Luther Nguyen
Don Strong

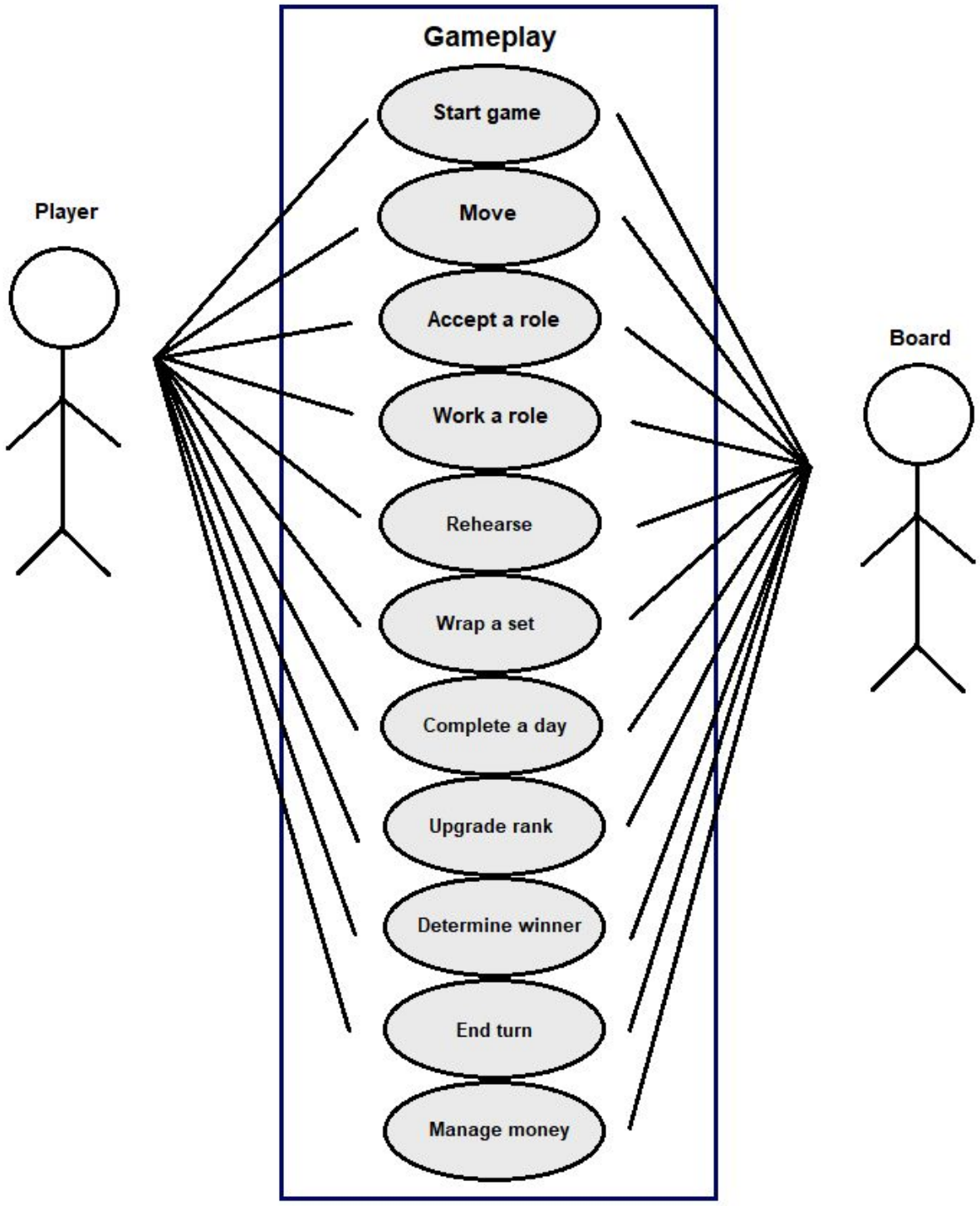
Assignment 3

Introduction: Introduction: Deadwood is a board game for 2-8 players where players play as an actor. Every day, you move from set to set to work on different movies to earn money and fame. You can trade those things at the casting office to gain higher status and work on better roles. Each player is represented by a 6-sided die and those numbers represent that player's rank—everyone starts at rank 1. To start off, the setup depends on the group size: if there are 2-3 players, play only 3 days; if 4 players, play the usual 4 days; if 5 players, start each player with 2 credits; if 6 players, start each player with 4 credits; if 7-8 players, start everyone at rank 2. After deciding how many players are playing, we put the dice—representing the players—down in the Trailers. Shuffle the deck and deal one card to each set on the board facing down—each card is a scene. The board has 10 sets and there are 40 scene cards in total, meaning there are exactly enough cards to play through 4 days. Also, on each set, place down a "shot marker" on each of the numbered circles; these will be removed as you complete shots. As for the person to start, it is determined randomly, and the game continues to the left of the starter. Also, decide for a person to be a banker. The goal is to score the most points—consisting of your money, credits, and five times your rank—at the end of the game. When your turn comes up, you can decide to move from one area to any adjacent area and/or take a role if you are not working on a role; both of these are optional. To take a role, it has to be equal to or lower than your rank. Multiple players can work on the same scene, but not the same role. If you are working on a role, you have to either act by rolling a die, or rehearse by taking a rehearsal chip. When acting, you have to roll a die which the number has to be equal to or higher than the budget of the movie. If successful, then you remove a shot counter and take two credits when on the card. If you're off the card, you remove a shot counter and take one dollar and one credit. If you fail, you get nothing while on the card. If off the card, you still get a dollar. As you continue, you can see that each set has one, two, or three shots. These shots must be completed for the scene to be wrapped. If you choose to rehearse, you do not roll and you do not earn anything. Instead, you add one "practice chip" to your die, stacking it on top or to the side which gives you a +1 to all die rolls that you make while acting on a particular role.

Actors: Player (the game suggests 2-6 players, but supports up to 8).

Board.

Use Case Diagram:



Use Cases:

Use Case Title: Begin a game.

Actors: Player, Board.

Trigger: Group of 2 or more players would like to play Deadwood Studios.

Pre-condition: There exists at least 2 players who would like to play with a computer and the Deadwood Studio software.

Post-condition: The program is ready to begin the game.

Termination condition: Board is assembled appropriately and rendered. Each player is uniquely identified. Pre-game conditions are satisfied.

Basic Flow:

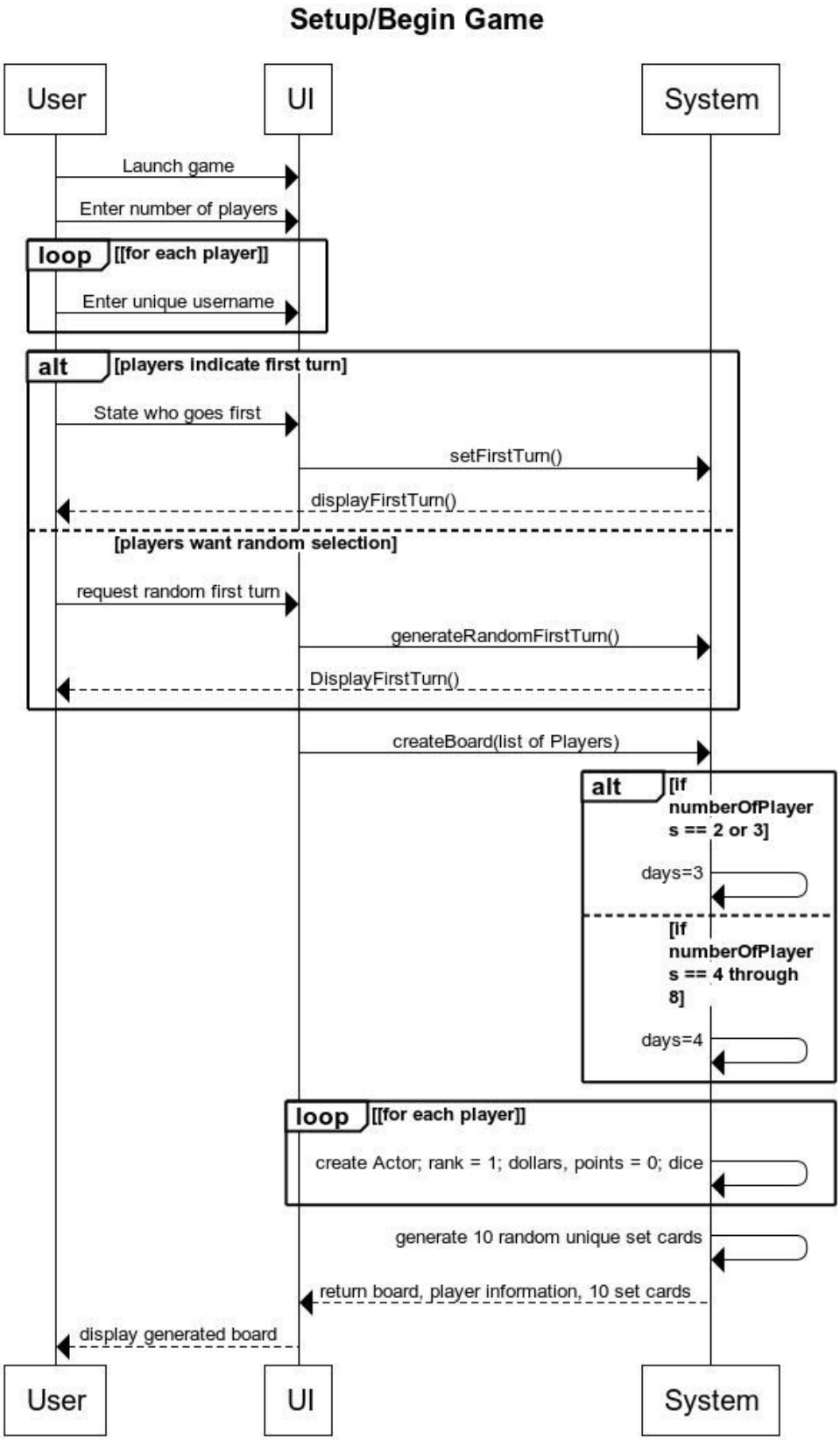
1) Players launch game application.
2) Players indicate how many people would like to play.
3) Players enter the unique name of each player.
4) Players decide who goes first.
5) Board is generated and rendered with random scene/set cards, shots, and all players' dice in the Trailer section.
6) Players are prompted with a "Ready to begin game?" confirmation.
7) Game begins.

Alternate Flow - Step 4:

4a) Players cannot determine who goes first.

.1: Game will randomly select the username and subsequent order; return to step 5.

Sequence Diagram:



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Use Case Title: Move.

Actors: Player, Board.

Trigger: Players turn.

Pre-condition: Players turn and they are not working on a role.

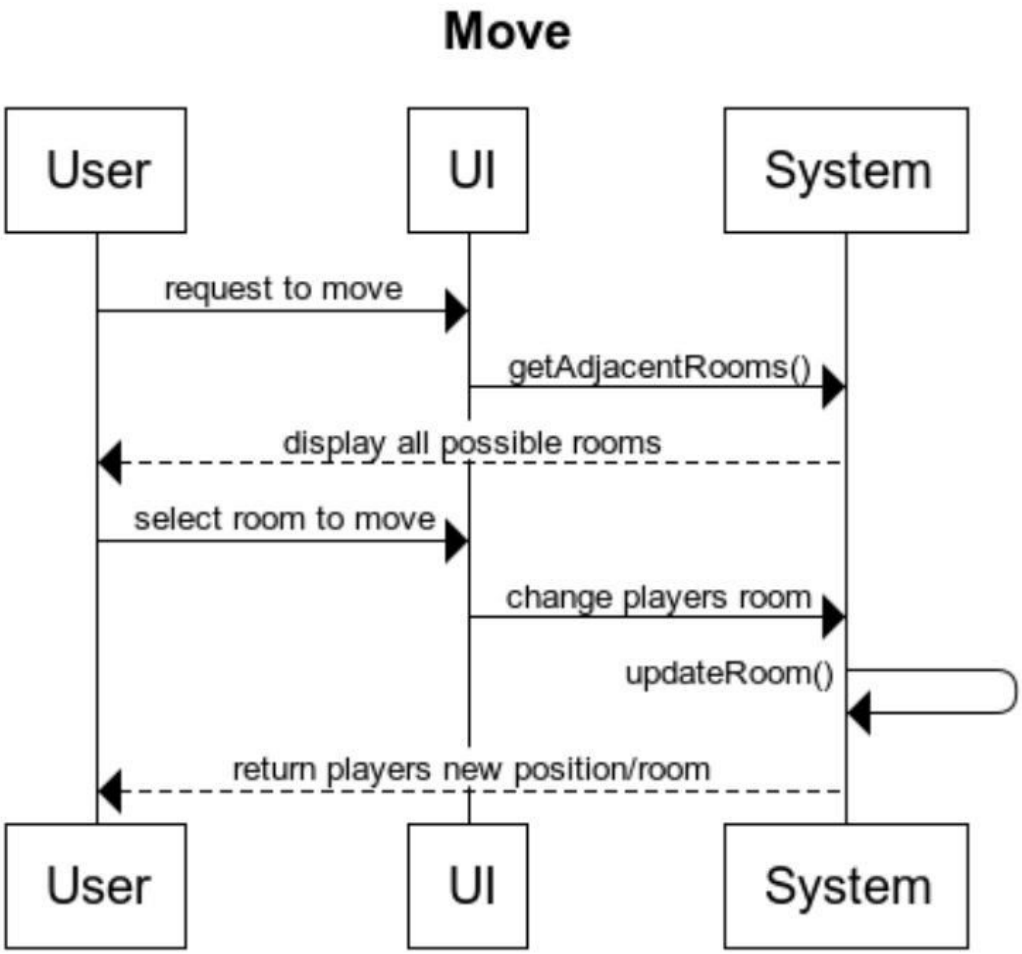
Post-condition: Player lands on an adjacent set.

Termination condition: -- (on success) player moves to an adjacent set.
-- (on failure) player remains on same set.

Basic Flow:

1) Player identifies all possible adjacent sets.
2) Player movies to the adjacent set that is most advantageous/desirable.
3) Optional: Player accepts an appropriate role.

Sequence Diagram:



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Use Case Title: Accepting a role.

Actors: Player, Board

Trigger: Players turn and desire to obtain a role.

Pre-condition: Available role as either an actor or extra that is equal to or less than the players rank.

Post-condition: Player is assigned a role.

Termination condition: -- (on success) player takes on a role.
-- (on failure) player is unable to take role.

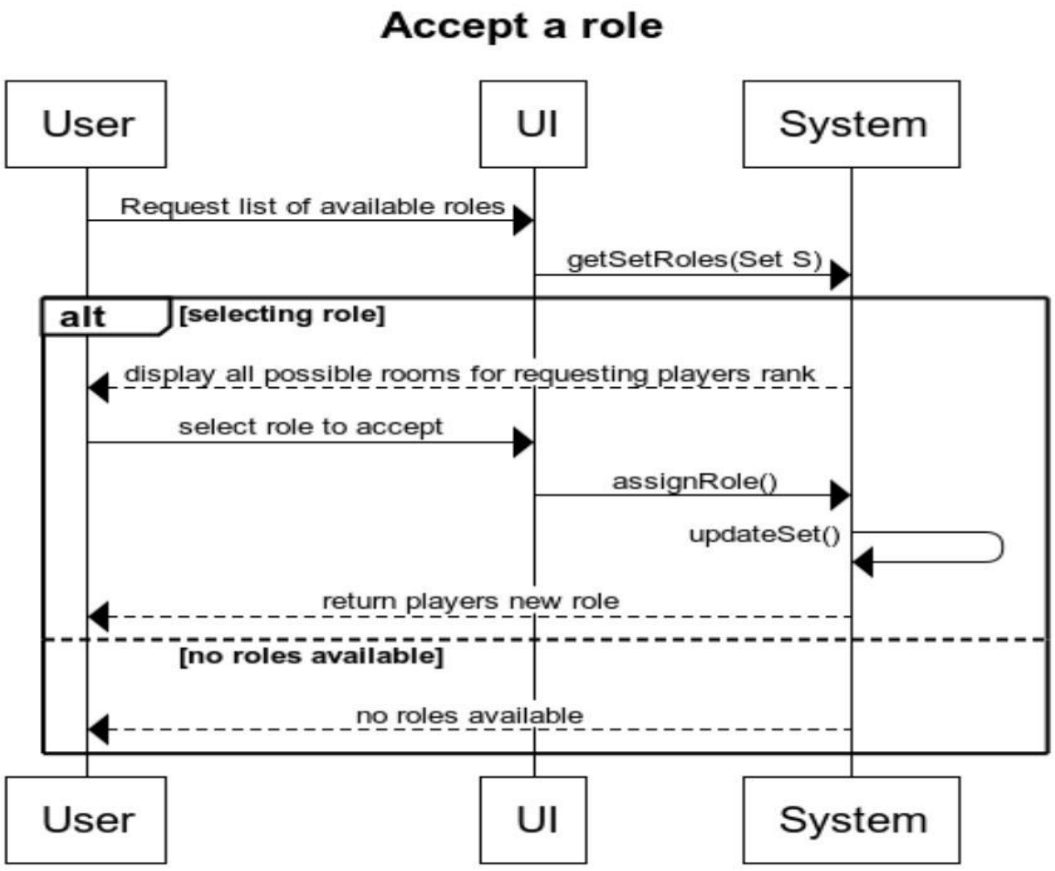
Basic Flow:

1) Player identifies the role that they would like to take.
2) Player places die on the spot designated for that role.

Alternate Flow - Step 1:

1a) There isn't any available roles for the players current rank.
.1: Player purchases an advancement of rank from the Casting Office; return to step 1.

Sequence Diagram:



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Use Case Title: Acting a role (as actor: on the card or as an extra: off the card).

Actors: Player, Board.

Trigger: Players turn, currently assigned a role as an actor or extra.

Pre-condition: Player is occupying a role on a set with at least one shot remaining onset.

Post-condition: Player makes progress on their current role.

Termination condition:

-- (on success) player earns reward and removes a shot from the current set.

-- (on failure) player does not collect reward (if actor) and remains idle at current role.

Basic Flow:

1) Player must decide if they would like to "act" or "rehearse."
2) Player removes shot.

Alternate Flow - Step 1:

1a) Player decides to act as an actor.

.1: Player rolls a 6 sided die and obtains a value greater than or equal to the scene budget, player accumulates 2 points; return to step 2.

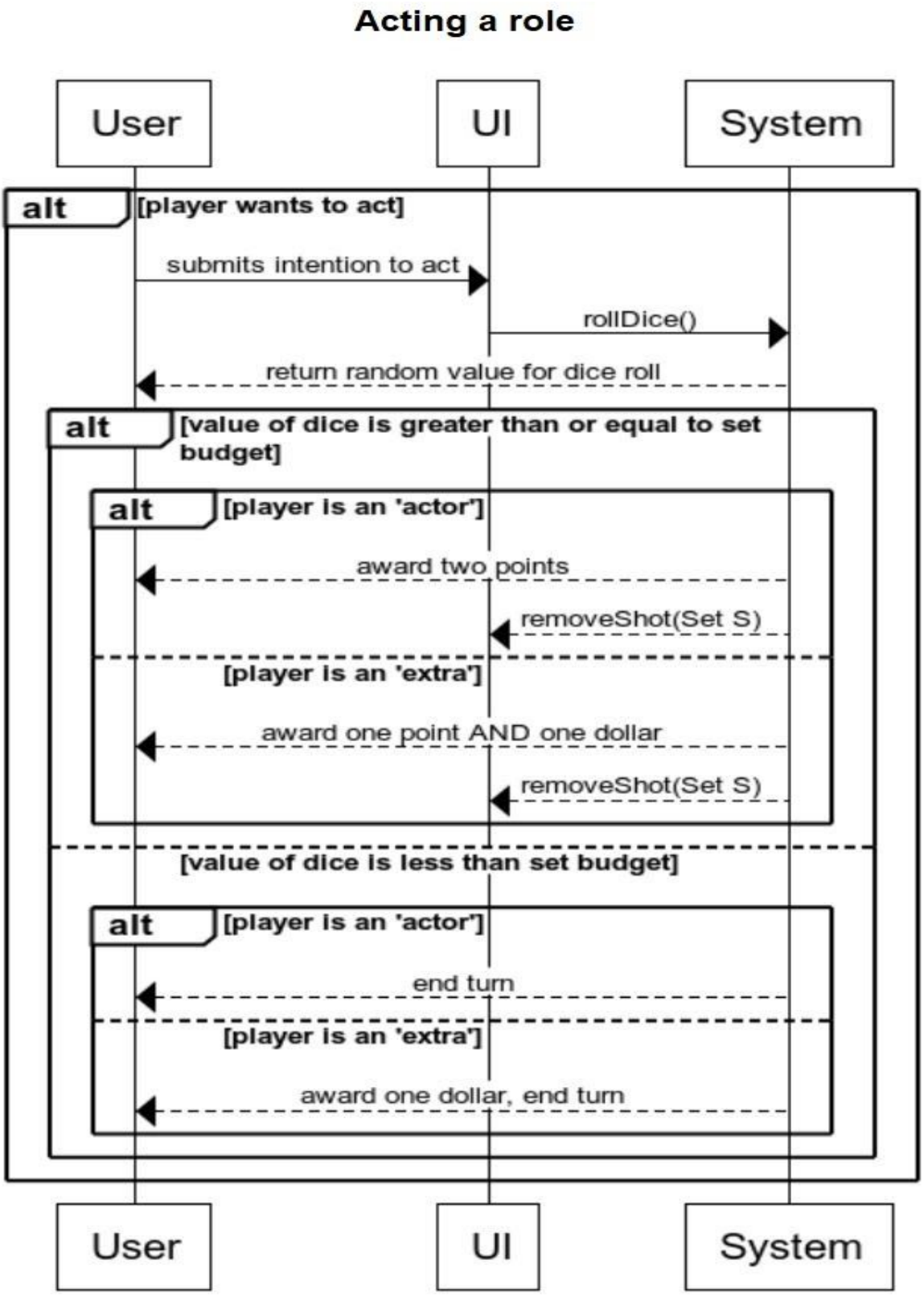
.2: Player rolls a 6-sided die and obtains a value less than the scene budget. Turn is over.

1b) Player decides to act as an extra.

.1: Player rolls a 6-sided die and obtains a value greater than or equal to the scene budget, player accumulates 1 dollar and 1 point; return to step 2.

.2: Player rolls a 6-sided die and obtains a value less than the scene budget, player accumulates 1 dollar, turn is over.

Sequence Diagram:



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Use Case Title: Rehearse

Actors: Player and Game

Trigger: The Player wants to work and rehearse.

Pre-condition: The Player is already taking a role before their turn started and it is their turn.

Post-condition: The Player's die stays in the same spot.

Termination condition: The Player earns one "practice chip."

Basic Flow:

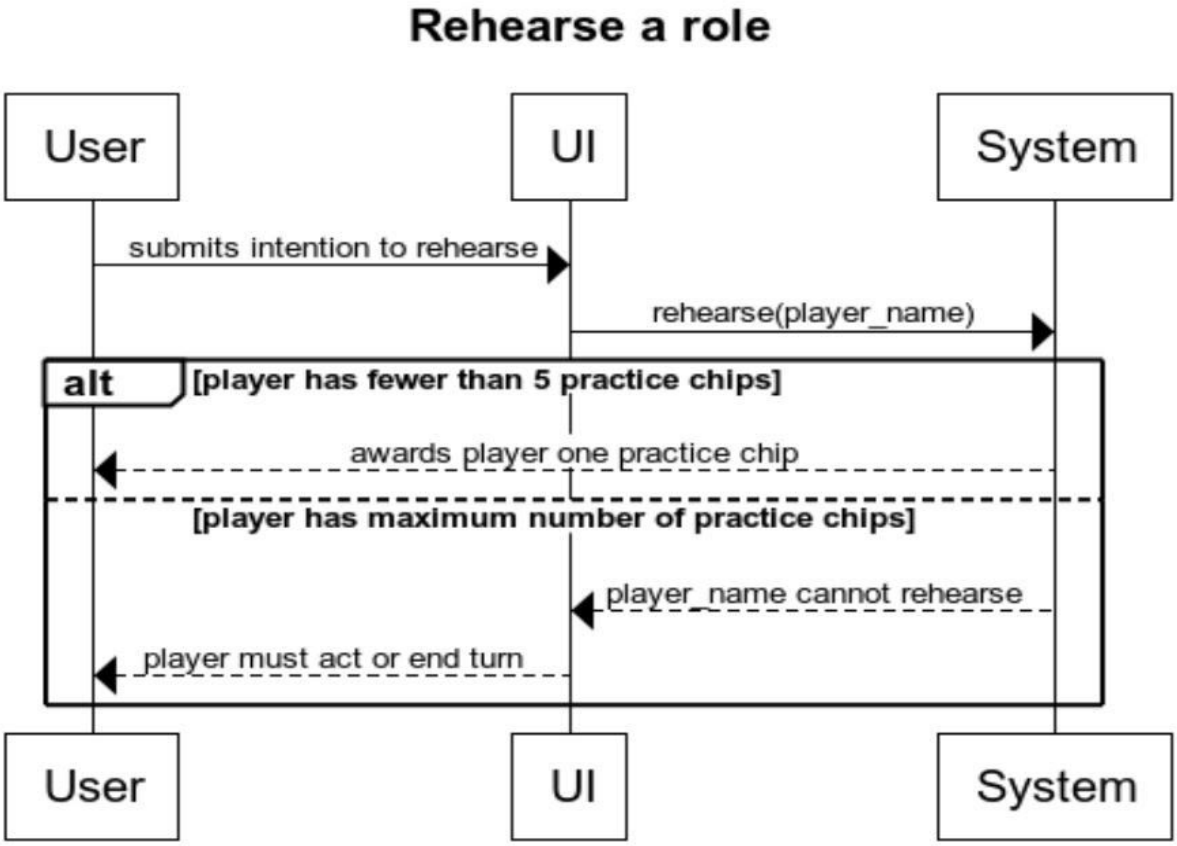
1) The Player chooses the option 'Rehearse'.
2) The Game adds one "practice chip" to the Player.

Alternate Flow - Step 1:

1a) The Player has a max of 5 "practice chips".

1: The Game does not allow the Player to choose the option for 'Rehearse'.

Sequence Diagram:



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Use Case Title: End Turn

Actors: Player and Game

Trigger: The Player wants to end their turn.

Pre-condition: The Player is either not working/taking a role or finished working (acting or rehearsing) if on a role already (as in on a role before the Player started their turn). It is also the Player's turn.

Post-condition: N/A

Termination condition: The Player's turn is ended.

Basic Flow:

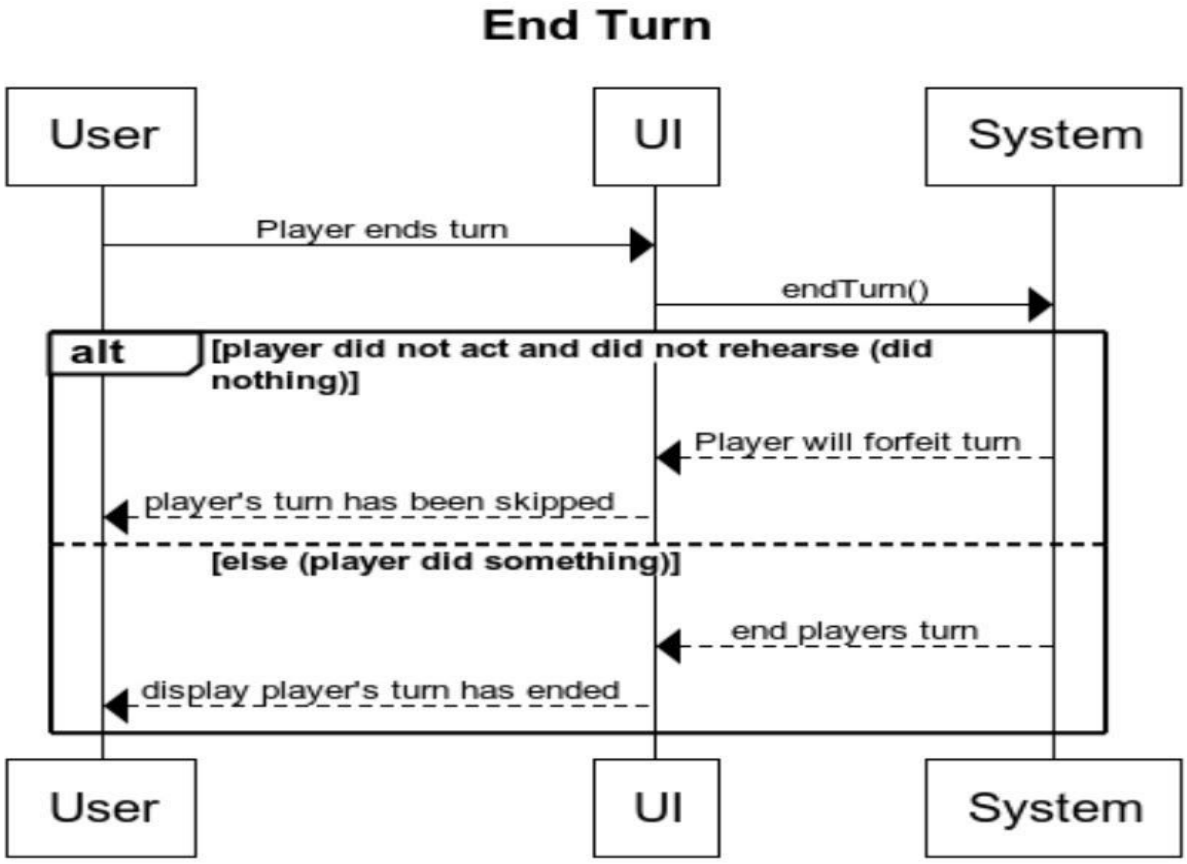
1) The Player chooses 'End Turn'.
2) The Game displays that the turn ended.

Alternate Flow – Step 2:

2a) The Game does not display the turn ended.

.1: The Game displays an error saying that the Player must work by either acting or rehearsing for the current role.

Sequence Diagram:



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Use Case Title: Manage Money

Actors: Game

Trigger: A Player requires money or credit.

Pre-condition: A Player does a successful roll to be able to earn dollars or credits.

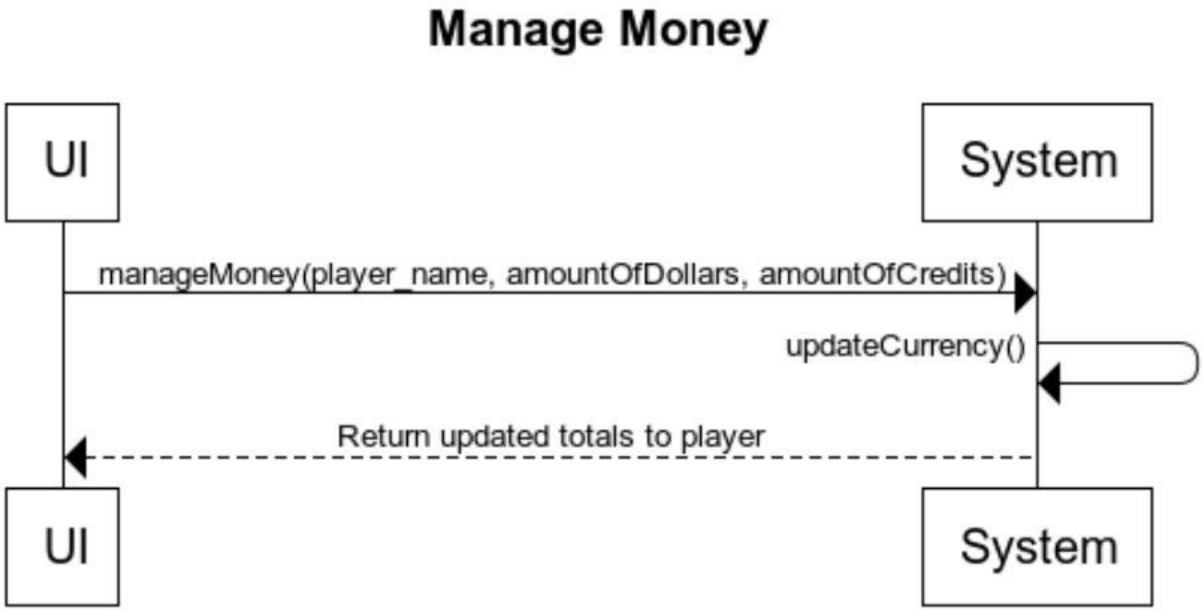
Post-condition: N/A

Termination condition: A Player earns dollars or credits.

Basic Flow:

1) A Player does a successful roll.
2) The Game adds dollars or credits to that Player.

Sequence Diagram:



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Use Case Title: Wrap a set.

Actors: Player, Board.

Trigger: Removal of final shot on set.

Pre-condition: Player(s) actively working on roles on set.

Post-condition: Player(s) may traverse to any adjacent set.

Termination condition:

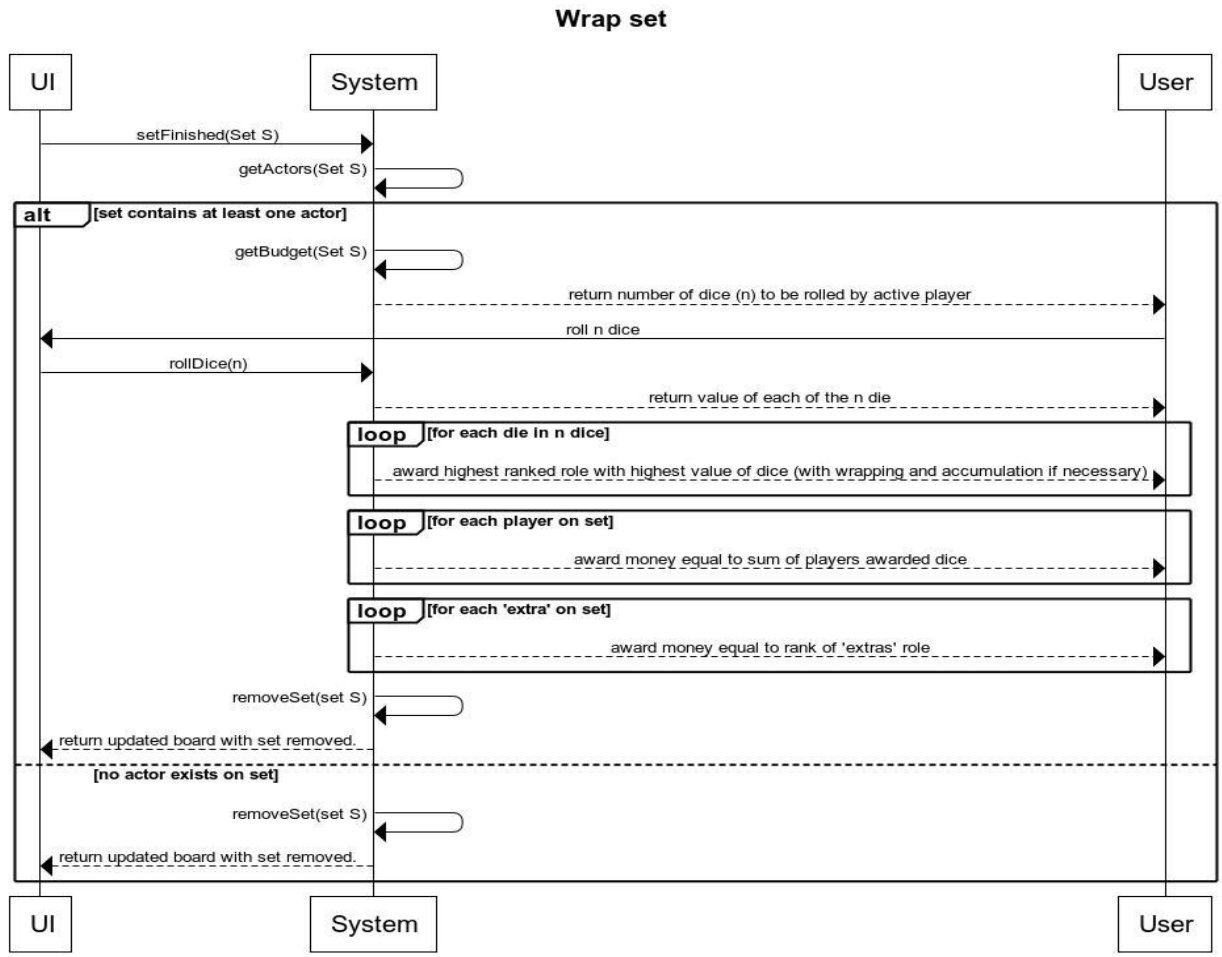
-- (on success) Monetary bonuses will be awarded if at least one actor (on card) is present at the time of wrapping up set.

-- (on failure) No money bonuses awarded. Players are free to move from set.

Basic Flow:

1) Game will generate n number of dice (where n is equal to the budget of the set.
2) Player will roll all n dice.
3) Highest die is awarded to highest ranked role, second highest die to the second highest ranked role, so on and so forth with "wrapping" effect; for all players working on roles for the set.
4) Money in the amount totaling the sum of each players' dice is awarded to each player in the set.
5) Additional money in the amount totaling the rank of their role is awarded to each extra (off-card) role.
6) Set card is removed and travel limitations for set players are removed.

Sequence Diagram:



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Use Case Title: Finish day.

Actors: Player(s), Board.

Trigger: Removal of the second-to-last scene card on the board.

Pre-condition: Player(s) removing the last shot on the second-to-last set.

Post-condition: All players transported to Trailer section of board, board is cleared of remaining set card and any remaining shots, and replaced with new scenes and shots.

Termination condition: The day is finished; board is reset.

Basic Flow:

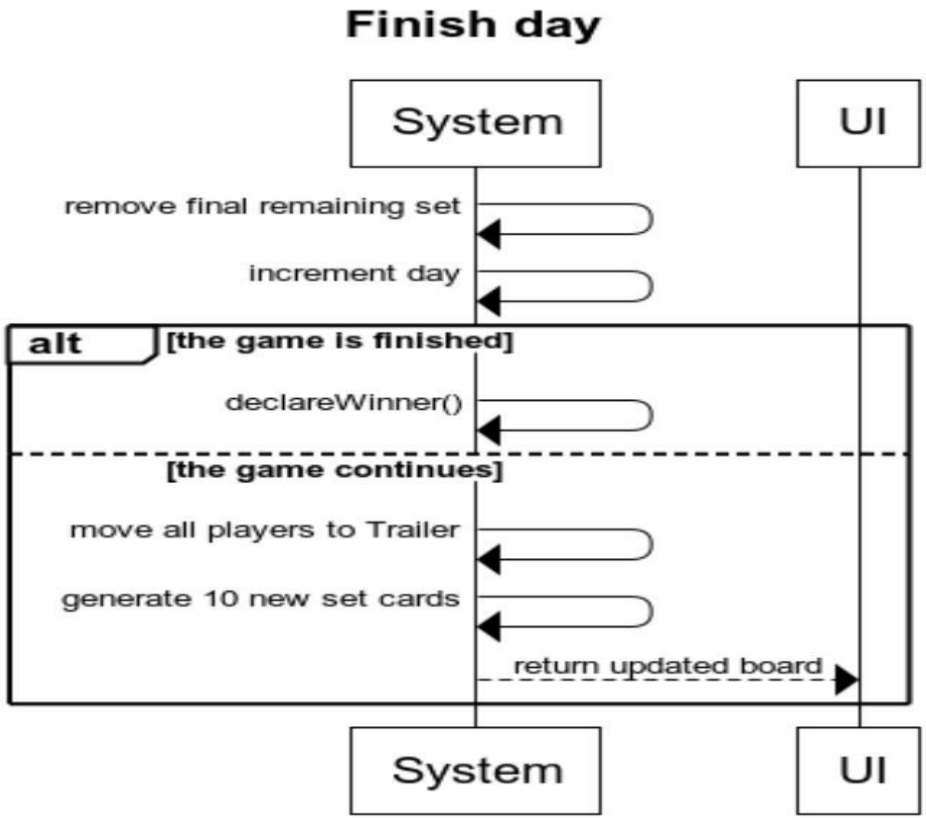
1) Lone, remaining scene is cleared from the board.
2) All players, regardless of status, are transported back to the Trailer section of board.
3) Same board configuration is used, repopulated with 10 new scene/set cards.
4) Board is repopulated with the appropriate number of shots for each scene.
5) Players resume play with previous “next” scheduled persons' turn.

Alternate Flow - Step 2:

2a) Day 4 has just completed and the game is over.

.1: Each players’ total is accumulated. Person with the highest total is declared the winner.

Sequence Diagram:



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Use Case Title: Upgrading rank.

Actors: Player(s), Board.

Trigger: Player desires to upgrade rank before or after a move.

Pre-condition: Player is located at the Casting Office.

Post-condition: Player "ranks up."

Termination condition:

-- (on success) player achieves new rank.

-- (on failure) player is unable to achieve new rank.

Basic Flow:

1) Player purchases new rank using Dollars or Points.
2) The appropriate amount of Dollars or Points are deducted from the players total.
3) Player moves to an adjacent part of the board if they have not moved yet this turn.

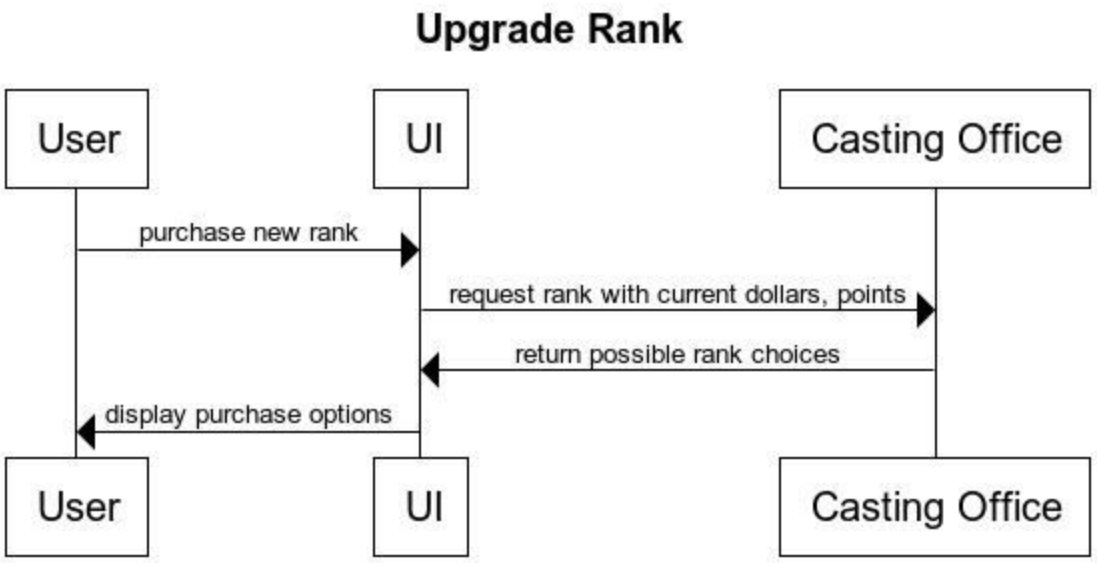
Alternate Flow - Step 1:

1a) Player does not have enough money or points to purchase the desired rank.

.1) Player purchases lesser, affordable rank; return to step 2.

.2) Player does not purchase a new rank; return to step 3.

Sequence Diagram:



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Title: Determining winner.

Actors: Player(s), Board.

Trigger: Completion of day 4.

Pre-condition: All players have accumulated some money, points, and/or rank.

Post-condition: Game is logged, all scores printed.

Termination condition: The winner is announced.

Basic Flow:

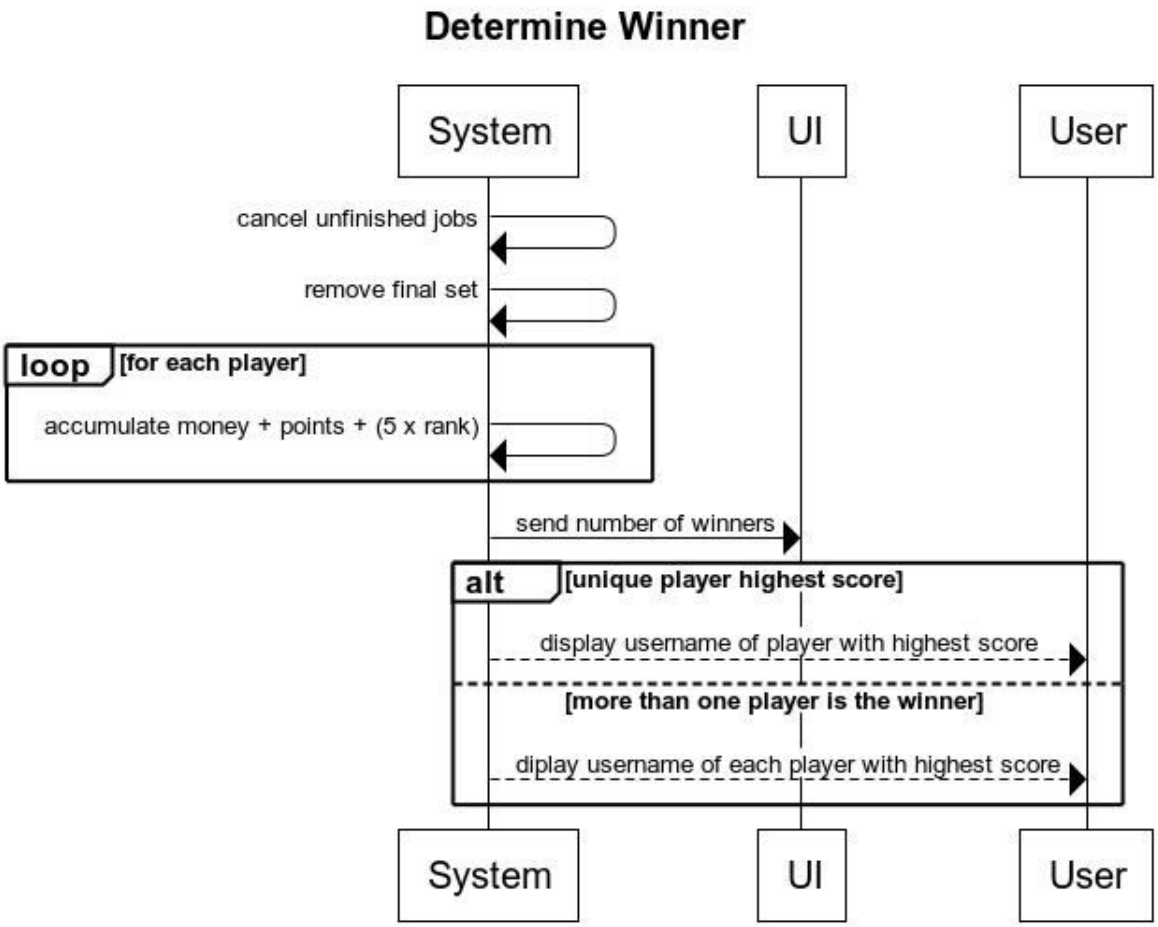
1) All unfinished "jobs" are cancelled.
2) Each players' money, points and rank (multiplied by 5) is accumulated.
3) Final score is sorted and displayed.
4) Player with the highest score is declared as the winner.

Alternate Flow - Step 3:

3a) More than one player has the same score.

.1: Players will be declared as a tie, jointly possessing positional rank; return to step 4.

Sequence Diagram:



CRC Cards:

Actor/Extra	
Maintain current role Ensure proper rank requirements are met Track/display rehearsal chips Roll dice	UI Set/Scene User/Player Dice

Board	
Display scenes/sets Display all players positions Display set "shots" Display day Display dice	Player/User Scene/Set UI

Die	
Display player rank Randomly generate number 1-6	UI Player/User System

Room	
Identify set/scene Identify adjacent rooms Identify players not assigned to roles	UI Set/Scene User/Player

Set/Scene	
Identify roles (actors and extras) Maintain availability of roles as Users select/accept new roles Enforce proper selection based on set budget Maintain number of shots based on player outcomes	UI Player/User Casting office Die/Dice

User Interface (UI)	
Display up-to-date board Allow for user interaction with system Relay system responses/returns Display additional game information (rooms, disposition of other players, etc.)	System User/Player Set/Scene Casting Office All places on the board

User/Player	
Identify with unique username Identify level or rank Identify current role assigned Notify system when role is completed	UI Set/Scene Casting office

UML Class Diagram: