Name:_Gary Banks____________________ Mark _______________________/50

1. Brief introduction __/3

My feature for the Incoming!! video game is an adaptive audio system.

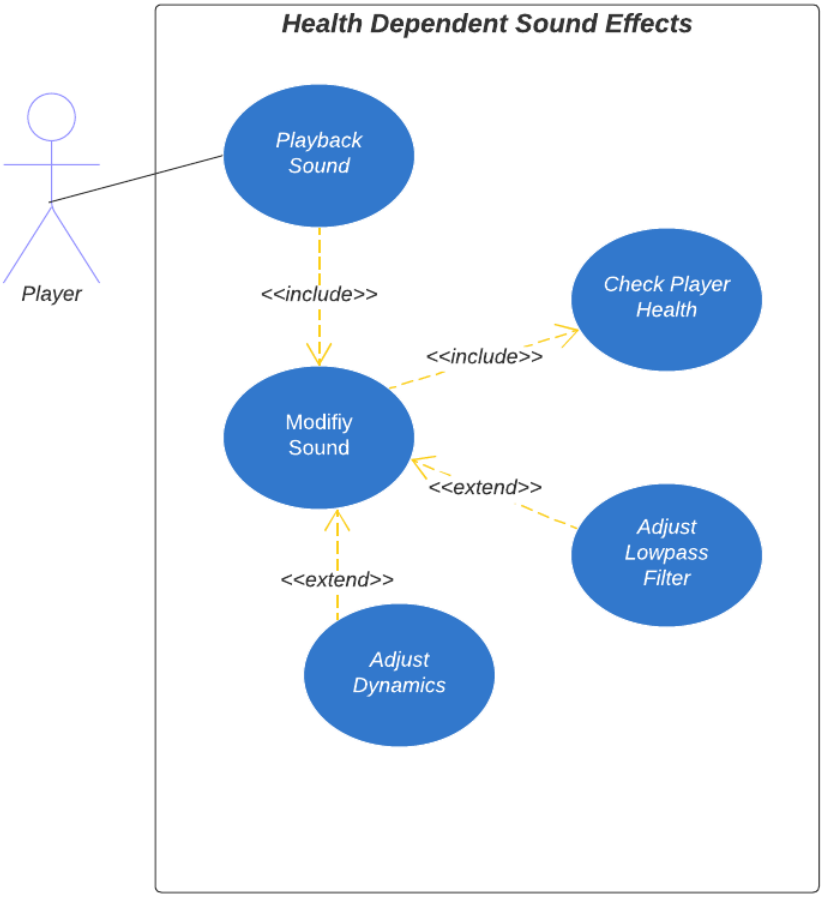
When a player loses health by being struck with an enemy dodgeball, a music track lowpass filter's threshold and level of attenuation will be adjusted downwards in relation to the amount of health the player is missing, and a "ringing ears" effect that includes a 10khz tone as well as a throbbing heartbeat will be played with an amplitude related to the amount of health the player is missing. These sounds and effects will fade out as health regenerates. All sound effects will be processed with effects to make them adapt to the players location and surroundings.

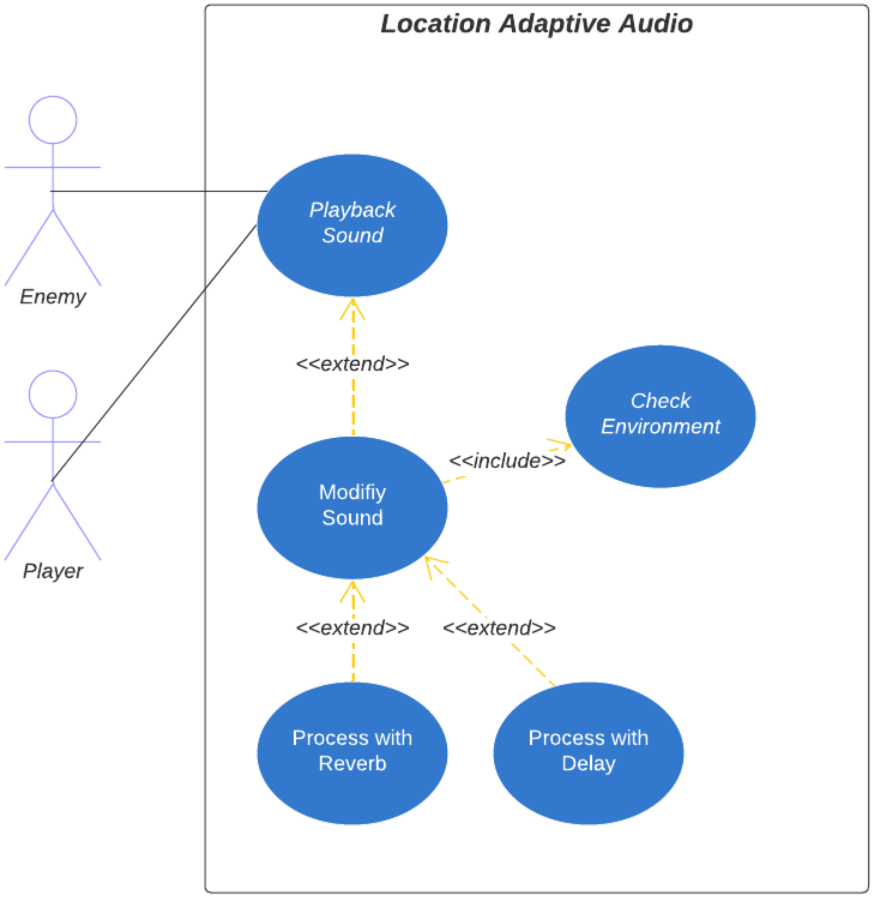
2. Use case diagram with scenario __14

Ensure you have at least one exception case, and that the <<extend>> matches up with the Exceptions in your scenario, and the Exception step matches your Basic Sequence step.

Also include an <<include>> that is a suitable candidate for dynamic binding]

Use Case Diagrams





Scenarios

Name: Health Dependent Sound Effect Processing

Summary: The player is damaged with an enemy dodgeball. An "ears ringing" and heartbeat sound effect is played at a volume correlating to the amount of health lost, and the frequency of a lowpass filter on the background music track is lowered from 20khz down an amount correlating to the amount of missing health.

Actors: Player

Preconditions: The player has a nonzero amount of health. The player takes damage.

Basic sequence:

Step 1: Player is hit with enemy dodgeball

Step 2: Player Health is checked

Step 3: Ringing and heartbeat sfx parameters adjusted accordingly

Step 4: Sound effects played back

Exceptions:

Step 1: Sound processing has reached maximum set values

Step 2: The player is dead.

Post conditions: Sounds played back with appropriate processing

Priority: 3

ID: C01

*The priorities are 1 = must have, 2 = essential, 3 = nice to have.

Scenarios

Name: Location Adaptive Audio

Summary: Sound effects originating from collisions will be processed with reverb and delay depending upon the player's surroundings. A school gymnasium will have high levels of reverb and a slap back delay due to the large number of hard parallel surfaces. The timing of a delay will change depending on the players distance from reflective surfaces

Actors: Player, enemy

Preconditions: The level has loaded, the player is alive, a collision or entity has triggered a sound effect.

Step 1: Sound effect is triggered

Step 2: Environment/Level is checked

Step 3: Processing adjusted

Step 4: Sound effects played back

Exceptions:

Step 1: The environment requires no processing

Step 2: The player is dead.

Post conditions: Sounds played back with appropriate processing

Priority: 3

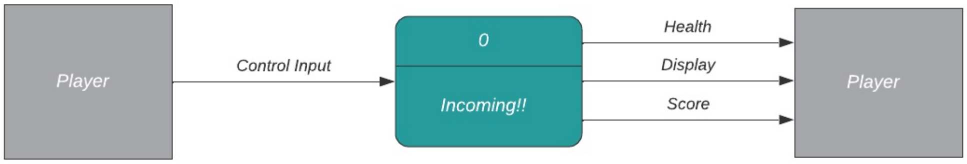
ID: C02

3. Data Flow diagram(s) from Level 0 to process description for your feature ______14

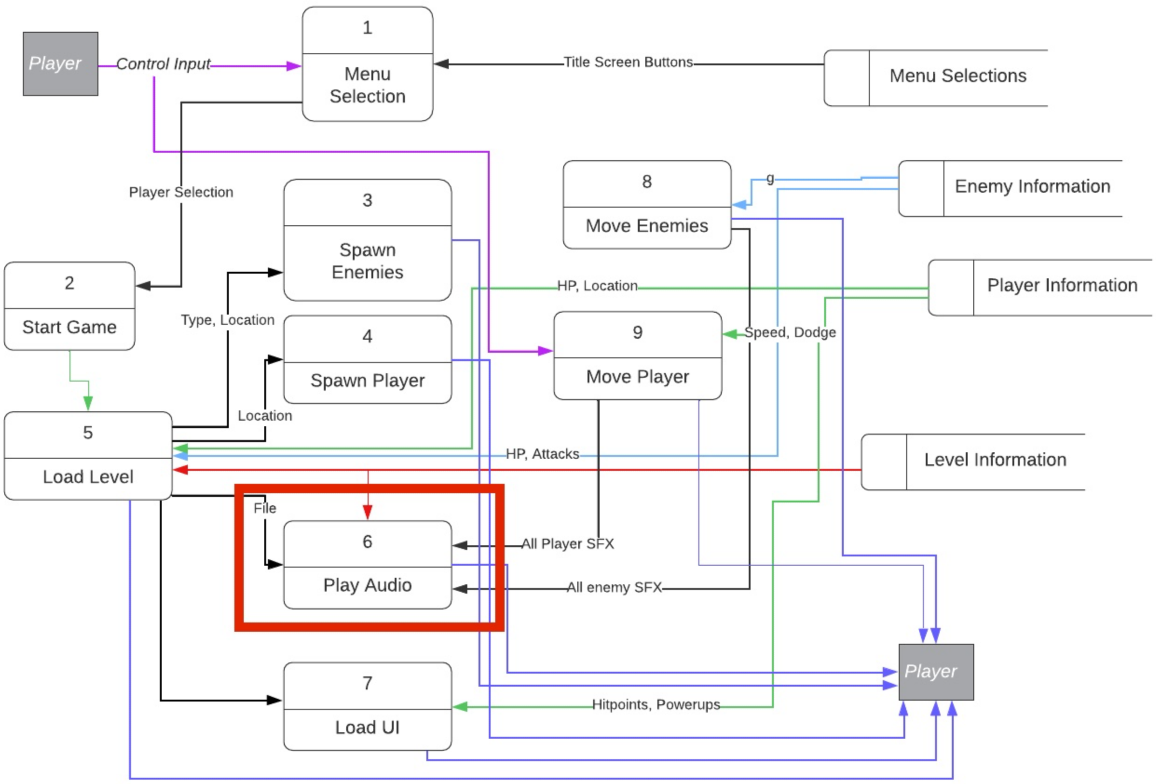
[Get the Level 0 from your team. Highlight the path to your feature]

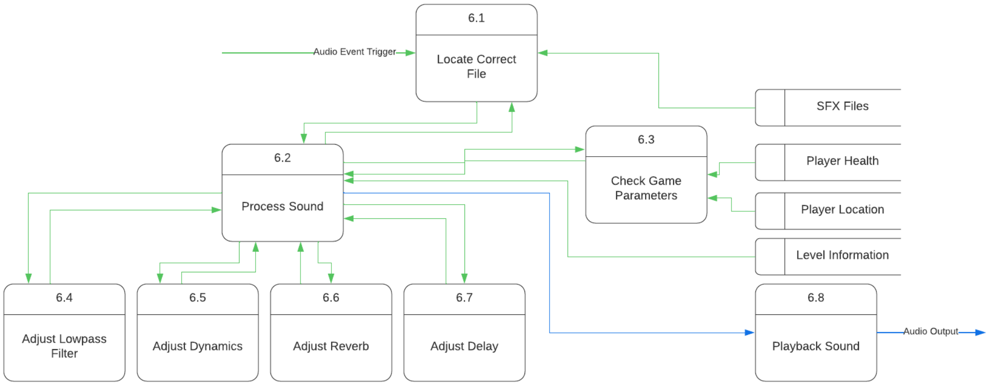
Data Flow Diagrams

Incoming!! Context Diagram



Incoming!! Diagram 0





Process Descriptions

```
Locate Correct File*:
    Link Collision Type with SFX
    Link Audio Trigger Type to SFX
Check Game Parameters*:
    Get Player Health
    Get Player Location
Process Sound*:
    If collision is ball<->player:
        Lower Lowpass filter frequency correlated to player health
        Play heartbeat and ringing SFX
    Adjust reverb/delay settings according to location
Adjust Lowpass Filter
    Move filter frequency
Adjust Dynamics
    Move volume
Adjust Reverb
    Adjust Length and size per level information
Adjust Delay
    Adjust Time per player location information
```

4. Acceptance Tests _______9

[Describe the inputs and outputs of the tests you will run. Ensure you cover all the boundary cases.]

Automate audio triggering events, output the value of adjusted processing parameters.

Run feature 1000 times sending output to a file.

- Check to see that recorded values are within specified range.

Give bad inputs for level data and player location/health data, make sure they are handled correctly.

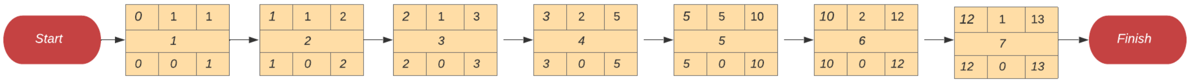
5. Timeline _______/10

Work items

Task	Duration (PWks)	Predecessor Task(s)
1. Create Use Case Diagram	1	-
2. Create Data Flow Diagram Zero	1	1
3. Create Data Flow Diagram for feature	1	2
4. Create Champion Document	2	3
5. Programming	5	4
6. Testing	2	5
7. Release/Demo Prep	1	5, 6

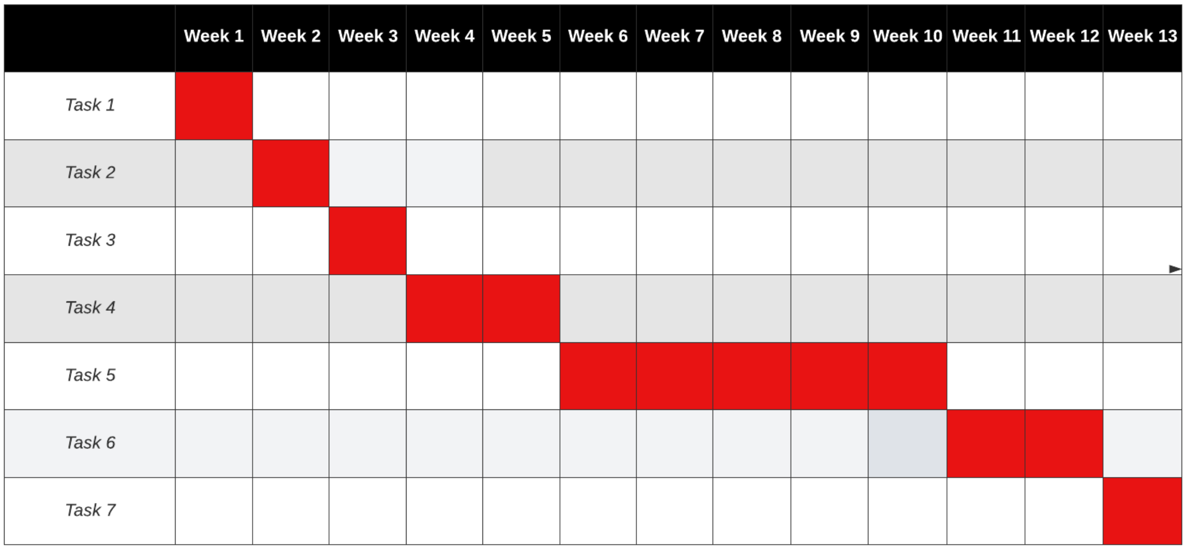
Pert diagram

Pert Diagram



Gantt timeline

Gantt chart Incoming



	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Task 1	🟥												
Task 2		🟥											
Task 3			🟥										
Task 4				🟥	🟥								
Task 5						🟥	🟥	🟥	🟥	🟥			
Task 6											🟥	🟥	
Task 7													🟥