**Requirement Analysis**

**Vision**

The aim of this project is to create a Java Simulation version of the board game Monopoly. In this project, you can see some several features that is same with the board game version.

**Scope**

This game will provide the following functionality:

One and only interaction between user and computer and computer asks the input number. All the players will create by the system. Then system creates by default 40 squares, 2 dice and 8 pieces. System will assign different pieces for each player. Then players will start from the start square then moves pieces by the value of total dice number. It keeps doing this for 20 rounds for every player. By

the second iteration, we add various features to the squares like go square, jail square, free parking square, income tax square, luxury tax square. Players starts from go square and they have $200 cash and may players go to jail if they move to the jail square. Free parking square is a corner square and here nothing happens. Income tax square is a square that players must pay %10 of their total assets.

At the luxury tax square players who land on it must pay $75 to the bank. With the third iteration; we implement Lots, Railroads and Utility Square. Players who land on these squares may buy them. If the square is owned by another player than the one that landed on it the player must pay rent to its owner.

Our scope is to create the monopoly board with squares, move the players on these squares, when to show the necessary behaviour according to special squares when the player comes on and to make the purchasing and lease payment transactions for the purchased squares.

**System constraints:**

\*Will run within a CMD environment and therefore no additional software to be installed on a client machine.

**Stakeholders:**

Murat Can GANİZ (Customer)

Berna ALTINEL (Customer)

Ebru KIZILKİREN (Project Manager, Analyst/Programmer)

Meryem Gökçe ER(Project Manager, Analyst/Programmer)

**Glossary of Terms**

Board - A place where the game simulated and where squares, pieces and dice located

Die - An item that has 6 integer values from zero to six on its faces

Piece - An item that player owns to represent him/her.

Player - A person who plays game which is created by the system

Square - A location of a piece of a player. At the same time, one of the 40 parts of the board. Also it extends the PropertySquare.

GoSquare – The first square on the board.

JailSquare – 30th square on the Monopoly board.

FreeParkingSquare - Free Parking is a corner square on the board diagonally opposite to Go Square.

IncomeTaxSquare - Income Tax is the fourth square on a standard Monopoly set.

LuxuryTaxSquare - Luxury Tax is a space on the Monopoly Board nestled between Park Place and Boardwalk.

RegularSquare – Square without any feature.

RailRoadSquare – There are four railroad squares at positions 6,16,26,and 36 named as "RailRoad1", "RailRoad2", "RailRoad3", "RailRoad4". The price for a railroad square is 200.

PropertySquare – An abstract class that extends UtilitySquare, RailRoadSquare and UtilitySquare.

UtilitySquare – There are two Utility Squares at positions 13 and 29, named as "ElectricUtility" and "WaterUtility". The price for a utility square is 150.

LotSquare – Purchasable squares.

**Use Cases**

*User enters the how many players will exist.*

*User enters the name of the players.*

*User enters the initial cash of all players.*

Actors: User, Monopoly Simulation System

Precondition: none

1: Monopoly Simulation System asks to user how many players will exist.

2: User enters the number of players.

3: User enters the name of the players.

4: User enters the initial cash for all players.

5: Monopoly Simulation System shows ‘GAME STARTED!’ message.

6: Monopoly Simulation System creates the board, 40 squares on the board, the number of user entered players on the board, 8 pieces, 2 dice.

7: Monopoly Simulation System assigns a different piece for all the players that are created.

8: Monopoly Simulation System located all the players on the square 0 which is named as Go Square

9: Monopoly Simulation System gives turn to each player input round number.

10: Monopoly Simulation System moves player’s pieces on the board according to their current locations and face values of their rolled dice.

11: If the player comes to Go To Jail Square or rolls doubles three times in one move; it moves directly to the 10th square on the board. A player's turn is suspended until either the player rolls a double or pays to get out.

12: To get out of the jail early by Rolling Doubles on any of that player's next three turns in Jail or Paying a $50 fine to the Bank BEFORE throwing the dice for either the first turn or the second turn in Jail.

13: If the player comes to Free Parking Square nothing happens and they move off the space on their next turn.

14: Player may land on the Luxury Tax Square and players who land on it must pay $75 to the Bank.

15: If the player comes to Income Tax Square he or she must pay 10% of their total assets which means total cash on hand.

16: If the player comes to Water Utility or Electric Utility Square and if it has not got an owner than player can buy this square with 150 dollar cash. If it has an owner than the rent rules for these square,

Player who lands on these squares will pay the owner 10 times the roll of a dice.

17: If the player comes to Rail Road Squares (Railroad1, Railroad2, Railroad3, Railroad4) and if it has not got an owner than player can buy this square with 200 dollar cash. If it has an owner than the rent rules for these squares, a player who lands on these squares will pay the owner 5 times the roll of a dice plus 25.

18: If the player comes to Lot Squares and if it has not got an owner than player can buy this square with given price at the excel file. If it has an owner than the rent rules for these squares, given rent price at the excel file.

19: A player goes bankruptcy and removed from the game if it cannot pay a rent or tax.

20: The simulation ends when a single player left in the game.

21: The simulation shows the winner with his/her current cash and purchased squares.

Alternatives:

2a: User enters the value which is smaller than 2.

1. Monopoly Simulation System says ‘Player number must be greater than or equal to 2’
2. Return to Step 2 and user enters new value for the number of players.

2b: User enters the value which is greater than 8.

1. Monopoly Simulation System says ‘Player number must be smaller than or equal to 8’
2. Return to Step 2 and user enters new value for the number of players.