Monopoly – Scientific Games

Class **Cell**

For each properties, chance, community and tax blocks on the board. It contains the following members

- Name
- Price
- Rent
- Status (Sold or not)
- Type (buyable or unbuyable)
- Owner (as this is a two-player game, we can store the owner here)

Class **Board**

- 40 cells combined forms a board.
- Loads and XML file that contains values for all cell members.
- The position of each cell is populated based 10 waypoint transforms in unity scene.

Class **Player**

A player can have the following:

- Money
- Number of Railroads
- Number of utilities
- Current position
- Can also have the list of cells if the there are more players in game.
- ID, if it is a first or second player

Functionalities of a player can be to buy a property, pay a rent to another player, and paying taxes.

Things we can implement in future: bidding on a property, building houses/hotels

Abstract Class **Action**

Based on this abstract class, we can create more actions like trade, auction, go to jail, release from jail and so on.

In future, we can execute couple of actions one after the other (example: buy and trade or mortgage and pay tax).

Class **Game**

It's a main class that manages operations on the board and the player actions.

- Two players
- Two dices
- Reference to the board
- Reference to all the available actions (buy, tax and rent)

Swaps the player every turn and each turn dice is rolled and checks what actions the player can perform.

MONOPOLY - SCIENTIFIC GAMES

CELL CLASS

~~PROOF~~ ~~RENT~~ INT RENT
bool SOLD?
bool Mortgage?
bool PlayerOne
⋮ ⋮

CLASS BOARD

CELL [40]
Vector2 pos[40]
void InitializeBoard()
void HandlePlayer(Player*

Class Player

~~PropertySell~~
String properties[ ]
int Money

<~~Root~~>
<cell>
<—
—
</cell>
ColorStripe[3]
Go[ ]

CLASS PLAYER

String properties[ ]
int Money
int railroad
int utilities
Vector2 LocationPlayer

39 - 39 + 2
39 - 5 + 2
32 + 2 = 34
~~5~~ - 39 + 2
5 + 2 = 7
38 + 2 = 39
40 - 39
1 2

Buy( )
Check if colorstripe[ ]
~~check if~~ the cost < money

OnDiceRollEvent( )

~~Add~~ Go →