

## CSE 3063 OBJECT ORIENTED PROJECT # 1

### Monopoly Game

**Requirement Specification Vision:** We plan to make a monopoly game system which will run as a simulation. This is a software version of the game. The user will start the game and specify the number of players, their names and iteration number and initial cash of players on simulation. Then the user will watch the game until it is completed. During this time, the game will show actions of simulated players. In the second iteration, we plan to implement different types of squares such as go square, jail square and various types of squares with their actions. In third iteration, there are property squares to analyse, design and implement into the game: "Lots", "Rail Roads" and "Utility Squares". Simulation will end until one player stays in the game and until enough amount of iteration. In the console, the user can see the player's all actions, locations and destinations, amount of money and etc.

**Problem Statement:** In this project, monopoly game implementation will be developed. This game is a simulation where players roll two six-sided dice to move around the game-board. This will be just a simulation; therefore it does not involve whole game requirements such as we do not need to handle with house rules, etc. In second iteration, we handle with Bank, players can earn money when come again to Go square. There is Free parking square with no action. Go to Jail square is used in order to send player to Jail. Jail square consists of two actions: in jail and just visiting. If a player comes Jail for just visiting, the player rolls dice and go on its movement. If a player comes Jail as "in jail", the player should pay 50\$ to get out of the jail. When a player comes to land on the Income Tax square, he or she must pay 10% of their total cash. In Luxury Tax, the player who land on it must pay \$75 to the Bank. A game iteration will complete when all players takes their turns, and player's name, cash, current square, dice face values, following square, and actions associated with the landed square will be shown. For property squares, players who land on these squares may buy them. To decide buy a square is occurred randomly. If it has an owner, the player except owner who landed on it must pay its owner rent. Lot Squares have different prices and rents. Rail roads have \$200 for price and Utility squares have \$150 for price. The simulation ends when a single player left in the game.

**Scope:** Monopoly application. The game plays by the similar rules as the standard board game. Also, it will provide a person to begin the game by indicating number of players, their names and iteration number, and also initial cash amount for game.

### System Constraints:

- Provide only text trace mode
- No use of graphical user interface
- No use house rules
- Money cannot be gained or lost through Chance and Community Chest cards
- At the beginning, every player starts on this square with user-determined initial cash amount .
- Player earn \$200 only and only if land directly on Go square!
- Go To Jail, send player to Jail square
- A player come jail square when landed on Go To Jail or rolling doubles of dices three times successively
- To get out from Jail, player must pay \$50
- In Income Tax square, player must pay 10% of all of the player's cash
- In Luxury Tax square, player must pay \$75
- Two or eight number of players can play
- Forty squares on the board
- Players turn around squares on the board the board as clockwise
- There are property squares (lots, railroads, and utility). Property squares have different prices and rents.
- When a player come to property squares, the player may buy them. If these have no owner, player can decide to buy randomly. After deciding, if the player has enough money to buy and rolls dices greater than 4, she or he can buy the square.
- When another player come to these property squares, if that player is not owner of the square, she or he should pay rent to owner.
- When a single player left in the game, the game will end.

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### Glossary of Terms (Alphabetic listed):

Board: A place which the game is played on.

Dice: A pair of six-sided dice.

Observer: A person starts the game and specifies the number of simulated players.

Player: A person who is simulated to play the game.

Square: Part of the board provides the players land on.

### **Use cases:**

- Observer run the program
- Observer specify the number of the players, number of iteration, name of the players, amount of initial cash
- The game is run as computer simulation
- During simulation players roll the dice
- Program print the face values and sum of them, location of players
- Players move forward on squares as sum of the values of faces
- The landed square has special actions, program make them and print the necessary outputs about the landed square and its actions.
- Program print the current location of player,
- When each player is played, one iteration will be completed.