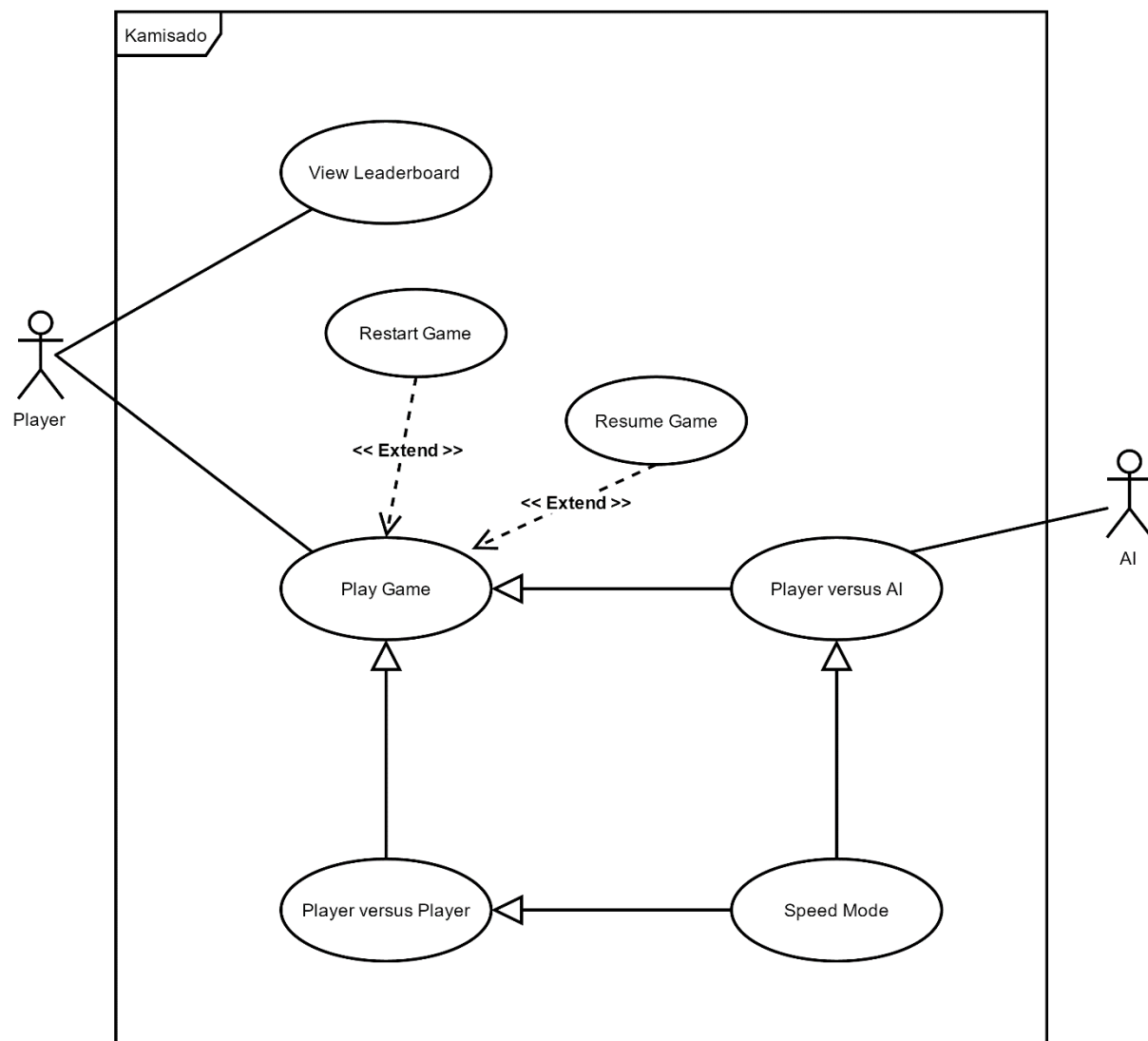Diyan Komitov
Callum Muir

Kamisado Requirements Documentation

Use case diagram

Use case descriptions

Use case: Play game

Playing a game of Kamisado against an opponent

- Primary actor: Player
- Preconditions: App must be installed and loaded, keyboard must be connected
- Trigger: Player selects "Play Game"
- Flow of events:
  - Main Flow
    1. Player selects a game mode
    2. Player enters their name or chooses from an existing profile
    3. Player selects piece type, if Black they start, if White they go second
    4. The game is played in accordance to the rules
    5. After every move turn passes over to the opponent.

6. The game ends when one of the players reaches the opponent's home row
7. The score and the leaderboard are updated
8. The game displays the end game screen.

- Alternative Flows
    1.1 If the player enters an exact copy of an existing name they will be prompted to re-enter their name, or choose from an existing profile
    4.1 If the move is invalid, a message is displayed to the player and they have to make a different move.
    6.1 If the player exits the game before it is finished, the game state is saved, the leaderboard is not updated and the end game screen isn't displayed.
    7.1 If the score and/or leaderboard couldn't be updated a message is displayed to player

Use case: Player versus Player

Playing a game of Kamisado against another player on the same computer

- Primary actor: Player x2
- Preconditions: App must be installed and loaded, keyboard must be connected
- Trigger: Player selects the "Player versus Player" game mode
- Flow of events:
    - Main Flow
        1. Both players enter their name or choose from an existing profile
        2. One player selects piece type, the other player is the type that wasn't selected
        3. The game is played
    - Alternative Flows
        1.1 If a player enters a pre-existing name, they will be prompted to re-enter their name or choose a profile

Use case: Player versus AI

Playing a game of Kamisado against an AI opponent

- Primary actor: Player
- Supporting actor: AI
- Preconditions: App must be installed and loaded, keyboard must be connected
- Trigger: Player selects the "Player versus AI" game mode
- Flow of events:
    - Main Flow
        1. Player selects AI difficulty level
        2. Player enters their name or chooses from an existing profile
        3. Player selects piece type, the AI opponent is the other piece type
        4. The game is played
        5. On the AI opponent's turn the AI calculates the best course of action according to the difficulty level, plays a move and passes the turn over
        6. After every valid move by either the Player or the AI, the game state is recorded and the player can return the game to that state at any point
    - Alternative Flows
        2.1 If a player enters a pre-existing name, they will be prompted to re-enter their name or choose a profile

5.1 If the AI hasn't calculated the absolute best course of action in the span of 5 seconds, it plays the best move it has found thus far

Use case: Speed Mode

Playing a game of Kamisado against an opponent in Speed mode

- Primary actor: Player
- Supporting actor: AI or Player
- Preconditions: App must be installed and loaded, keyboard must be connected
- Trigger: Player selects the "Speed mode" game mode
- Flow of events:
  - Main Flow
    1. Player selects AI or Player opponent
    2. The game is played as per those use cases
    3. If the Player(s) don't make a move within a certain time limit the player who's on turn loses the game

Use case: Restart Game

Restarting a current game of Kamisado

- Primary actor: Player
- Preconditions: A game is being played
- Trigger: Player selects the "Restart" option
- Flow of events:
  - Main Flow
    1. The game state is reset to the beginning
    2. All choices made before the game begun remain the same (game mode, piece type etc.)
    3. The game is played

Use case: Resume Game

Resuming a previous game of Kamisado

- Primary actor: Player
- Preconditions: A game must be saved
- Trigger: Player selects the "Resume Game" or "Load Game" option
- Flow of events:
  - Main Flow
    1. The game state of the last game or the loaded game is retrieved and displayed
    2. The game is played
  - Alternative Flows
    1.1 If the game state could not be retrieved a message is displayed to the player

Use case: View Leaderboard

Viewing the leaderboard, achievements and other statistics.

- Primary actor: Player
- Preconditions: App must be installed and loaded, keyboard must be connected
- Trigger: Player selects the "View Leaderboard" option

- Flow of events:
  - Main Flow
    1. The current Leaderboard is retrieved and displayed
    2. The player can select different types of statistics and achievements to view
    3. The chosen stat or achievement is retrieved and displayed
    4. The player closes the Leaderboard
  - Alternative Flows
    - 1.1 If the Leaderboard could not be retrieved an error is displayed to the player and the Leaderboard is closed.
    - 2.1 If the chosen stat or achievement could not be retrieved an error is displayed to the player

Features

1. Keyboard input
2. Mouse input
3. Display game
4. Detect invalid moves
5. Detect end game condition
6. Different game modes (PvP, PvAI, Speed Mode)
7. Select game mode
8. Enter name
9. Select piece type (Black or White)
10. Different AI difficulties
11. Select AI difficulty
12. Timer for AI
13. Display hints in PvAI mode
14. Timer for player(s) in Speed Mode
15. Allow rematch with current player
16. Select series length (Single round, Best of 3, Best of 5)
17. Keep track of score
18. Display Leaderboard
19. Save current game and series, if applicable
20. Load saved game
21. Restart current game
22. Undo a move in PvP mode

Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Play Kamisado	•	•	•	•	•			•	•						•	•	•		•			
Restart Game																					•	
Resume Game																			•	•		
Player versus Player						•	•															•
Player versus AI						•	•			•	•	•	•									
Speed Mode						•	•							•								
View Leaderboard	•	•															•	•				