Use Case Descriptions Checkers

Use Case: Select Piece

- **Iteration**: 1
- **Primary Actor**: Player
- **Goal in Context**: Allows the player to select a piece to move on their turn.
- **Preconditions**: The game must be in progress, and it must be the player's turn.
- **Trigger**: The player clicks on or selects a piece on the board.
- **Scenario**:
    - The player selects a piece by clicking or entering its coordinates.
    - The system highlights or marks the selected piece.
    - The system verifies that the selected piece belongs to the current player.
- **Post Conditions**: The piece is highlighted, and the player can now select a destination.
- **Exceptions**:
    - The selected piece does not belong to the player, and an error message is shown.
- **Priority**: High priority, as it is essential for gameplay.
- **When Available**: Within its 1st iteration.
- **Frequency of Use**: Multiple times per player turn.
- **Channel to Actor**: Player interacts directly with the board.
- **Secondary Actors**: N/A
- **Channel to Secondary Actors**: N/A
- **Open Issues**: None

Use Case: Move Piece

- **Iteration**: 1
- **Primary Actor**: Player
- **Goal in Context**: Allows the player to move a selected piece to a new position on the board.
- **Preconditions**: A piece has been selected by the player, and it is a valid piece to move.
- **Trigger**: The player clicks on or selects a destination square on the board.
- **Scenario**:
    - The player selects a destination for the selected piece.
    - The system checks if the move is valid according to the rules of Checkers.
    - If valid, the piece is moved to the new position.
    - The board is updated to show the new position of the piece.
- **Post Conditions**: The piece has been successfully moved to the new position.
- **Exceptions**:
    - The move is invalid, and an error message is displayed.
- **Priority**: High priority, as it is essential for gameplay.
- **When Available**: Within its 1st iteration.
- **Frequency of Use**: Multiple times per game, depending on player moves.
- **Channel to Actor**: Player interacts directly with the board.
- **Secondary Actors**: N/A
- **Channel to Secondary Actors**: N/A
- **Open Issues**: None

Use Case: Eliminate Piece

- **Iteration**: 1
- **Primary Actor**: Player
- **Goal in Context**: Allows the system to remove an opponent’s piece when a capture move is made.
- **Preconditions**: The current player has made a valid capture move.
- **Trigger**: The player completes a capture move.
- **Scenario**:
    - The system identifies the opponent’s piece that is being captured.
    - The captured piece is removed from the board.
    - The board state is updated and displayed to both players.
- **Post Conditions**: The opponent's captured piece is removed from the board.
- **Exceptions**:
    - The system fails to remove the piece due to an error.
- **Priority**: High priority, as it impacts the game's progress and rules.
- **When Available**: Within its 1st iteration.
- **Frequency of Use**: Multiple times per game, depending on capture moves.
- **Channel to Actor**: Game Controller updates the board.
- **Secondary Actors**: System
- **Channel to Secondary Actors**: N/A
- **Open Issues**: None

Use Case: Switch Player

- **Iteration**: 1
- **Primary Actor**: Player
- **Goal in Context**: Allows the system to alternate turns between players.
- **Preconditions**: The current player has completed their turn.
- **Trigger**: The player's turn is over (either after a move or capture).
- **Scenario**:
    - The system verifies that the player's turn is complete.
    - The active player is switched to the other player.
    - The system updates the game state to reflect the new player's turn.
    - The new player is notified that it is now their turn.
- **Post Conditions**: The turn is switched to the other player.
- **Exceptions**:
    - The system fails to switch the player due to an error.
- **Priority**: High priority, as it is critical for turn-based gameplay.
- **When Available**: Within its 1st iteration.
- **Frequency of Use**: Multiple times per game as turns alternate.
- **Channel to Actor**: Game Controller handles turn management.
- **Secondary Actors**: System
- **Channel to Secondary Actors**: N/A
- **Open Issues**: None

Use Case: End Game

- **Iteration**: 1
- **Primary Actor**: Player
- **Goal in Context**: Ends the game when a win/loss condition is met or if a player forfeits.
- **Preconditions**: One player has no remaining pieces or legal moves, or a player chooses to forfeit.
- **Trigger**: A win/loss condition is met or a player forfeits.
- **Scenario**:
    - The system checks the board state and verifies if a win/loss condition is met.
    - The game state is updated to GAME_OVER.
    - The system determines and displays the winner.
    - The end-game screen is displayed with options to "Play Again" or "Exit."
- **Post Conditions**: The game ends, and the result is displayed.
- **Exceptions**:
    - The system fails to end the game due to an error.
- **Priority**: High priority, as it is essential for game completion.
- **When Available**: Within its 1st iteration.
- **Frequency of Use**: Once per game.
- **Channel to Actor**: Game Controller manages end-game logic.
- **Secondary Actors**: System
- **Channel to Secondary Actors**: N/A
- **Open Issues**: None

Use Case: Create King

- **Iteration**: 1
- **Primary Actor**: Player
- **Goal in Context**: Promotes a piece to a king when it reaches the opposite end of the board.
- **Preconditions**: A piece reaches the last row on the opponent's side during a move.
- **Trigger**: The player moves a piece to the last row.
- **Scenario**:
    - The system identifies that the piece has reached the opponent's last row.
    - The piece is promoted to a king, with a visual indication.
    - The board state is updated to reflect the promotion.
- **Post Conditions**: The selected piece is promoted to a king with enhanced movement.
- **Exceptions**:
    - The system fails to promote the piece due to an error.
- **Priority**: Medium priority, as it enhances gameplay but is not essential.
- **When Available**: Within its 1st iteration.
- **Frequency of Use**: As needed during gameplay.
- **Channel to Actor**: Game Controller handles promotion.
- **Secondary Actors**: System
- **Channel to Secondary Actors**: N/A
- **Open Issues**: None

Use Case: Play Again Button

- **Iteration**: 1
- **Primary Actor**: Player
- **Goal in Context**: Allows the player to restart the game with a fresh board after the game has ended.
- **Preconditions**: The game is over, and the "Play Again" button is available on the end-game screen.
- **Trigger**: The player clicks the "Play Again" button.
- **Scenario**:
    - The player selects the "Play Again" button.
    - The system resets the game state and initializes a new board.
    - The board is reinitialized, and the players are notified of the new game start.
- **Post Conditions**: A new game begins with the board reset.
- **Exceptions**:
    - The system fails to reset the board due to an error.
- **Priority**: Medium priority, as it enhances user experience.
- **When Available**: Within its 1st iteration.
- **Frequency of Use**: Once per session, if the player wants to replay.
- **Channel to Actor**: User interface for player interaction.
- **Secondary Actors**: N/A
- **Channel to Secondary Actors**: N/A
- **Open Issues**: None

Use Case: Exit

- **Iteration**: 1
- **Primary Actor**: Player
- **Goal in Context**: Allows the player to exit the game after it has ended.
- **Preconditions**: The game is over, and the "Exit" button is available.
- **Trigger**: The player clicks the "Exit" button.
- **Scenario**:
    - The player selects the "Exit" button.
    - The application closes or returns to the main menu.
- **Post Conditions**: The game session is terminated.
- **Exceptions**:
    - The application fails to exit properly.
- **Priority**: Low priority, as it provides a way to end the session.
- **When Available**: Within its 1st iteration.
- **Frequency of Use**: Once per session, if the player wants to end the game.
- **Channel to Actor**: User interface for player interaction.
- **Secondary Actors**: N/A
- **Channel to Secondary Actors**: N/A
- **Open Issues**: None