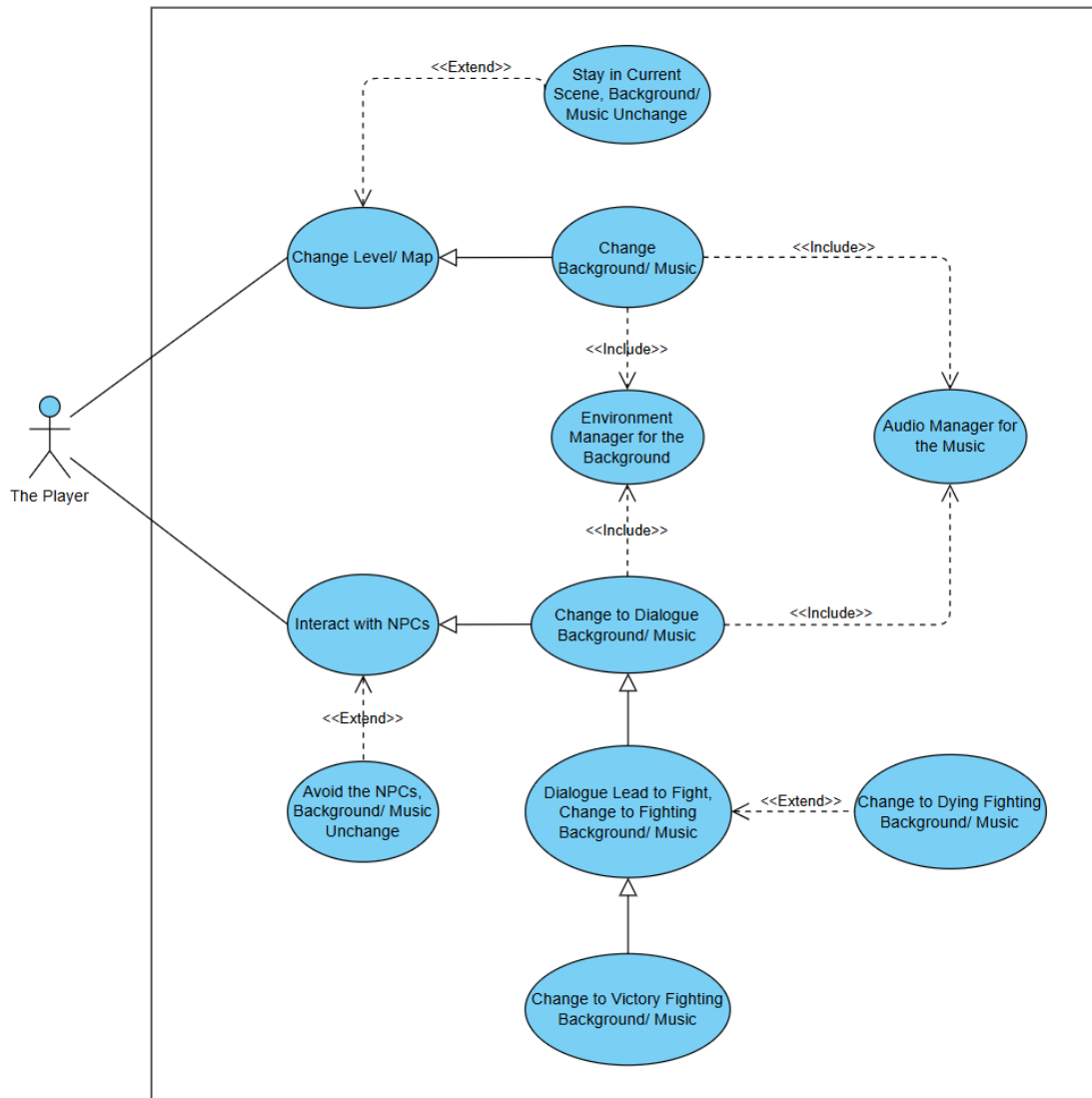


## 1. Brief introduction \_/3

In the game named “Breaking Red”, my feature is responsible for designing the environment and audio that will be changed dynamically according to the level data, such as the map, the level and the storyline. When the player is playing this game, scene designing will enhance its immersive visual and acoustic gaming experience. For environment design, it contains three parts, weather, tiles and background. For audio design, it contains two parts, background music and sound effects.

## 2. Use case diagram with scenario \_14

Use Case Diagramssss



## Scenarios

**Name:** Background and music change based on level and storyline

**Summary:** The background and music could be changed as the player interacts with NPCs or moves to different levels or maps.

**Actors:** Player

**Preconditions:** When the player is moving or interacting with NPCs, the background and music can be changed dynamically according to the scene and storyline.

### Basic sequence:

**Step 1:** The player goes into the forest map. The background and music change to a forest scene.

**Step 2:** The player interacts with NPCs

**Step 3:** The player talks with the NPCs. The background and music change to a dialogue scene.

**Step 4:** The NPCs may be enraged by the player. If it happens, the player enters battle. The background and music change to a fighting scene.

**Step 5:** The player defeats the NPCs and wins the fighting. The background and music change to a victory scene.

**Step 6:** The player goes into the next map or encounters next NPCs. The background and music change to next scene.

### Exceptions:

**Step 1.1:** If the player does not go into new map or level. The background and music remain unchanged.

**Step 2.1:** If the player does not interact with NPCs. The background and music remain unchanged.

**Step 5.1:** If the player does not defeat the NPCs. The background and music change to a dying fighting scene.

**Step 6.1:** If the player does not go into new map or level. The background and music remain unchanged.

**Post conditions:** The payer is in a new scene with different background and music that depend on the player's next action or interaction.

**Priority:** 2\*

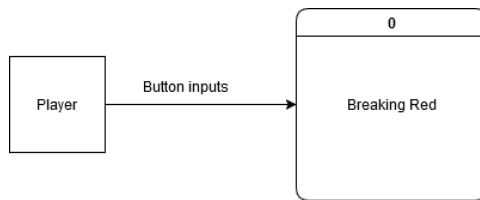
**ID:** BG01

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

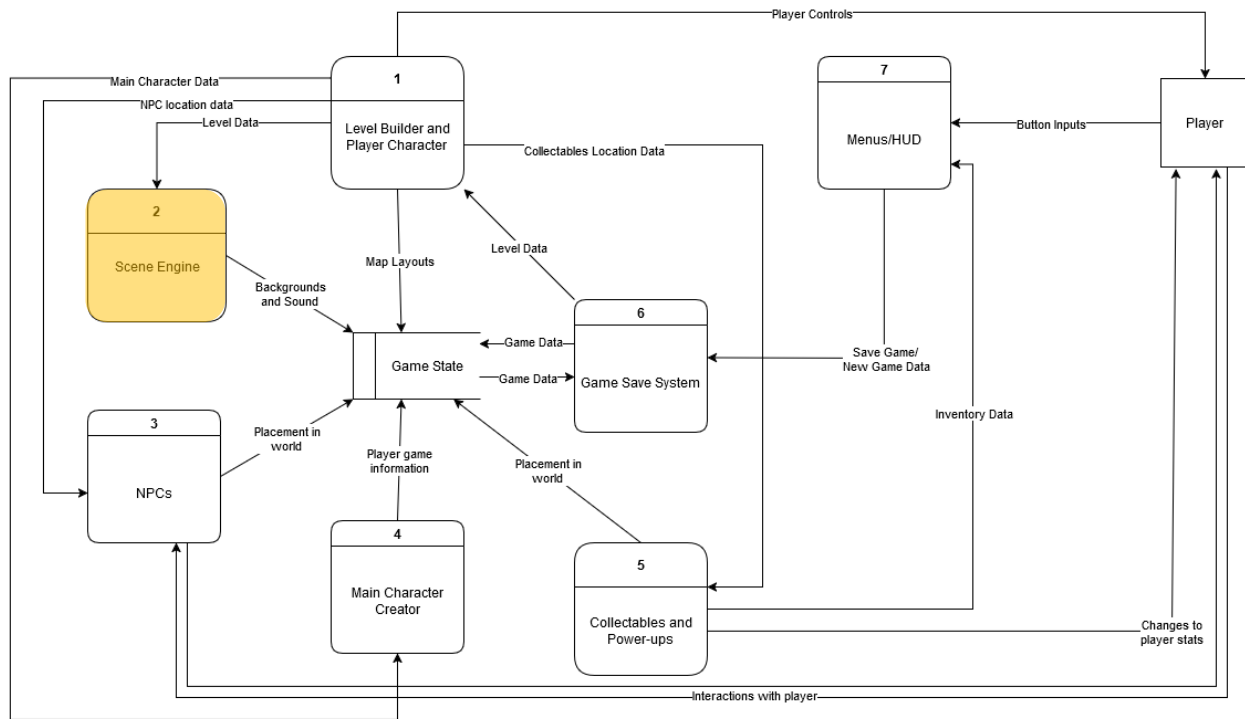
### 3. Data Flow diagram(s) from Level 0 to process description for your feature

14

#### Context Diagram:

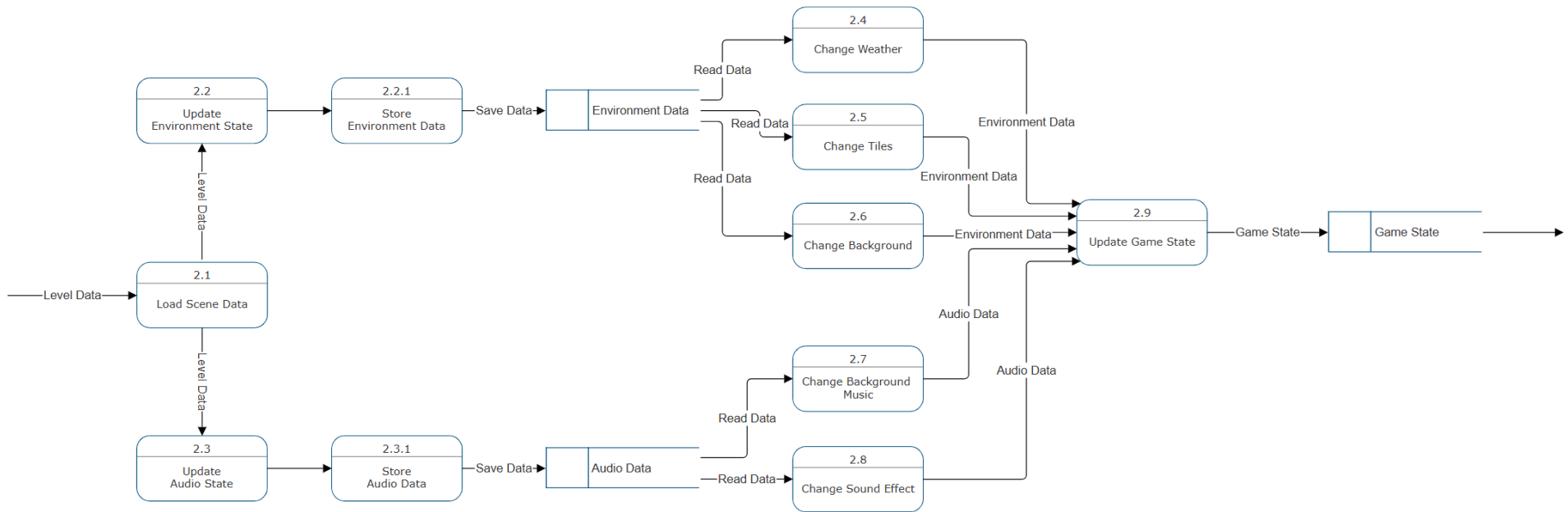


#### Data Flow Diagram 0:



## Data Flow Diagram Level 1:

Data Flow Diagram Level 1 of Breaking Red  
Made by Hengyi Tian



## Process Descriptions

### **UpdateEnvironment():**

IF change environment trigger == True:

    IF change weather == True:

        Update weather

    ELIF change tiles == True:

        Update tiles

    ELIF change background == True:

        Update background

Store updated environment data TO Environment Data

ELSE:

Environment remains unchanged

### **UpdateAudio():**

IF change audio trigger == True:

    IF background music change == True:

        Update background music

    ELIF sound effect change == True:

        Update sound effect

Store updated audio data TO Audio Data

ELSE:

Audio remains unchanged

## 4. Acceptance Tests \_\_\_\_\_9

### Test Cases:

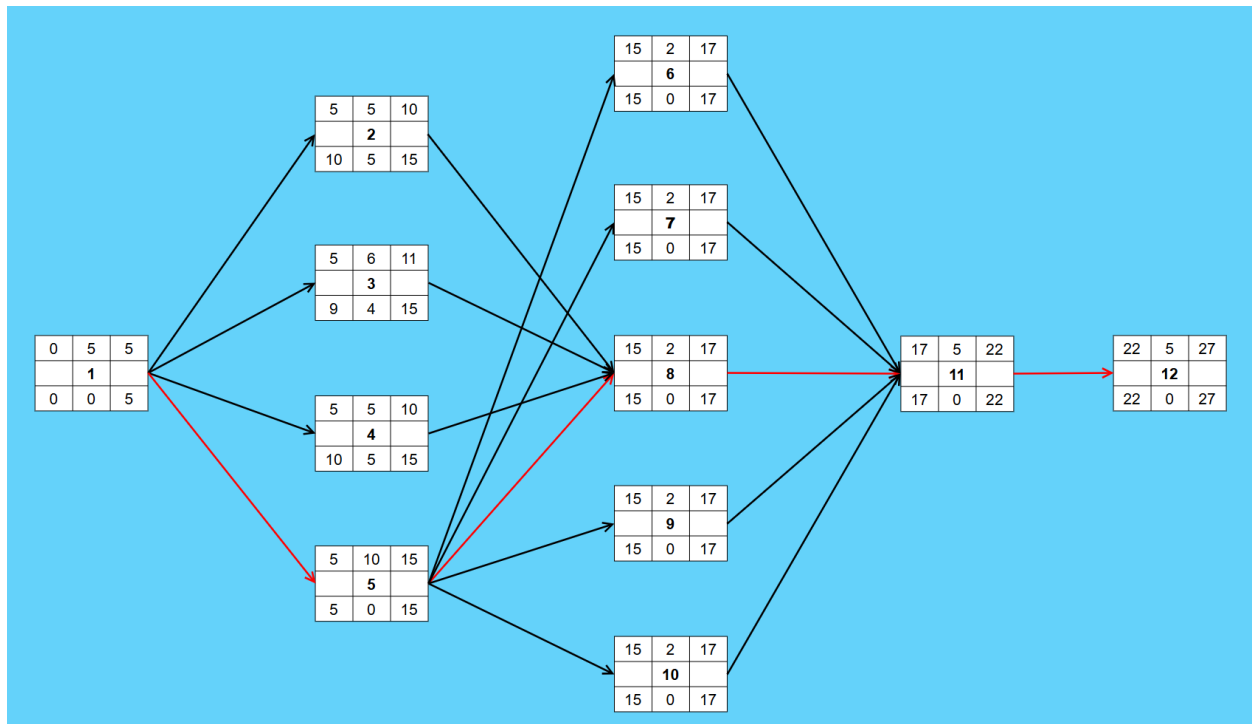
Test Case	Input	Output
Enter a New Scene	Player move into the forest	Background changes to forest Calming music with birds chirping plays
No Interaction with NPCs	Player avoid NPCs	Background and music remain unchanged
Encounter NPCs	Player approach an NPC	Background changes to a huge tree Dialogue music plays
Dialogue with NPCs	Player talk with NPCs	Background changes to a huge tree with speech bubbles Dialogue music continues playing
Combat with NPCs	Player engage in combat with NPCs	Background changes to battle scene with dark red fog Passionate battle music plays
Victory Scenario	Player win the battle and moves on	Background changes to victory scene Passionate victory music plays
Defeat Scenario	Player lose the battle and move back to forest	Background changes to dying scene Depressed dying music plays
Multiple Interactions with NPCs	Player interact with NPCs multiple times	After multiple repeated interactions with NPCs do not have overlapping or faults of background or audio.

## 5. Timeline \_\_\_\_/10

### Work items

Task	Duration(H)	Predecessor Task(s)
1. Requirements Collection	5	-
2. Environment elements design and audio collection	5	1
3. Environment Manager Design	6	1
4. Audio Manager Design	5	1
5. Scene Engine Implementation	10	1
6. Weather Implementation	2	5
7. Tiles Implementation	2	5
8. Background Implementation	2	5
9. Background Music Implementation	2	5
10. Sound Effect Implementation	2	5
11. Testing and Optimization	5	1 2 3 4 5 6 7 8 9 10
12. Final Integration	5	1 2 3 4 5 6 7 8 9 10 11

### Pert diagram



## Gantt timeline

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