The board keeps track of all coordinates where cards can be placed, all coordinates where cards can never be placed and all symbols that are currently visible.

To do this it uses a hashmap where placeable coordinates are keys to an arraylist of symbols that will be covered if a card is placed there:

HashMap<Coordinates, ArrayList<Symbol>>

placeableCoord

It also uses an array list to store all the coordinates where it is illegal to place cards.

ArrayList<Coordinates>

unplaceableCoord

Lastly there is a hashmap where Symbols are keys to the number of visible occurences on the board

HashMap<Symbol, Integer>

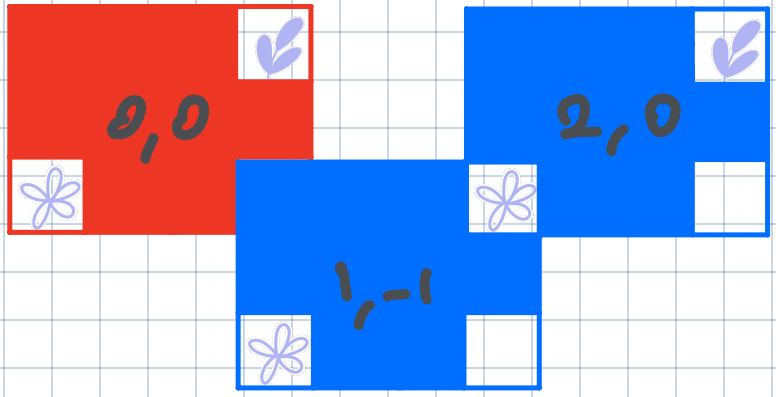
visibleSymbolCounter

For example MUSHROOM is the key to how many mushrooms are visible on the board

Keeping track of visible symbols is necessary for assigning points during and at the end of the game

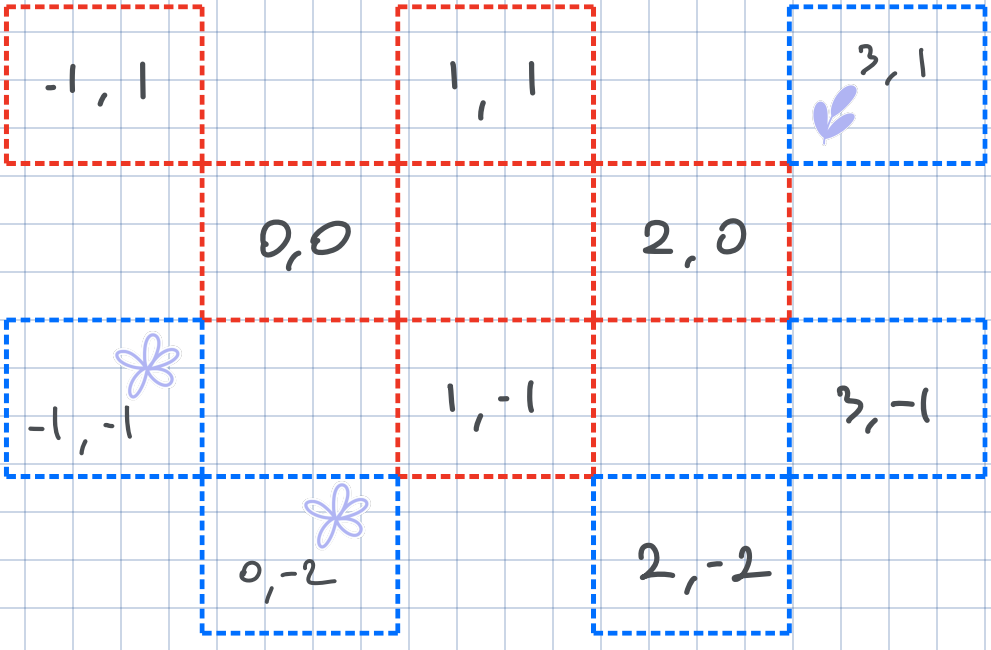
So in our model we don't keep track of where cards are placed, but only where they can't be and on what symbols are visible.

Actual game



⇓

Our model



placeableCoord :

-1,-1 → flower

0,-2 → flower

3,1 → lead

unplaceableCoord :

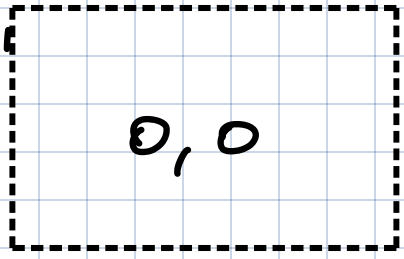
[0,0] [1,-1] [2,0] [1,1]

[-1,1]

visibleSymbolCounter:
flower -> 3
leaf -> 2

Here is an example of how the game can play out and how the board attributes evolve:

In the beginning the only placeable coordinates are (0, 0)

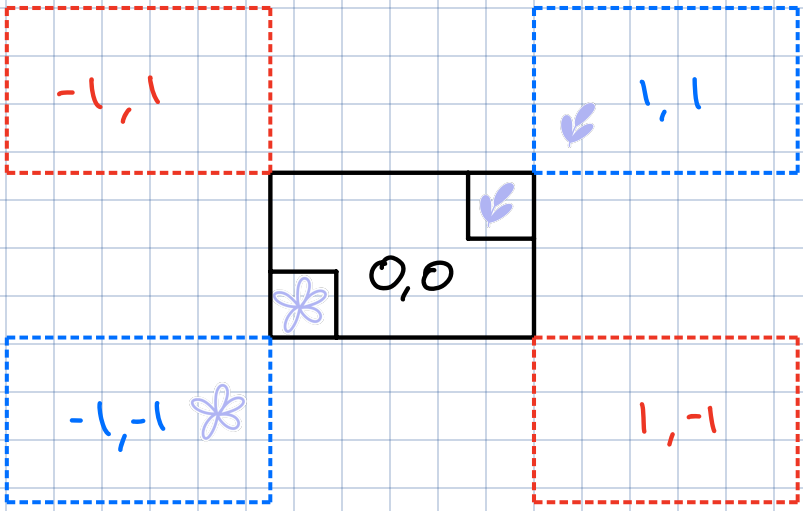


placeableCoord:
0, 0 -> null

unplaceableCoord:
null

visibleSymbolCounter:
null

Once you place a card all board attributes are updated



placeableCoord :

-1,-1 → flower

1, 1 → leaf

unplaceableCoord :

[0,0] [-1,1] [1,-1]

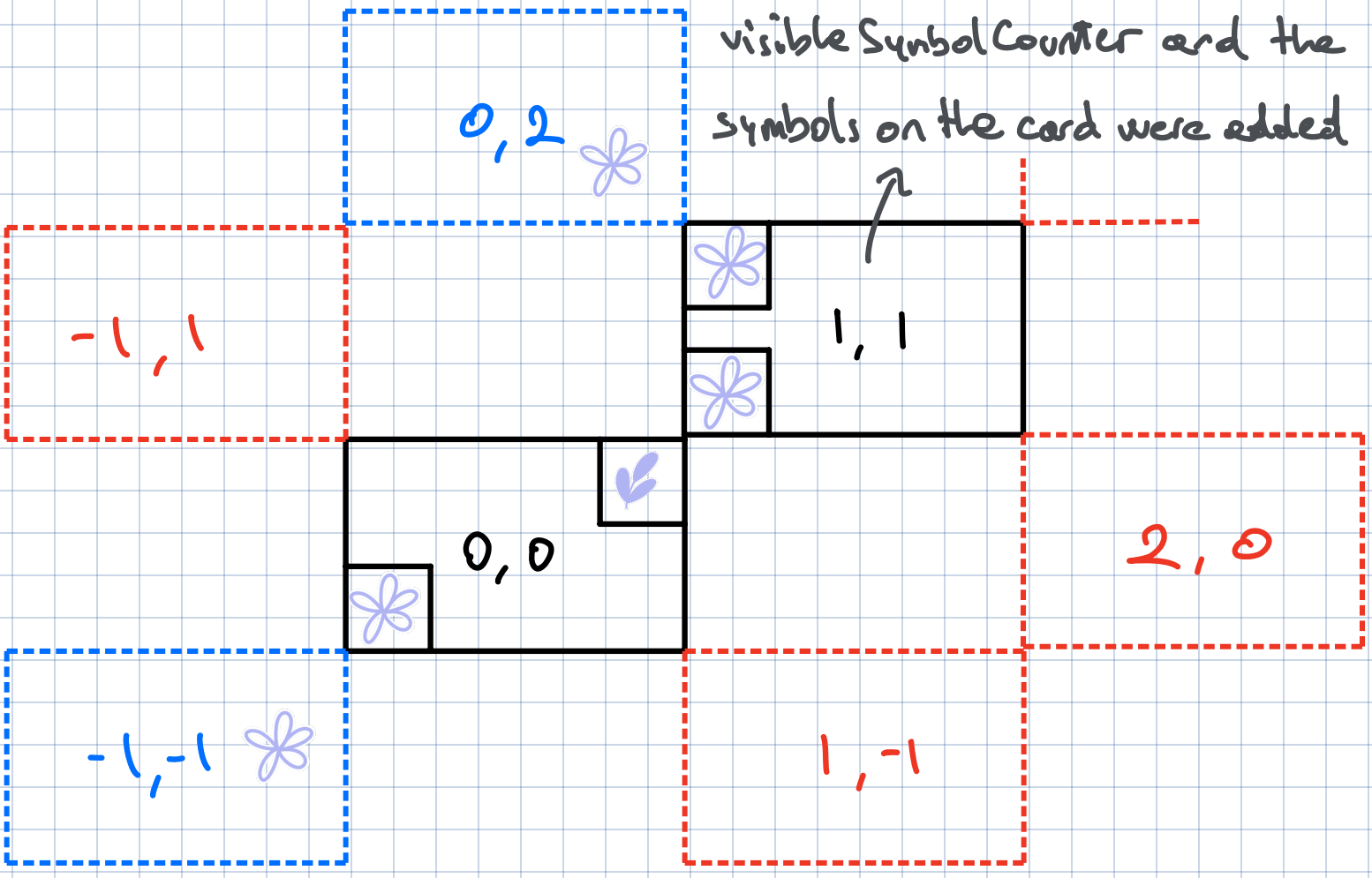
visibleSymbolCounter:

flower → 1

leaf → 1

These are some examples of how the board might evolve

The symbols that were here were removed from visibleSymbolCounter and the symbols on the card were added



placeableCoord :

-1, -1 → flower

0, 2 → flower

unplaceableCoord :

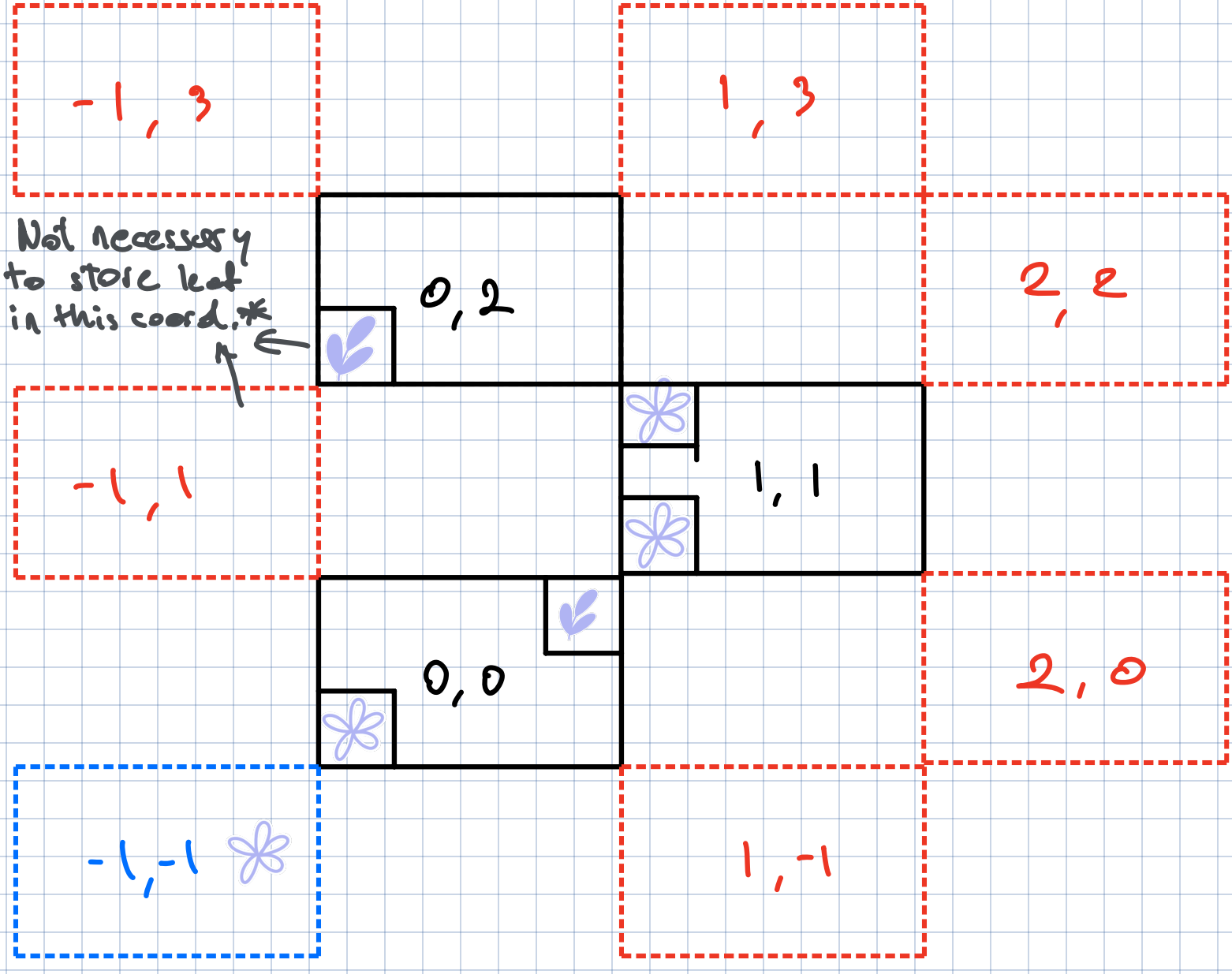
[0,0] [1,1] [2,0] [1,-1]

[-1,1] [2,2]

visibleSymbolCounter:

flower → 3 (1+2)

leaf → 0 (1-1)



placeableCoord :

-1, -1 → flower

unplaceableCoord :

[0,0] [1,1] [2,0] [1,-1]

[-1,1] [-1,3] [1,3] [2,2]

visibleSymbolCounter:

flower → 2 (3-1)

leaf → 1 (0+1)

*the leaf didn't need to be stored in unplaceableCoord. because it will never be

covered.

Important !

In placing that card in (0, 2), according to the ruels (-1, 1) must remain unplaceable, that is why the board must keep track of unplaceable coordinates. If we didn't, how could you know weather it is ok for the coordinates (-1, 1) to be placeable?