Name Hengyi Tian Mark \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/50

## Brief introduction \_\_/3

In the game named “Breaking Red”, my feature is responsible for designing environment and audio that will be changed dynamically according to 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.

## Use case diagram with scenario \_\_14

### Use Case Diagrams

A diagram of a diagram

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### 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.

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

### Context Diagram:

A diagram of a button input

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### Data Flow Diagram 0:

A diagram of a company

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### Data Flow Diagram Level 1:

A diagram of a computer program

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## 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 approache 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 |

### Boundary Cases:

1. Rapid Scene Switching: Make sure that switching between different backgrounds and music without lagging or faults.
2. Multiple interactions with NPCs: Make sure that after multiple repeated interactions with NPCs do not have overlapping or faults.
3. Sound overlap testing: Make sure that no sounds or music overlapping
4. Volume balanced testing: Make sure that background music and sound effects are balanced in different scenes.

## 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 | 2 |
| 4. Audio Manager Design | 5 | 2 |
| 5. Scene Engine Implementation | 10 | 3, 4 |
| 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

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### Gantt timeline

A screenshot of a computer

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