Monopoly Game
Requirement Analysis Document

Requirement Specification Vision

We would like to redevelop the well-known Monopoly Game. The game shall be developed as console based one and will be a simulation. The user just starts the game by entering the number of the simulated players and then the game runs itself. The game shall run until one of the players' money vanished.

Problem Statement

Our team objective is to rebuild the old, familiar Monopoly Game from the rough, using Java.

Scope

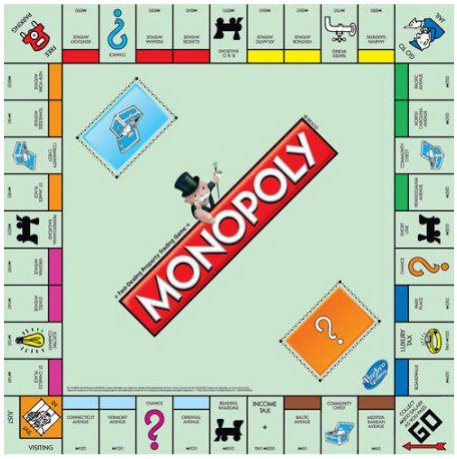

Figure 1: Sample Monopoly Gameboard

The Monopoly is a game in which players take turns and with the help of two equal dices make moves around a square-shaped gameboard as shown in Fig.1.
For the version that we're developing, the gameboard consists of small squares which have different meanings for the running of the game. There are 6 different types of squares that you're going to meet, which are: "GoSquare", "JailSquare", "GoToJailSquare", "IncomeTaxSquare", "LuxuryTaxSquare", "FreeParkingSquare". The game can be played with 2 to 8 persons. Each player starts the game from the GoSquare and takes his turn by rolling two dices initially, moving his player as much as total of the dice values.
A fter each iteration, the actual state of game and players will be displayed from the console. The specific rules of the game will be introduced later on. Game is running itself, there are no real player which plays the game, the flowing will be controlled by the computer.

System Constraints

Will run as a console application, there is no need to additional software to be installed except the Java IDE.
Allow up to 8 players to play maximum, 2 players minimum.
Will provide the current state after each iteration, the finishing scores, winners and losers of the game.

Stakeholders

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Rules

- Each player starts the with $200 cash.
- If the cash of a player is < $0 the he goes bankruptcy and he is removed from the game.
- Minimum number of the player is 2, maximum is 8.
- There are two simulated dices. With the total value of dices, next player moves on clockwise around the board the corresponding number of squares.
- If the player's position exceeds 40, the the position will be normalized by calculating the modulo of that number.

If one player;
- rolls doubles, he gains the chance of playing one more time
- rolls doubles three times in series, then he will be arrested and will be going to jail.

- The game has predefined number of iterations, and runs as much as that number.
- The winner of the game is decided by looking at cashes of each player at the end.

- If the players went bankruptcy and there's just one player left in the game, then that left player will be the winner.

Meanings of Square Types :

1) GO Square :
- If one player lands on "GoSquare" then the player collects $200 of cash.
2) Go To Jail Square :
- If one player lands on "GoToJailSquare" then the player is putting the "JailSquare" and the actions of Jail Square is implementing.
3) Jail Square :
- If one player lands, or is putting on "JailSquare" then the player must be waiting at the jail for the next 3 turns. BUT;
- The player can go out from the jail early "by paying $50 cash" or "rolling three doubles in one move."
4) Income Tax Square :
- If one player lands on "IncomeTaxSquare", then the player must pay 10% of his total cash unfortunately.
5) Luxury Tax Square :
- If one player lands on "LuxuryTaxSquare", then the player must pay $75 from his cash.
6) Free Parking Square :
- When the player lands on "FreeParkingSquare", then nothing happens to the player's position or his cash literally. He can continue his moving next turn of him.

Glossary of Terms (Alphabetically Listed)

Iteration: The turns that every player take their chances and move.

Gameboard: The main board that contains 40 squares, players and the dices.

Dice: The plastic cube with six faces which helps the movement of the players by rolling it.

Player: A simulated person who plays the game and take actions.

Square: The small rectangles are placed on the gameboard which the players land on.

Money: The numerical values that each player has, and the foremost feature of the gamet o decide who won/lose.

Bankruptcy: The statement that means a player's money is under $0 so left the game.

Position: The id of a square which specifies the location of the player on gameboard.

Use Cases:

Name	StartNewGame
Actor	User, System
Description	User starts the program
Condition	1. Application is running 2. The game is not currently in progress
Flow of events	1. The user starts the program 2. System asks the user the number of players 3. User enters the number of players.

Name	NextTurn
Actor	System, Player
Description	The players take their turns respectively
Condition	Application is running The game is in progress
Flow of events	1. The system decides in which player should move on the next time and takes that player as currentPlayer. 1a. If it is the starting of the game, then it is decided according to the DiceTournament 1b. If it is not the start, then it goes to the next player.

Name	TossDie
Actor	System, Player
Description	currentPlayer rolls two dices
Condition	Application is running The game is in progress
Flow of events	1. currentPlayer rolls the dices. 1a. The value that seen on the faces of dices are summed and it is equal to the totalValue.

Name	MovePlayer
Actor	System,Player
Description	currentPlayer is moved
Condition	Application is running The game is in progress
Flow of events	1. The player moves according to the totalValue of dices. 2. New position is decided by summing currentPosition and totalValue. 2a. If new position is exceeding 40, then the position is normalized by taking the modulo of that number.

Name	DoAction
Actor	System, Player, Square
Description	The specific action of the square is applied
Condition	Application is running The game is in progress
Flow of events	1. After the player moves, the system decides the type of the square that player landed on 2. According to the type of the square, the abstract method is applied. 2a. If the player lands on “GoSquare” collects $200 2b. If the player lands on “GoToJailSquare”, moves to Jail. 2c. If the player lands on “JailSquare”, he must pay the fee or wait 3 turns. 2d. If the player lands on “IncomeTaxSquare”, he must pay 10% of his money. 2e. If the player lands on “LuxuryTaxSquare” he must pay $75. 2f. If the player lands on “FreeParkingSquare”, nothing happens.

Name	DiceTournament
Actor	System
Description	The system decides the order of playing
Condition	Application is running The game is in progress
Flow of events	1. Each player rolls the dices once 2. The system lined up the players according to the values of dices.