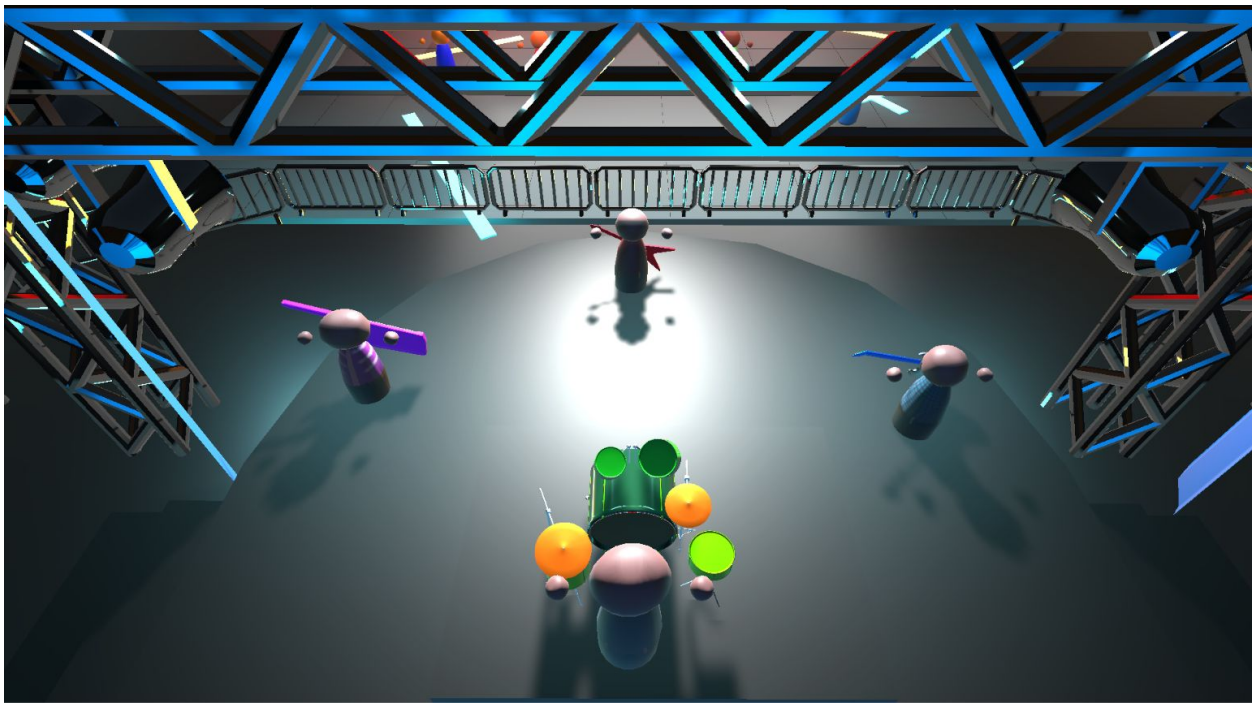
# Reflective Essay for Battle of the Bands

DES502 - Game Design and Development

Rohan Menon - 1901120

## 1. Game Description

A JRPG where bands play(fight) against each other using different types of music and moves such as Amplifier, Stomp and Crazy Stand. your band consists of 4 members(max) trying their best to win battle bands and get a record deal.



You play as a band competing against other bands locally and nationwide in a tournament to win a record deal. The player can explore towns, complete side quests, and recruit additional band members. They can customise equipment as they win more renown

Video link: https://youtu.be/I31cKd9qFGo

Completed Concept:

- Button prompt A corresponds to “Space” on PC and “B” corresponds to “ESC”
- The player starts off in the world and on pressing ‘E’ can enter a band battle scene.
- The player can select an instrument (From guitar, bass, keytar or drums) using the left joystick or “W/S” and “Up/Down”
- Then a corresponding move for each instrument with the same controls.
- Some moves are purely to gain additional crowd interest while some moves help enable special effects like disabling the next band’s turn, getting bonus moves or adding to the “Hype!” meter.

- The “Hype!” meter being full allows you to use an attack during player selection that doesn’t count as an additional move and allows you to play 2 songs together.
  Try to get better crowd interest and beat the enemy band.
- Not playing correctly (Pressing random buttons or missing notes) reduces crown interest.
    - Missing notes will tune out the sound for the selected instrument temporarily.
    - Pressing random/incorrect buttons will distort the sound of the selected instrument and also reduce hype meter slightly.
- The mini game is about precision and hitting the notes at the correct time to get OK, GOOD and PERFECT scores with corresponding crowd interest and scores. And also about using the correct moves in a strategic manner.
- The note collectors are controlled by 1,2,3,4 on PC and A,B,X,Y on your controller.
- To play the hyped move when the hype meter is full, press “ Left Cntrl” on PC and L2+ R2 on controller


## 2. Planning

I took on the role as programmer working with 3 artists, 3 designers and a producer. One of the designers focused on sounds and the musical gameplay, one focused on mechanics and the strategic gameplay and one acted as an additional artist and texturer. The three artists divided the work of modelling and texturing the game's assets. The producer worked on coordinating efforts  and communication and also as an additional sound designer.

I acted as a prototype designer so that I can make quick concepts and ideas that each member would have for a meeting and come up with my own design concepts as well.

The initial dev concept had 3 scenes in mind:
**Exploration Scene**: When the player is moving around and interacting with instruments, shops and other bands.
**Encounter Scene**: When the player interacts with a band for a “band battle”. This is where the band will have to do certain moves and play strategically to make the player band stronger or weaker using attacks.
**Travel Scene**: When the player travels between neighbourhoods/locations and cities it represents the band as their travel van.

The game was to have a way to customize the band members and also which moves they would play based on upgrades to their instruments. The plan was to have 2 “Encounter Scenes”, 1 tutorial level and 1 band battle. Between this there would be an “Exploration Scene” where a band member is recruited, and a store where a new instrument is brought. There was also a plan to include a travel scene when the band was moving from their neighbourhood to the band battle venue.

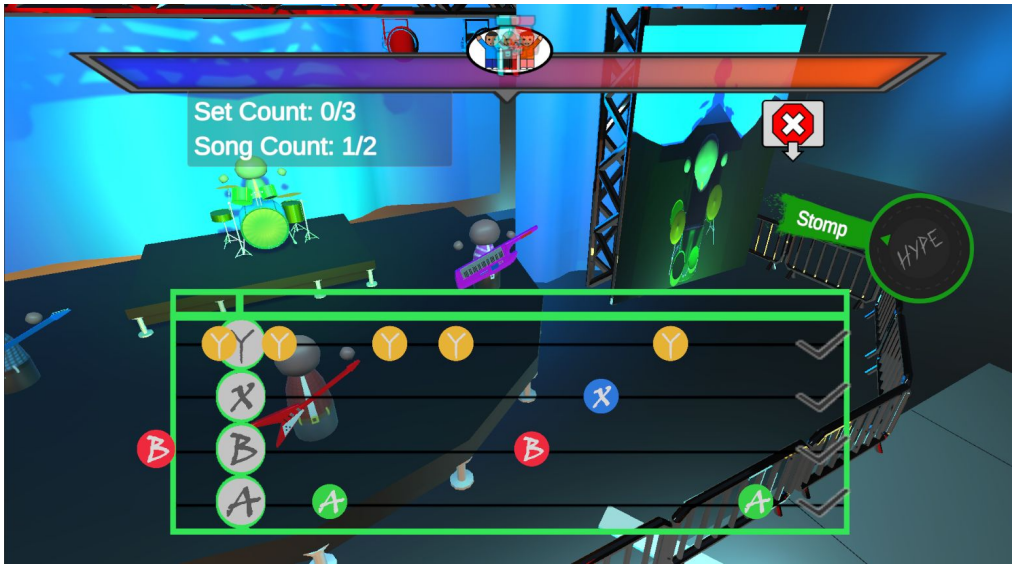
## 3. Design thought process

### Gameplay:

The gameplay concept was decided relatively early within the team and I started by conceptualizing how the different scenes would look. This was primarily discussions within the group on how we want to build up the mini game section and discussing UI components. The initial concept for the mini game involved collecting pickups from the crowd based on a specific move set from the instruments.Which was also incorporated into the design.

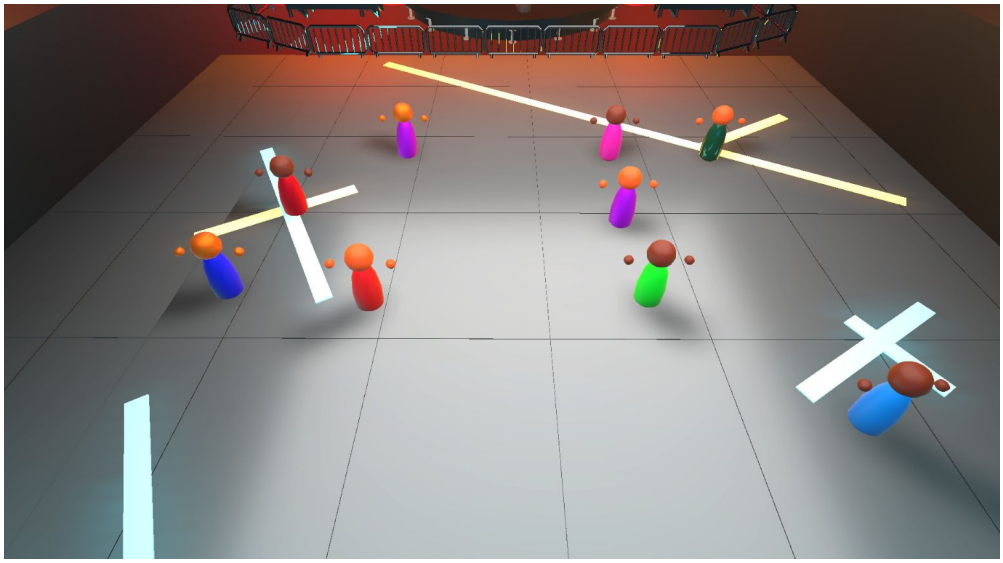
The second stage of iteration involved working on the Exploration scene which will have collectibles, shops and player behaviour. A few placeholder assets were implemented initially but the section had to be stripped down due to time constraints and other more global, unforeseeable circumstances. Also the large amount of work to populate a world like that properly in the time frame proved quite a task.

So the focus shifted to focusing on improving the gameplay of each encounter, using different moves, improving the UI of the game, defining various status effects and also defining concretely how sound and gameplay work together using the Unity Audio Mixer.



The last few weeks of the game were used to define the crowd mechanic, how the gameplay loop would be completed, and the transitions between these loops. New assets were delivered during this time as well which were incorporated along with a new UI system that is customizable by the designers of the game.

The player and enemy play 2 times each per set in the demo build and have a match of 3 sets between which the crowd reacts and moves. This can be modified per encounter in the game.



## Band:

The player is controlling a 3 or 4 member band set that has various instruments. Each with their own specialized skill set discussed below. The band members all have unique sounds and also different personalities and their move sets are to reflect them.

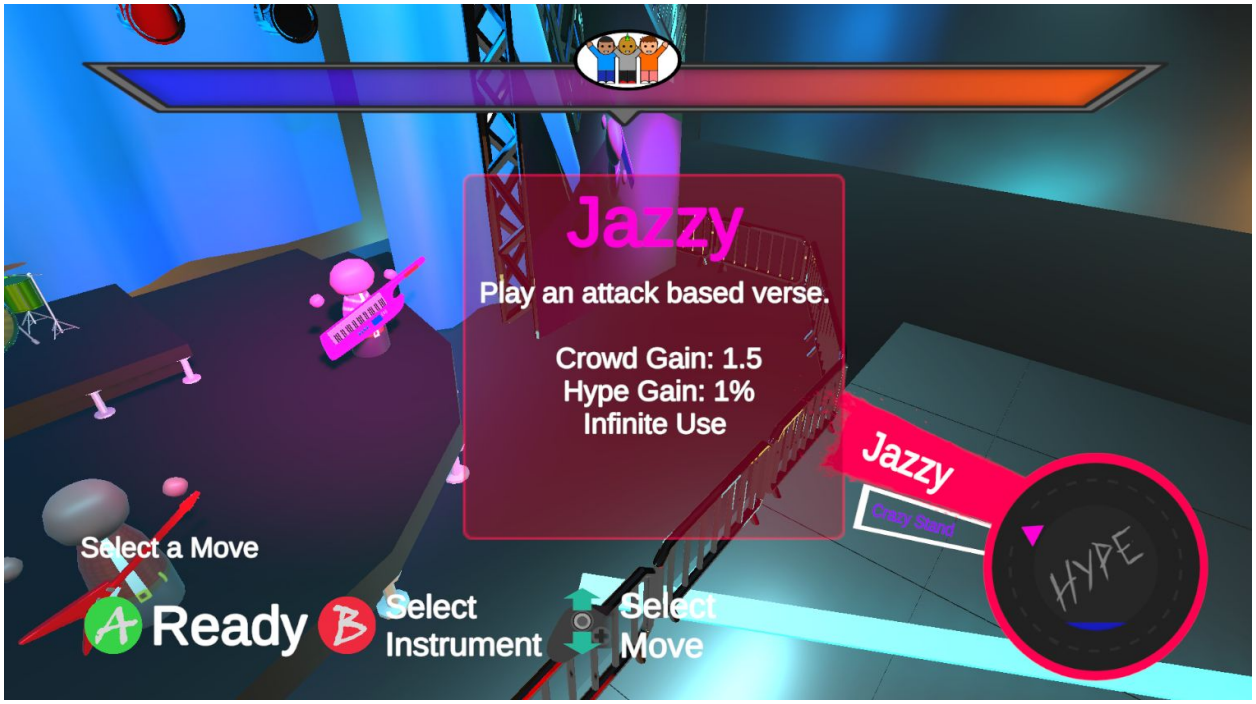
For the initial concept, when travelling in the exploration scene, the player could have multiple interactions like buying new instruments and power ups, recruiting different band members and swapping various skill sets and move effects. There was also going to be an overview scene once the player is able to find a van which will be used to travel between places but this was scrapped for time constraints.

Enemy bands would also have their own attacks and sounds in the completed concept but due to time constraints we had to use 2 sound clips, one for a basic move and 1 for a special attack.

### Moves:

All band members have 2 attacks, 1 that generally provides a large crowd interest gain.
The other ones have special effects like:

- Amplifier(Guitarist) : Play a verse that boosts Crowd Interest gain for the team, for 1 turn.
- Rhythm(Bassist) : Play a verse that reduces Crowd Interest gain for the opponent's team for 1 turn.
- Stomp(Drummer) : Play a verse that skips the next opponent's turn.
- Crazy Stand(Keytarist) : Play a devastating randomized verse of fast notes.




### Hyped Move:

All band members when playing, charge a “hype!” meter. This allows them to use a Hyped! Move during instrument selection that doubles the crowd interest gain for 2 consecutive songs.

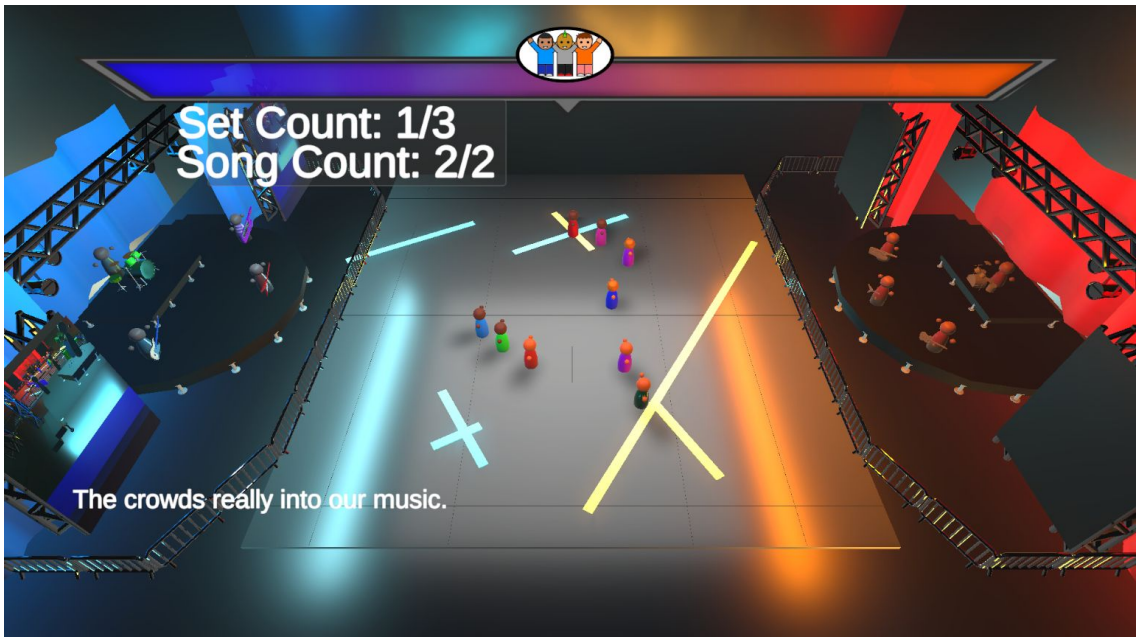
### Enemy Team:

The enemy team in the full concept will have their own unique moves and instruments. Possibly some enemies can be recruited when an encounter is over. The enemy team is affected by certain moves that can make them miss more notes and have a difficulty scaling that can be applied when creating the encounter(Allowing for dynamic difficulty and levelling adjustment).

## Crowd Interest:

Crowd Interest is represented as the bar on top, everytime the player and enemy complete a set (In the demo game, 2 moves) the crowd interest determines which side the crowd is happier with and the crowd moves to that band. Every audience member also has a slight chance of not moving if there is no significant change in crowd interest.

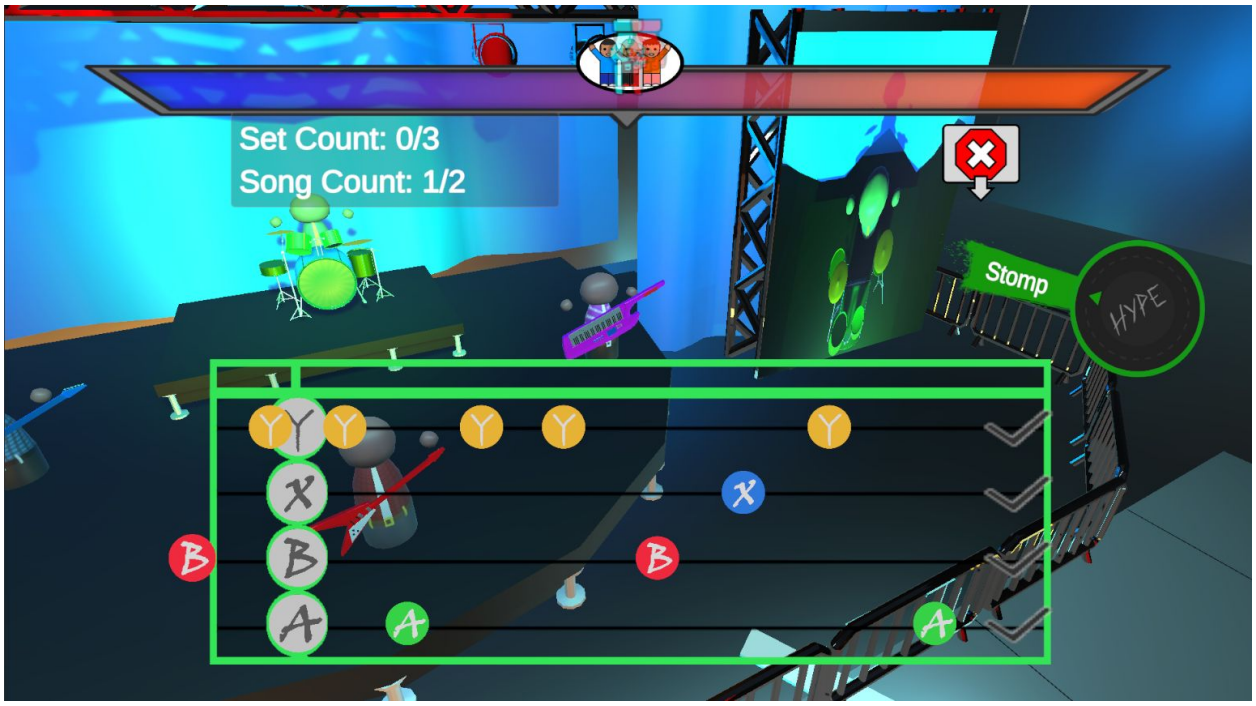
The initial concept also had every audience member having a personalized sense of taste, which showed how much they would react to a particular instrument(based on the colour of the instrument and the audience member) but this was scrapped due to time constraints.



### Notes gameplay:

The mini game for actually collecting notes is played by pressing the correct button for each incoming music note. Pressing the note correctly at the right time will apply a grade to it that gives bonus score values. Pressing a note button unnecessarily will distort the music for the instrument and reduce your crowd interest. There was a plan to also have different mini games and patterns for each instrument but that was left as future scope for design.

The game uses a Unity Playable Director to create notes from a timeline that is created by the designers. The timeline calls functions that create the notes in a synchronized order.




## 4. Audio:

Audio was handled using a Unity Audio Mixer which had different mixer groups. The mixer groups would also allow for ducking and compressing certain channels so that sound effects can be applied on individual tracks rather than the song as a whole. This was one of the key things to get right as the game involved variations in bands and how they play.

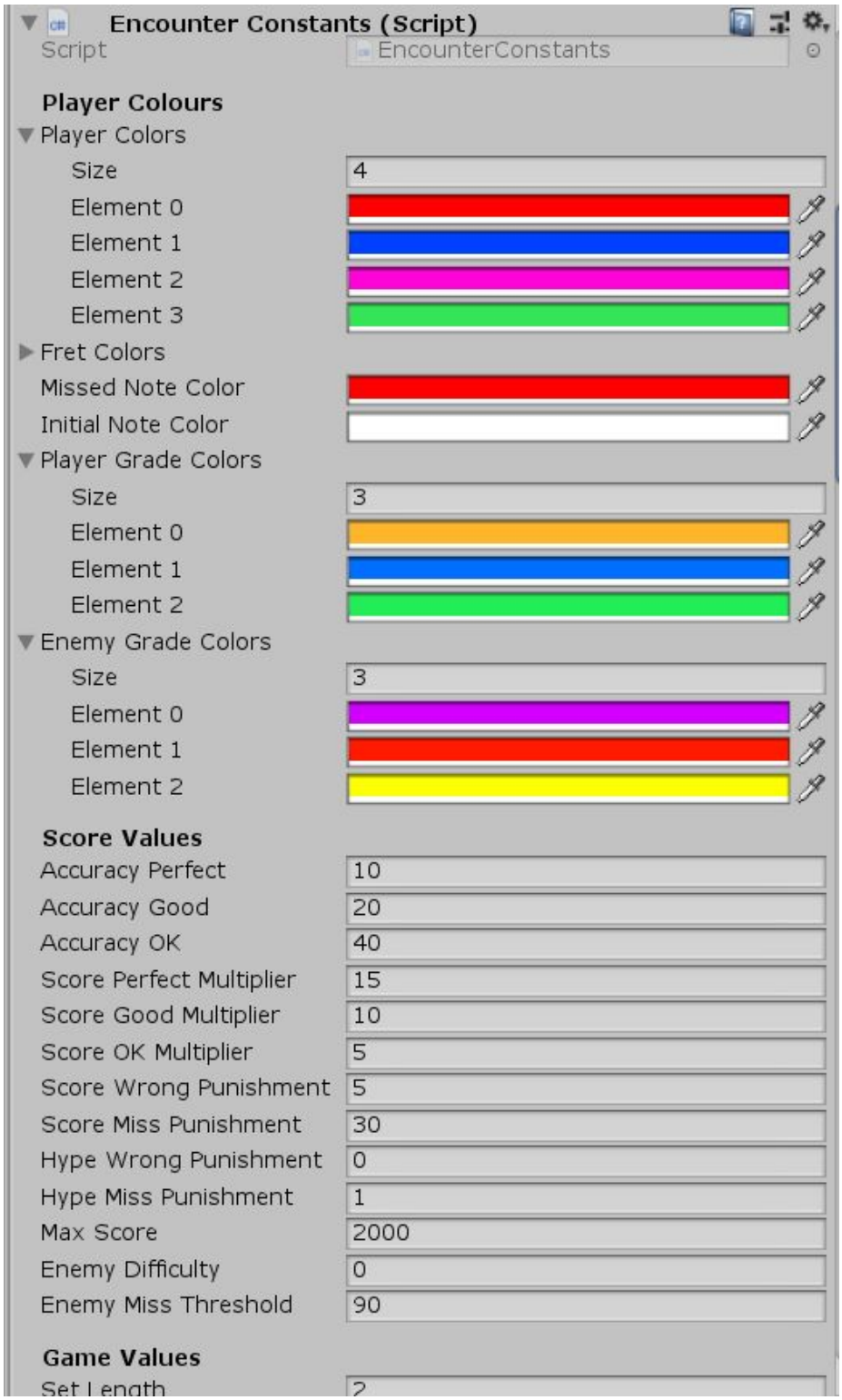
## 5. Designer integration

A few steps were taken to allow integration with designers in the team so that they can repeatedly playtest and set up gameplay values. The High Definition Render Pipeline in Unity was used to allow artists to showcase assets with console level graphics.

1. **Encounter Constants**
   The Encounter Constants class was to be set up by a designer so that they can set number of band members, difficulty of enemies, player and UI colours, camera positions and many other things so that they can play test and set up ideal levels/note generators.

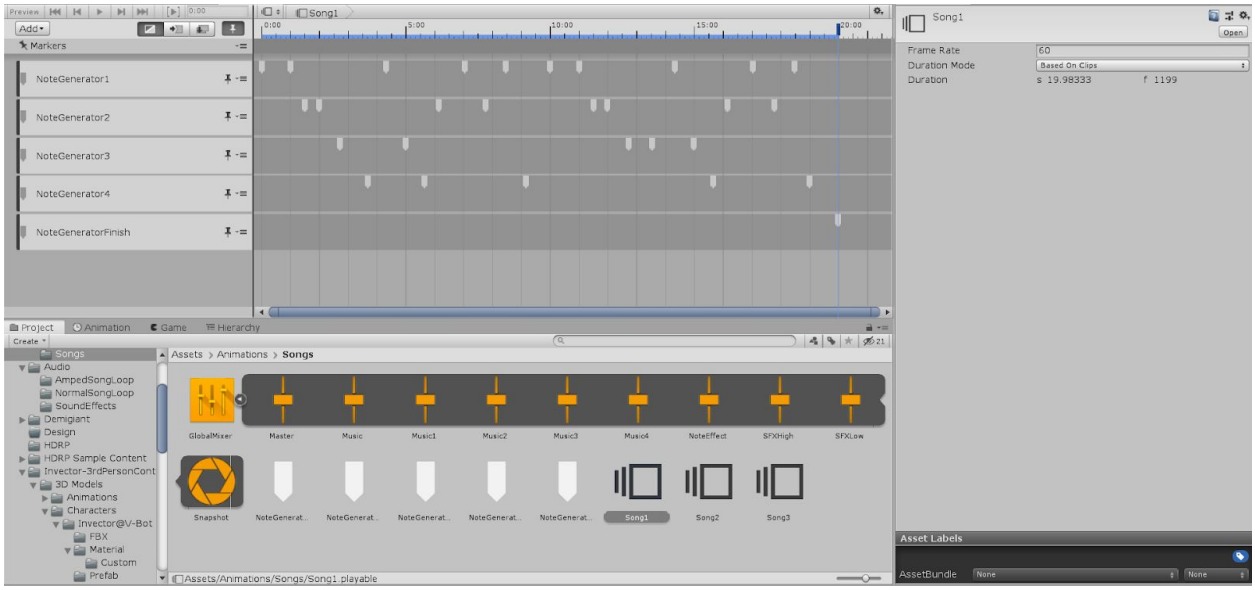
This allowed for better work and communication between teams as well as it allowed designers to understand the flow of the game and the variables involved in it as well.

It also allowed for quick prototyping of different colour sets and moves that would be more appealing as well.



2. **Unity Timeline**

The unity timeline was used to set up song patterns by one of the designers (the same one who handled creating the song files). This allowed him to correctly time notes appearing and also made him able to test out different iterations quickly and easily. The image below shows a mapping of different notes being generated at different time intervals. Each audio clip is 20 seconds long so each timeline interval is also kept at 20 seconds.




## 6. Challenges Faced

### Lack of references:

Due to a lack of possible references to the game, we needed to start prototyping early and be able to modify the prototype and it's gameplay multiple times. This also allowed us to do really fast iterations as well as we were making the game concepts intuitively rather than following a specific reference.

### Scope and Delay:

The scope of the game turned out to be much larger than expected which meant that I needed to try to fit in multiple systems together.

There was a delay in some pipeline assets and that was handled on my part by focusing on multiple elements together so that there is always something else to work on if an asset is blocked. I also divided my tasks into dev, design and art and would usually try to work on the project to come up together. Unfortunately this also meant that when the crisis hit, a lot of assets that were initially discussed were lost track of and that resulted in a readjustment of the scope.

### Changing Design:

We took some time to have a concrete game design doc going which meant dev was overtaking design in certain aspects. This created miscommunication and delays as well as no one had a complete view of the project till we were mid way through. Although this is typical of most game development endeavours, suggestions were made by me to create an asset pipeline and define which people will be working on which components early.

## 7. Successfully Completed

### Encounter Scene loop:

A complete gameplay loop of the encounter scene was completed including a new “Hype!” move which is played by all band members simultaneously. The core gameplay idea was maintained and an artist helped with coming up with the UI and concept art for it.

### EncounterConstants and integration to Exploration scene:

Basic integration to the exploration scene had been done earlier but needed to be cut out when we refocused on only creating the encounter scene loop.

### HDRP Render loop and learning Blender:

Due to some assets not working properly on importing into unity(due to conflicting material properties) I decided to learn blender to apply basic materials to different 3D assets, it was interesting and allowed me to learn things outside my field as well. I was also able to interact with artists for this as well.

### Audio Integration:

Audio was a major part of the game and hence the Audio Mixer in unity was used to do a lot of the heavy lifting while DOTween was used to tweak these parameters over time and allow for smooth tweening. A designer created the sound assets and was able to put in notes at correct positions for it to resemble a pattern.

### Designer tools and communication:

I was able to define tools that designers can use to modify components of the game and allow them to quickly play, test and iterate through different gameplay values. One of the designers who came up with the concepts for moves and different mechanics handled the play testing.

## 8. Issues

### Lack of conceptualization:

There were significant issues faced with conceptualizing a game like this as it doesn’t follow any set genre. Which is why we broke apart the RPG like elements into 2 seperate scenes, 1 for a “battle/encounter” and 1 for exploration/traditional RPG elements. The lack of initial concept art caused issues but conceptualizing the UI and elements of the UI were significant steps. This allowed us to easily focus onto 1 set of mechanics.

### Cutting down and Scope Creep:

There was quite a large scope creep on the asset front but a lot of this could be attributed to a lack of communication within the team. Some tasks were lost when switching assignments over discord which could have been avoided by using better planning methodologies. Which is a valuable lesson for future projects.

This also meant a lot of systems from the core gameplay had to be removed because of a lack of assets as well as a lack of polish in the programming side. This was a smart decision as it allowed for a much tighter and direct gameplay loop to showcase important items.

## 9. Implementation Steps Over Time

A link to the github repo:
https://github.com/RohanMenon92/DesignGroupProject/commits/develop

Steps of completion:

1. Initial UI for knobs and base game
2. Note generation system
3. State Machine Manager for non note generator elements(Encounter game manager)
4. UI Update and new scoring system based on accuracy
5. Add multiple songs and sequencing through timeline assets
6. Add HDRP for console gameplay
7. Add Basic exploration scene and work on system setup
8. Revert exploration and refocus on only encounter scene
9. Add Moves logic and allow tweaking by designers
10. Add audio system and parameters being modified by gameplay
11. Allow more parameters to be modified by designers
12. Add logic for hype mode
13. Add camera angle changes
14. Change UI and add new assets
15. Add new sound effects
16. Bug fixes and UI improvements

## 10. Finished Product

The finished game had a playable gameplay loop and didn't look half bad considering the extraordinary circumstances we were in. I personally learnt quite a lot of new things and the designers also said that they understood new tools for game development as well. I wish our pipeline was smoother but everyone was able to learn and understand what needed to change and how to deal with delays from each other.