. We will investigate various methods for achieving this. Pathfinding, evasion, and chasing mechanisms will be evaluated for their viability in the project.*

1. **Stakeholder Communication**

Hello Team,

I’m pleased to provide an update on the progress of our 2D platformer game. We’ve made substantial advancements across several areas:

Progress:

Core Game Structure and Mechanics

* We have fully implemented key mechanics, including movement, jumping, animations, and collision detection to ensure smooth player-environment interactions.
* The game now includes a parallax background, adding depth with multiple scrolling layers.

Menu and UI System

* We’ve created a functional menu with "Play" and "Quit" buttons, alongside a scene transition system for easy navigation.

Saving and Loading Functionality

* A save/load system using JSON files has been implemented, enabling players to save progress, such as health, score, and level progress, across sessions.

Custom Player and Animation System

* The player character now features smooth animations for idle, running, jumping, and falling, using Godot's AnimationTree system for seamless transitions.

Basic Enemy AI and Interaction

* A simple enemy AI has been introduced to lay the groundwork for more complex interactions in future iterations.

Functional Game Environment

* We’ve completed basic level designs and implemented transitions between levels, setting the stage for more advanced levels and story progression.

Challenges and Resolutions:

As with any software development project, we encountered a few challenges:

* Animation Synchronization: Aligning animations with character movements required significant refinement. We resolved this by switching to a more advanced animation system, resulting in smoother and more polished transitions.
* Collision and Physics: Ensuring the character interacted naturally with varied terrains involved numerous adjustments. Refining the collision shapes improved gameplay fluidity, especially on slopes and edges.
* Save/Load Functionality: Integrating the save/load system across scenes was challenging, but after thorough testing and debugging, we ensured seamless functionality for maintaining player progress.

Current Status:

The game is in excellent shape, with the core mechanics and systems functioning smoothly. We are on track to incorporate more advanced elements, such as custom enemies, boss fights, and a progressive story arc in upcoming iterations. Our next steps include refining gameplay features and integrating custom art assets to enhance the overall player experience.

Conclusion:

I am very pleased with the current state of the project. The foundation is solid, and the placeholder assets have allowed us to focus on core functionality. We are well-positioned to transition into the next phase, where we will enhance the game’s visual appeal and introduce more complex gameplay mechanics.

Thank you for your continued support.

Best regards,  
Sheldon

1. **Link to video**

*https://youtu.be/0A9gSIDAk10*