**Use Case 1:** Initialize the Game

**Primary Actor:** Observer

**Stakeholders and Interests:**

-Observer: Observer wants to start the gameplay.

-Player Activity System: Wants decent input by the observer for game initialization.

**Preconditions:** Observer starts the game

**Postconditions:** Gameplay is initialized. Number of players is provided along with the player names and saved. Game board is created. Player start properties are set.

**Main Success Scenario**:

1. Observer enters the number of players correctly.
2. Observer enters the name of each player correctly.
3. Player Activity System records the name of each player and gives each a unique id.
4. Player Activity System gives each player a piece on the board according to their ids.
5. First player can start the game.

**Extensions:**

1. Observer does not provide any number or provides a negative number
2. Player activity system requires the observer to enter a new number until a valid one is entered.
3. Then the system proceeds by asking the observer to enter player names.
4. Observer does not provide a player name
5. Player activity system requires the observer to enter a new name until a valid one is entered
6. System proceeds to game initialization.

**Use Case 2:** Roll Dice

**Primary Actor:** Player

**Stakeholders and Interests:**

-Player: Wants to see the rolled regular dice and the speed die.

-Dice System: Wants to properly record the rolled dice.

-Player Activity System: Wants to receive the values of dice.

**Preconditions:** There is an ongoing game, It is the current player’s turn and he clicked on the roll button.

**Postconditions:** Player successfully rolls the dice, and the values of the dice are shown on the screen, piece of the player is moved according to the dice.

**Main Success Scenario:**

1. Player hits the roll button.
2. Dice and the speed die rolled by the player shown on the screen.
3. Player location updated.
4. Player piece moved according to the dice.

**Extensions:**

1. Speed die is more than three or all dice have the same value, therefore we need to move according to either Mr. Monopoly or Bus.
2. If player rolled Mr. Monopoly, player gets a bonus move, the player moves to the next unowned property.
3. Else if player rolls Bus, he/she makes choice of moving according to either first die or the second die or the total of both.
4. If all three dice have the same value, move the player to wherever he wants.
5. Player rolls a double
6. If it is player’s third consecutive double, he is sent to jail otherwise he gets to roll again after moving according to the first rolled dice.
7. Player passes a train station
8. If rolled dice by player has a total value that is even, location is updated to be on the opposite track.
9. Else, player continues to play on the same track and his location is updated according to the rolled dice.

**Use Case 3:** Activities after Rolling the Dice

**Primary Actor:** Player

**Stakeholders and Interests:**

-Player: Wants to be properly informed about the square information such as rent, action card, and owner.

**-**Player Activity System: Wants to successfully analyze activity.

-Square System: Wants to get the updated information on the players namely the new owner of the card, land, railroad or the utility.

**Preconditions:** Dice rolled and player moved to the specific location.

**Postconditions:** Player is informed about the square. According to the square’s type, player makes a decision and/or takes action. Properties of the player are updated.

**Main Success Scenario:**

1. Player arrives at the square
2. Player arrived into an unowned property.
3. Player pays the price of the property and now he owns it.
4. Player Activity System records player properties after completed action.

**Extensions:**

1. The square type is an owned land:
2. Square System shows the price of the owned land’s rent and if the current player does not own the land square, he pays the rent.
3. Player Activity System logs changes.
4. The square type is action card:
5. Square System shows the selected card if there is any left to player and player takes action according to it.
6. Player Activity System records changes.
7. The square type is an owned utility:
8. Square System gets a utility rent from the player if the current player does not own the utility square according to the dice rolled by him.
9. Player Activity System logs changes.
10. The square type is an owned railroad:
11. Square System asks for the rent from the player if the current player does not own the railroad square.
12. Player Activity System logs any change.
13. The square type is an owned cab company
14. Player has the option of paying 50$ and getting a taxi ride. If he is not the owner, in addition to the option of paying for the taxi ride, he pays a rent for the cab company.
15. If player paid the extra $50, he can go to free parking, any other cab company or any transit station.
16. Player Activity System logs changes.
17. The square type is the Holland tunnel.
18. Player directly moves to the other Holland tunnel.
19. Player Activity System logs changes.
20. The player owns a majority of the properties.
21. If he owns two or more of the properties, the player can build houses and hotels.
22. Otherwise, if he owns all of the properties in a color group, he can now build skyscrapers if you have at least a hotel in each property of the color group.
23. Any change is recorded by the Player Activity System.
24. Player has to pay the price or the rent for the square or he needs to pay other players.
25. Player does not have enough money to buy the land or rent. So, he either sells his properties or is bankrupt.
26. Player does not have enough money to pay the utility rent so he has to sell his properties or go bankrupt.
27. Player Activity System updated.
28. Player arrives on roll once or squeeze play square.
29. He might get money from it and system records any change.
30. Player sells a land or lands.
31. Player gets the money he first paid for the land.
32. Activity system is updated.
33. Player passes the start square.
34. He/she gets a bonus.
35. System is updated accordingly.
36. Action card drew.
37. As a result of the action card, player acquires money.
38. Player Activity system logs the change.

**Use Case 4:** Roll Once

**Primary Actor:** Player

**Stakeholders and Interests:**

-Player: Wants to roll the die once in order to have a chance to win prize.

-Dice System: Wants to get the information of the rolled die in order to inform player activity system any change.

**-**Player Activity System: Wants to successfully regulate player’s state.

**Preconditions:** Player landed on roll once square

**Postconditions:** Player activity system records every change occurred during the player’s roll once play, player can clearly see the face value of die he rolled and if it matched with the other die.

**Main Success Scenario:**

1. Player lands on the roll once square in his turn.
2. Dice System shows the value of the roll once card to the player.
3. Player rolls a die and if the numbers match, he receives prize money.
4. Dice system sends this new information to Player Activity System.