Name Mikayla DeCuire Mark \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/50

**1. Brief introduction \_\_/3**

**The Sound System** is responsible for managing and triggering audio recordings in response to game events. This enhances the game by providing contextual sounds such as item pickups, enemy interactions, environmental effects, and UI feedback. It also supports sound decorators for enhancements.

# Use case diagram with scenario \_\_14

### A diagram of a computer AI-generated content may be incorrect.

### Use Case: Play Sound on Event

* **Name**: Play Sound
* **Summary**: The system plays a sound when a game event occurs (e.g., coin collected, enemy defeated).
* **Actors**: Game Engine, Player
* **Preconditions**: Sound system is initialized, and event is registered.
* **Basic Sequence**:
  1. Receive event trigger from game engine.
  2. Identify sound type based on event.
  3. Apply sound decorators if any.
  4. Play sound.
* **Exceptions**
  1. Event trigger is null → <<extend>> Handle Missing Event → Log error, skip sound.
  2. Sound type not found → <<extend>> Handle Missing Sound → Play default sound.
* **Postconditions:** Sound is played, or error is logged.
* **Priority**: 1
* **ID**: S01

# Data Flow diagram(s) from Level 0 to process description for your feature \_\_\_\_\_\_\_14

Process: Trigger Sound Event

IF player or enemy triggers event

Send event type to Game State

END IF

Process: Resolve Sound Type

Match event type to sound ID

Send sound metadata to Sound System

Process: Apply Sound Decorators

Retrieve decorators based on context (location, enemy type, etc.)

Apply effects to sound asset

Process: Play Sound

Play decorated sound from SoundLibrary

A diagram of a game

AI-generated content may be incorrect.

# A diagram of a system AI-generated content may be incorrect.

# Acceptance Tests \_\_\_\_\_\_\_\_9

| **Case** | **Setup** | **Expected Output** |
| --- | --- | --- |
| T01 | Valid event: coin collected | “Ding!” sound plays |
| T02 | Valid event + decorator: echo | “Ding!” with echo effect |
| T03 | Invalid event trigger | Error logged, no sound |
| T04 | Missing sound type | Default sound plays |
| T05 | Multiple decorators | Sound plays with all effects |
| T06 | Volume set to 0 | No audible output |
| T07 | Stress test: 1000 events | All sounds play without lag |
| T08 | Dynamic decorator change | New sound effect applied mid-game |
| T09 | UI event: button click | Click sound plays |

# Timeline \_\_\_\_\_\_\_\_\_/10

| **Task** | **Duration (PWks)** | **Predecessor Task(s)** |
| --- | --- | --- |
| 1. Requirements Collection | 2 | - |
| 2. Design Sound Interface and Use Cases | 2 | 1 |
| 3. Design Sound Decorators and Effects | 3 | 2 |
| 4. Implement Base Sound System | 2 | 2 |
| 5. Implement Sound Decorators | 3 | 3, 4 |
| 6. Integrate Sound System into Game Engine | 2 | 5 |
| 7. Testing | 2 | 6 |
| 8. Documentation | 1 | 7 |
| 9. Final Review & Deployment | 1 | 7, 8 |

