

CMPT 276 Spring 2025 - Group 12

Use Case For Playing 2d tile game

Use-case: Play the 2d tile game.

Primary actor: Player (user)

Goal in context: To start the game on any device with Java-23, collect the main rewards required to unlock the exit, and avoid the enemy. As a bonus; collect bonus power-ups which slow the enemy down.

Preconditions: The system must have Java-23 and the game files/application.

Trigger: The user decides to play the game.

Scenario:

1. The player launches the game.
2. The player views the main menu, which consists of instructions, exit and start.
3. If the player clicks on exit, the game closes.
4. The player clicks on the instructions and the instructions are displayed.
5. The instructions read; WASD to move, avoid the enemy, avoid punishments, collect stamps to unlock the exit and collect bonus rewards to slow the enemy down.
6. The enemy only has to make contact once to end the game.
7. The player clicks on start.
8. The system loads the game, placing the character and enemy on the grid.
9. The player can see a pause option in the top right corner, when clicked also allows the user the option to exit (no save option).
10. The system reduces the lighting around the user's character, leaving the enemy out of sight unless within the light vicinity.
11. The system starts the game loop, allowing player movement and enemy behaviour.
12. The player inputs movement commands
13. The system checks for valid movement paths on the grid.
14. If the move is valid, the system updates the player's position.
15. The game state updates and the screen reflects the new position.
16. If the move results in an interaction (collecting a stamp, bonus, enemy or punishment) the system processes it.
17. The system detects the collision with the item.
18. The system applies the item's effect (punishment slows the player, bonus reward slows the enemy, and stamp increases player score)
19. The system removes the item from the grid.
20. The score and game state update accordingly.
21. The system determines enemy movement and updates each enemy position on the grid.

22. If the enemy collides with the player, the game is over and the game-over sequence is triggered, displaying the player's total score and taking the player back to the starting menu.
23. If the player's score is at a certain threshold the exit can now be accessed
24. If the player reaches the exit, the winner message is displayed and the player is taken to the start menu.

Exceptions:

1. While in the game, the player uses an invalid key - no movement and the game continues.
2. The player goes to exit without having all the stamps - see use case: "collect all the stamps before exiting".
3. The player attempts to move into a solid tile or wall - player position not updated.
4. The enemy gets stuck and does not move - reset the enemy position if stagnant for too long.