



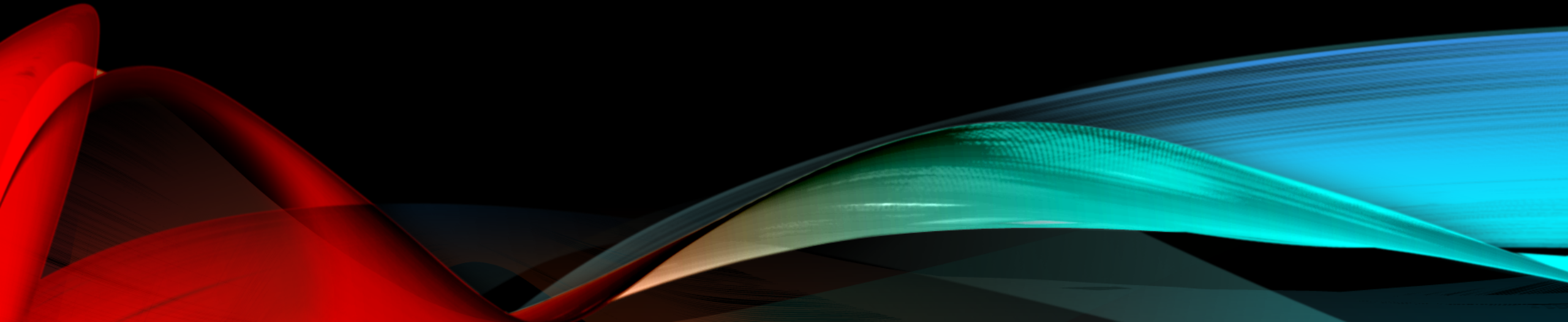
PROJECT: MINESWEEPER

CS622 advanced Java Programming

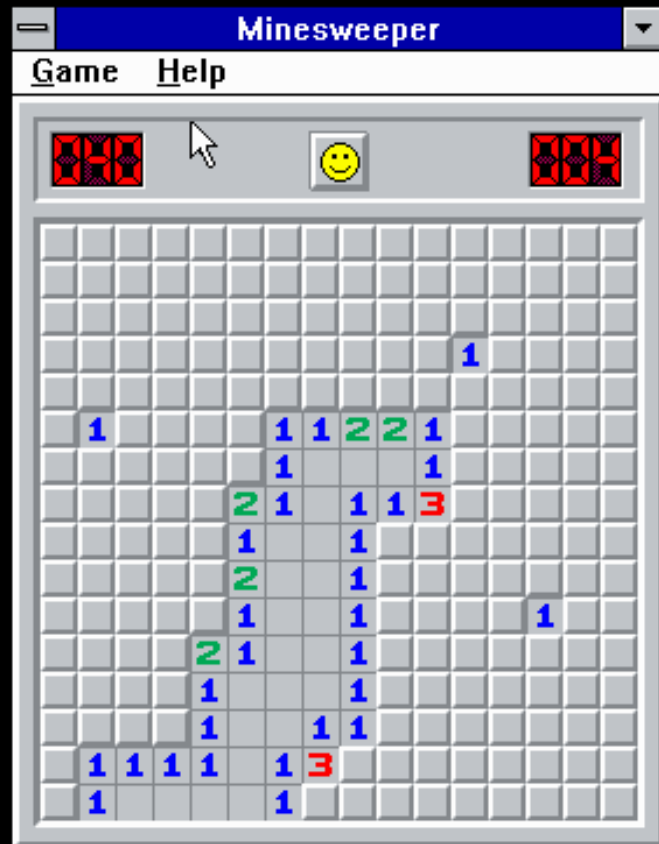
Chun-Chieh Liang (Hank)

MINESWEEPER

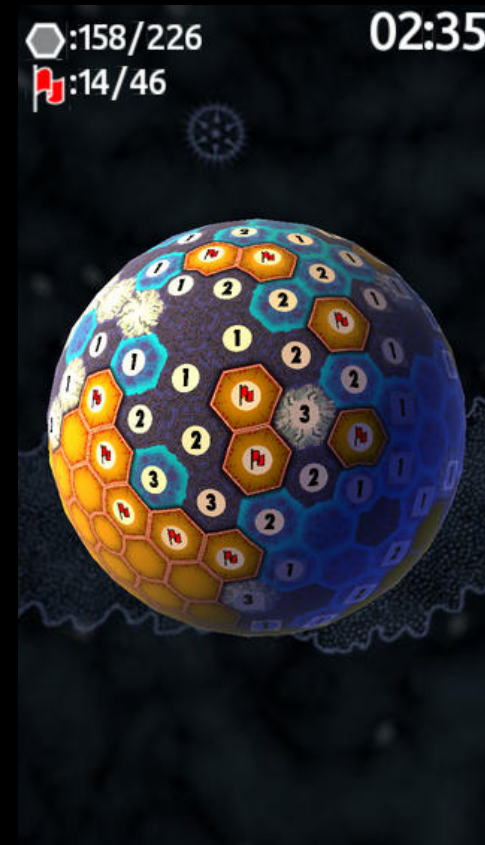
A classic puzzle game



WINDOWS 3.1 (1992)



VARIATIONS

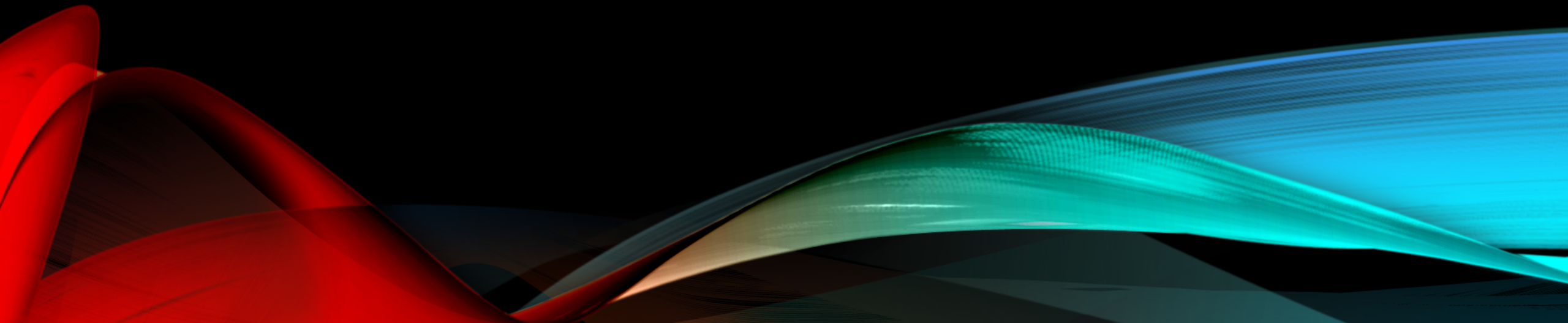


https://static.giantbomb.com/uploads/original/10/103881/2330133-minesweeper_flags_8.jpg

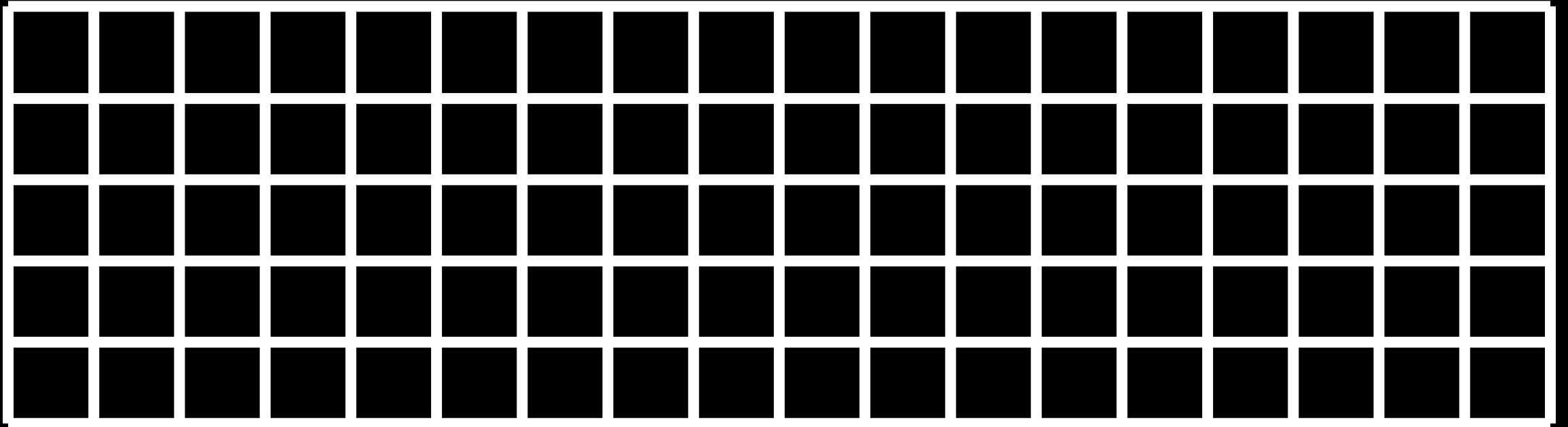
<http://a1.mzstatic.com/us/r30/Purple/v4/27/e9/23/27e92380-79ff-2830-7b09-400616704597/screen568x568.jpeg>

THE RULES OF MINESWEEPER

The Algorithm

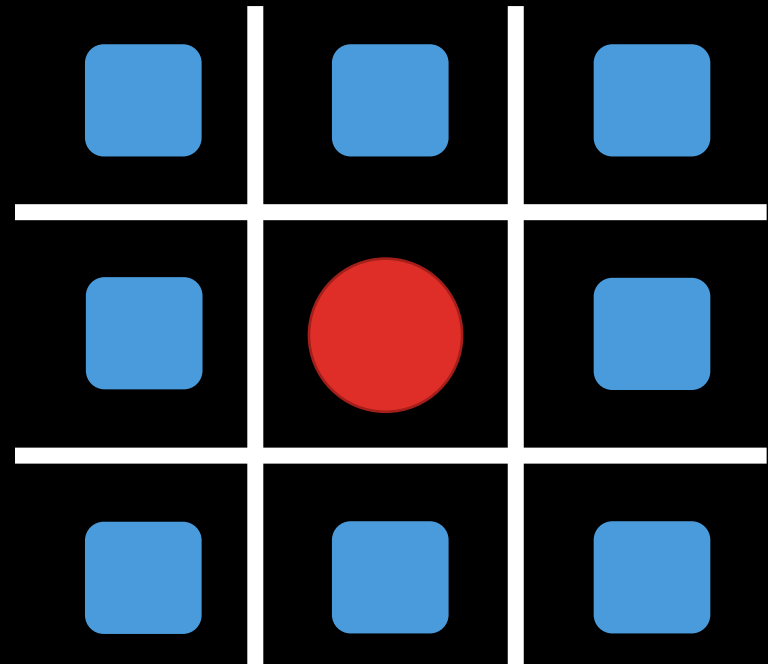


BOARD



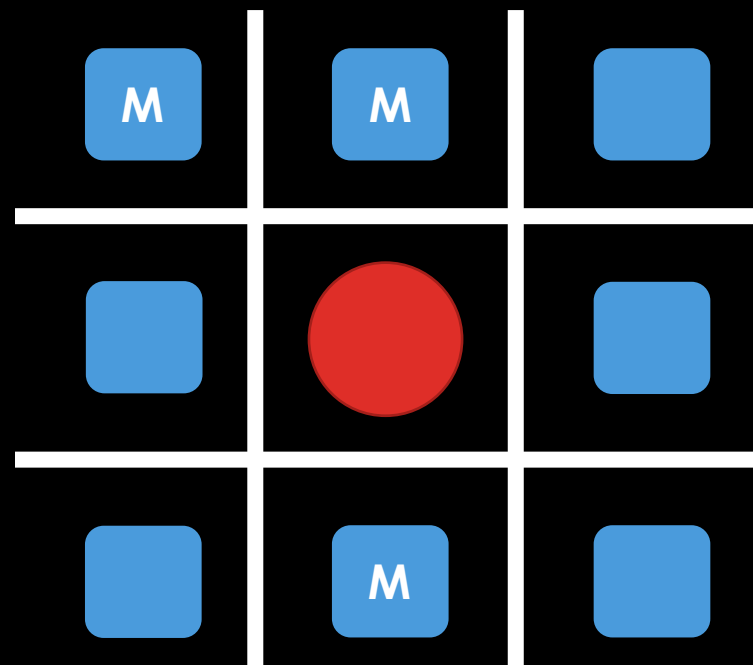
INTERACTION

- 1. Left-click: reveal
- 2. Right-click: flag



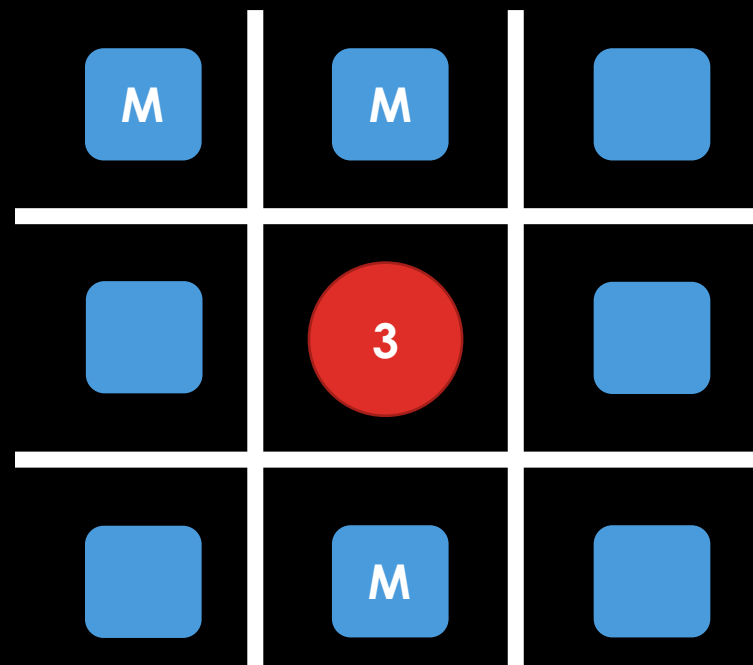
RULE

- Left-click on a cell:
 - If **this cell** is not a mine
 - If **neighbor cell(s)** have mine(s), **this cell** shows count of the mine(s)



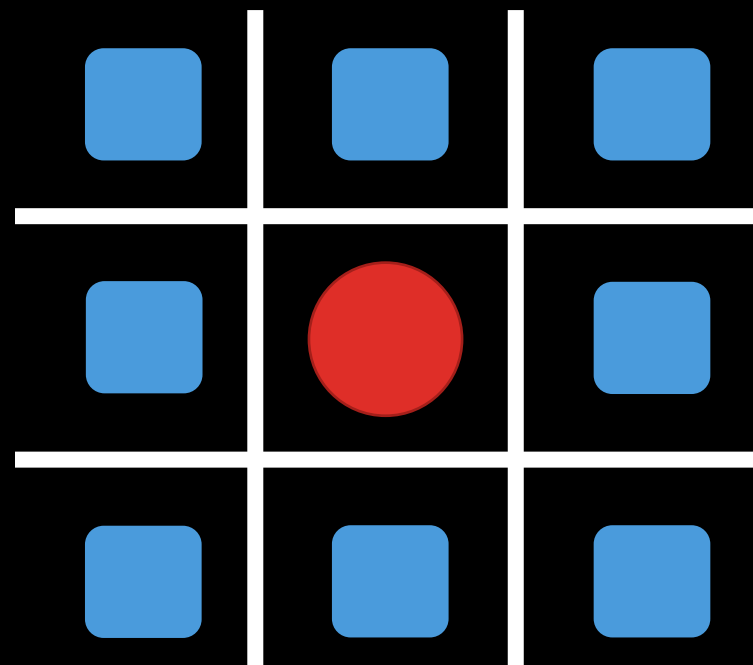
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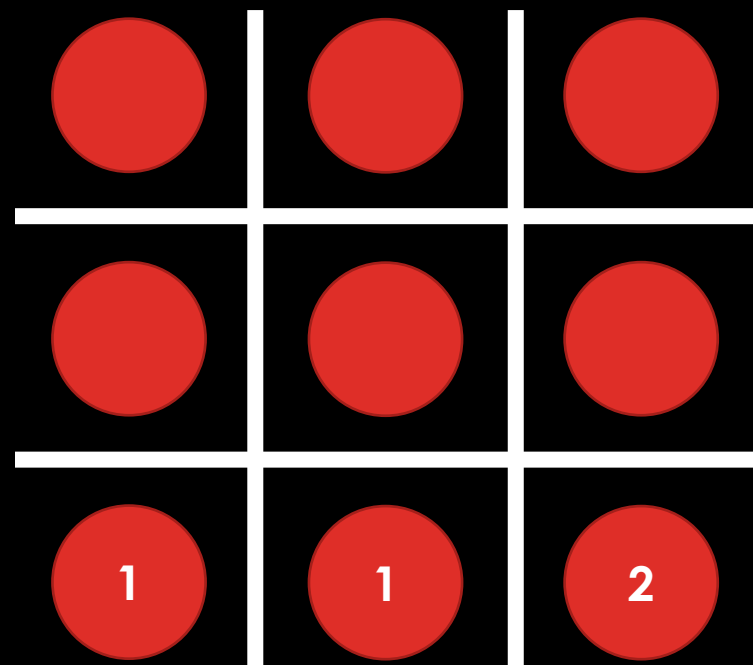
RULE

- Left-click on a cell:
 - If **this cell** is not a mine
 - If **neighbor cell(s)** have mine(s), **this cell** shows count of the mine(s)
 - If **neighbor cells** have no mines, the **neighbor cells** open



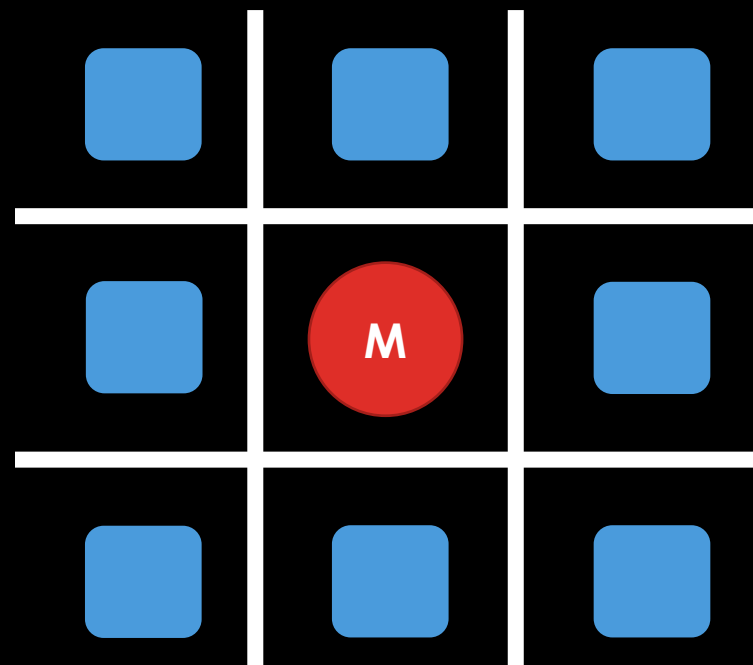
RULE

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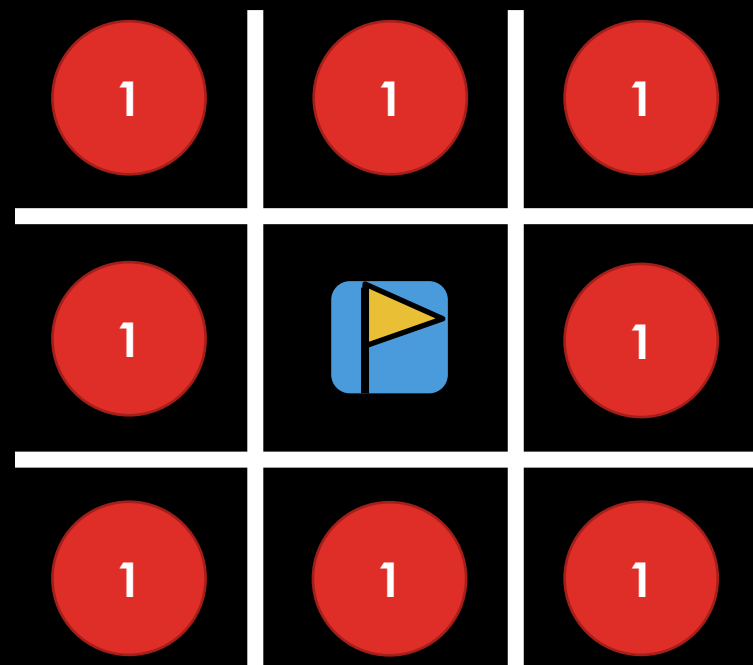
RULE

- Left-click on a cell:
 - If **this cell** is not a mine
 - If **neighbor cell(s)** have mine(s), **this cell** shows count of the mine(s)
 - If **neighbor cells** have no mines, the **neighbor cells** open
 - If **this cell** is a mine, boom!



RULE

- Left-click on a cell:
 - If **this cell** is not a mine
 - If **neighbor cell(s)** have mine(s), **this cell** shows count of the mine(s)
 - If **neighbor cells** have no mines, the **neighbor cells** open
 - If **this cell** has a mine, boom!
- Right-click on a cell: Put a flag on **this cell**



PSEUDOCODE

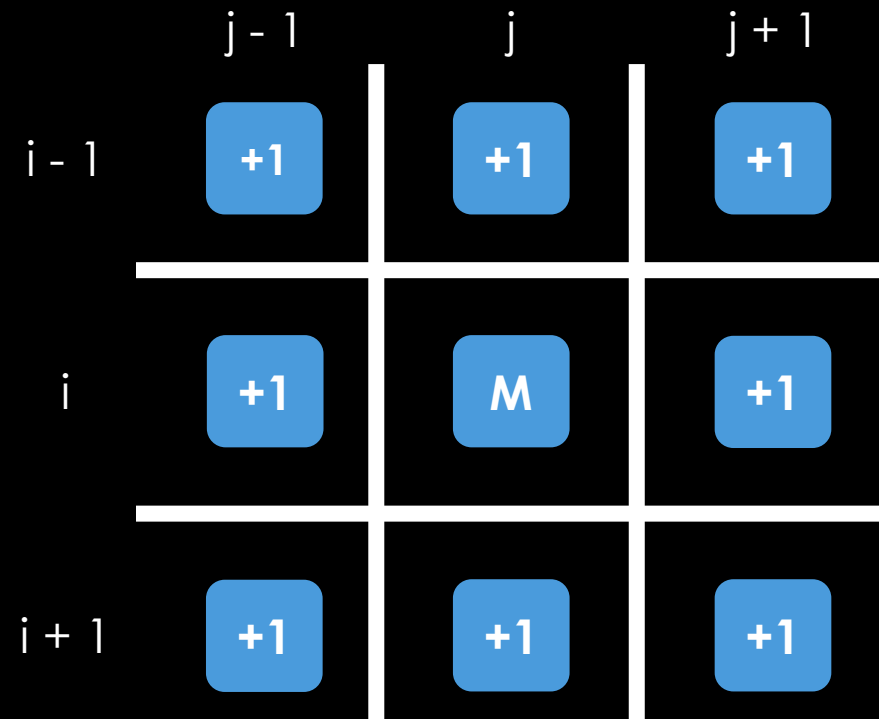
```
openCell (this cell)
if this cell is not a mine:
    if neighbor cell(s) have mine(s):
        this cell shows count
    else:
        openCell (neighbor cell)
else:
    gameover
```


SHOW COUNTS

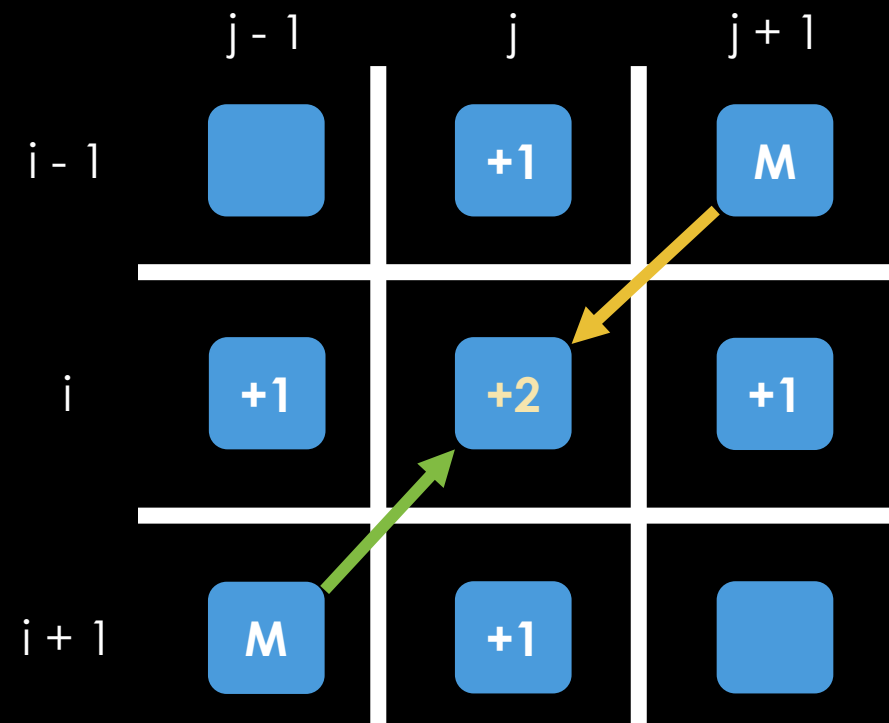
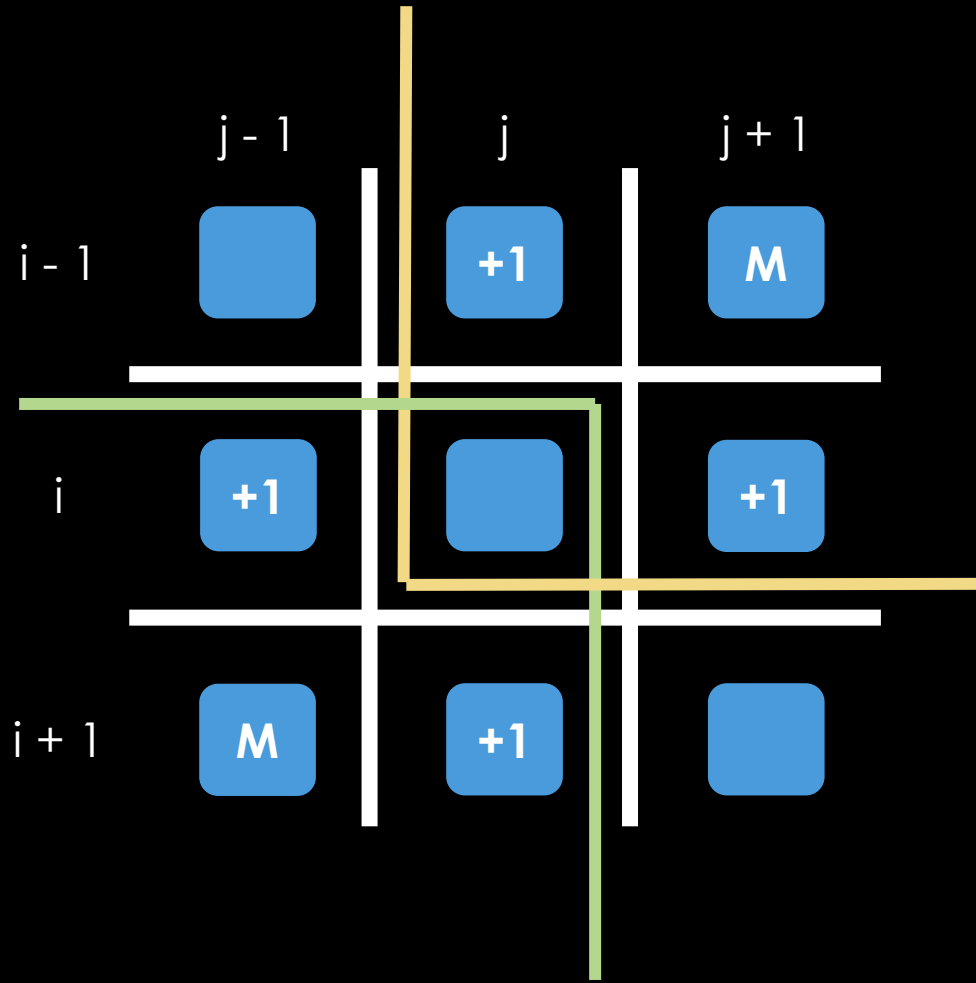
	$j - 1$	j	$j + 1$
$i - 1$	0	0	0
i	0	0	0
$i + 1$	0	0	0

SET CELLS' INFORMATION

```
for (int i=0; i < board.length; i++)  
    for(int j=0; j < board.width; j++) {  
        if( cellInformation[i][j] == MINE) {  
            // previous row  
            MineCountAt(i-1, j-1);  
            MineCountAt(i-1, j);  
            MineCountAt(i-1, j+1);  
            // left and right cells  
            MineCountAt(i, j-1);  
            MineCountAt(i, j+1);  
            // next row  
            MineCountAt(i+1, j-1);  
            MineCountAt(i+1, j);  
            MineCountAt(i+1, j+1);  
        }  
    }
```



SET CELLS' INFORMATION





DEMO

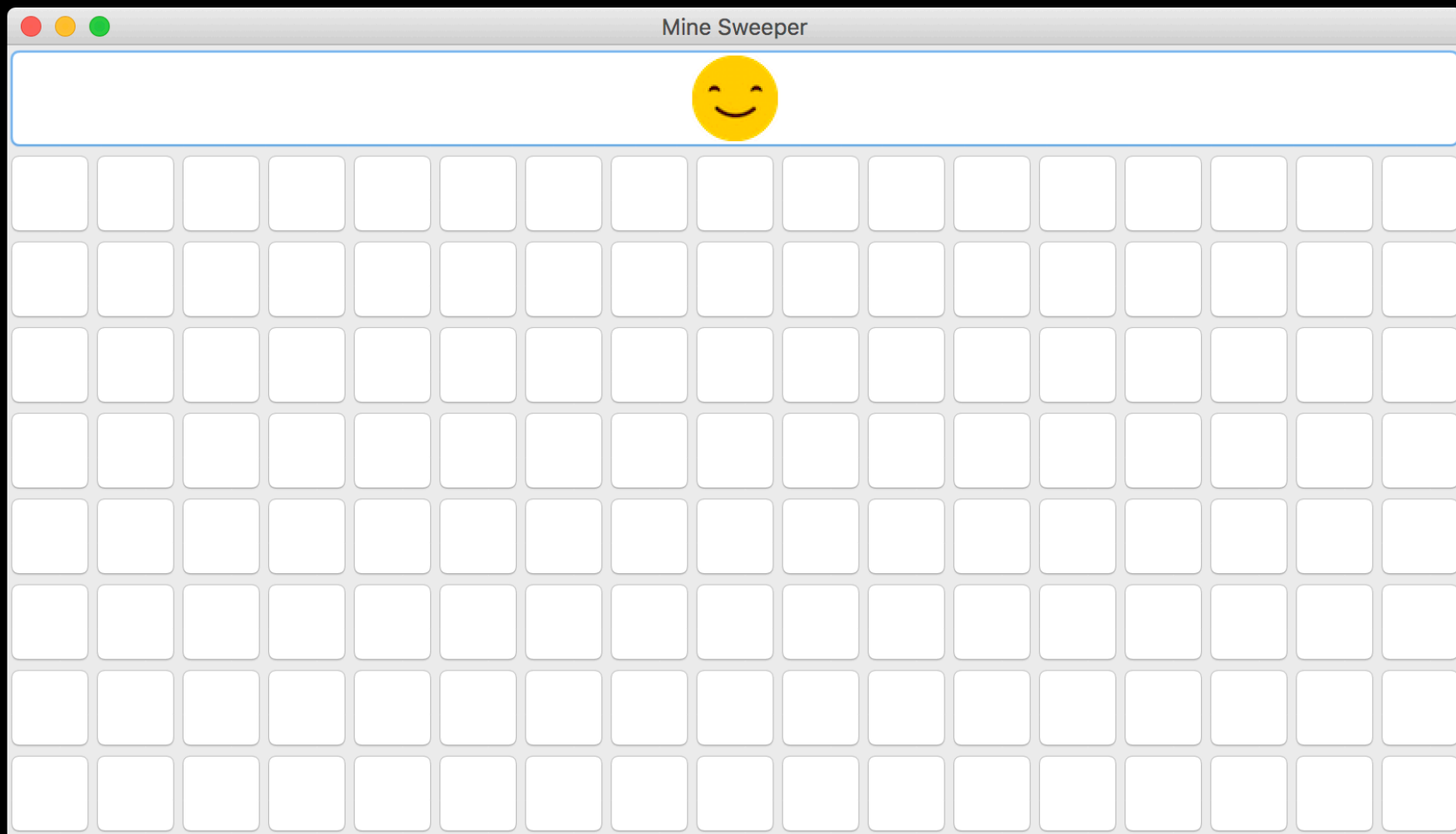
Contribute to J Mines by [Juliana Peña](#)
Under GNU general public license

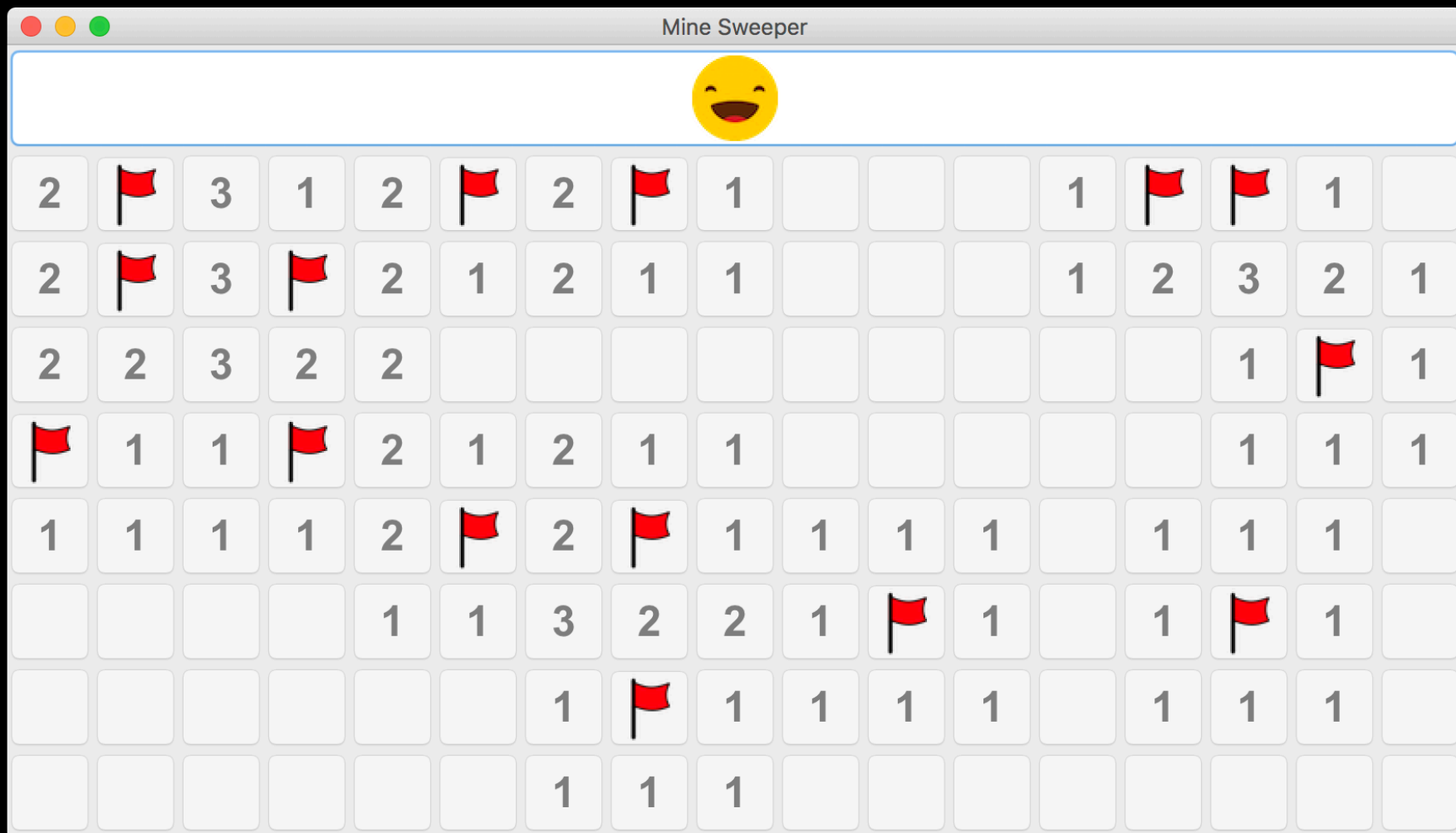
Choose size

Mines:

Width:

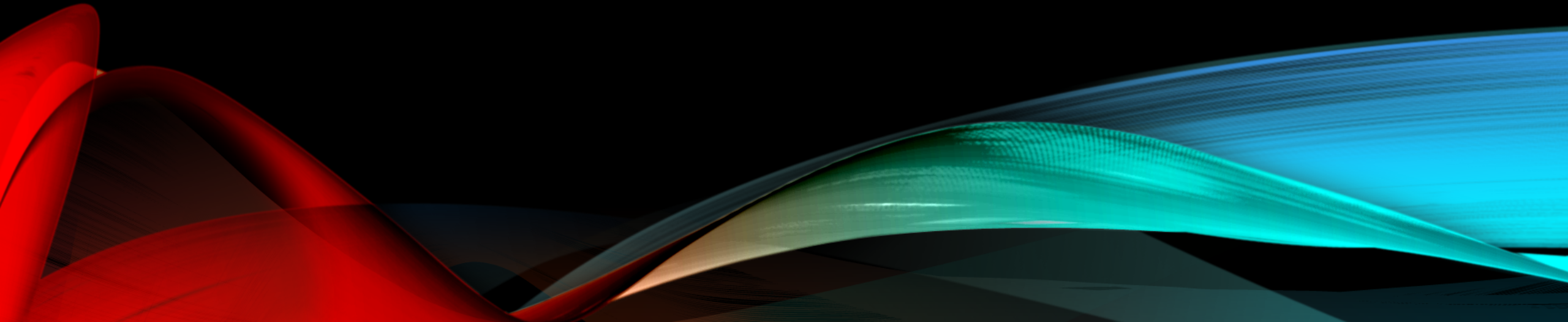
Height:



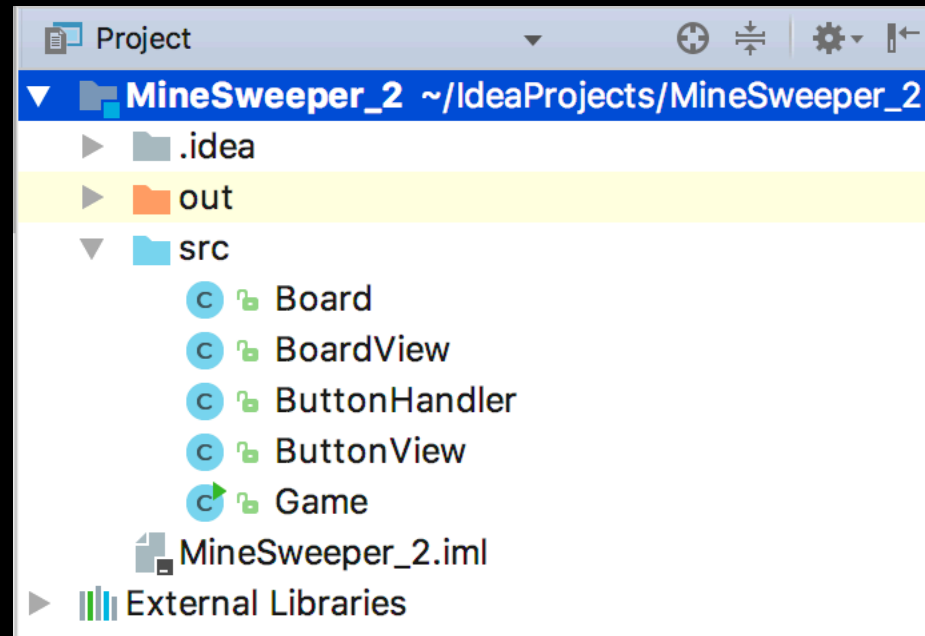




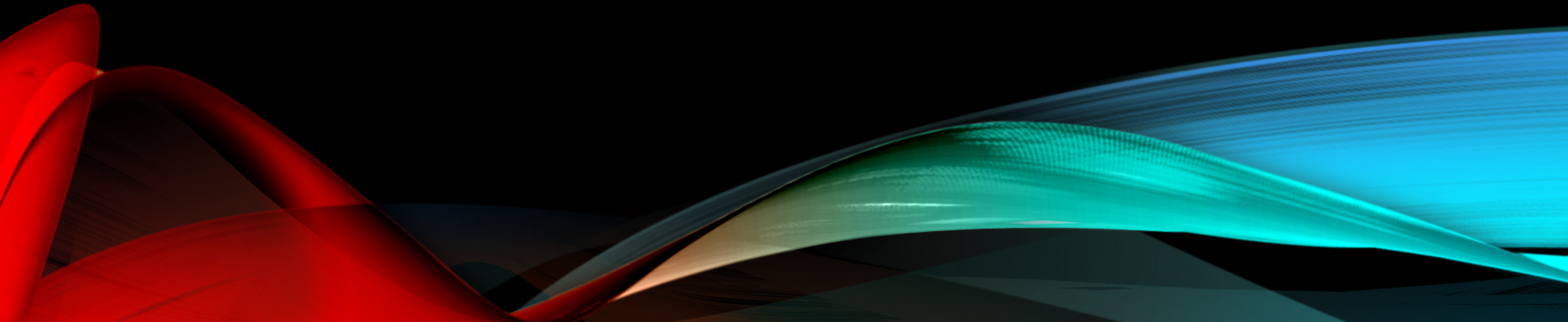
CHALLENGE

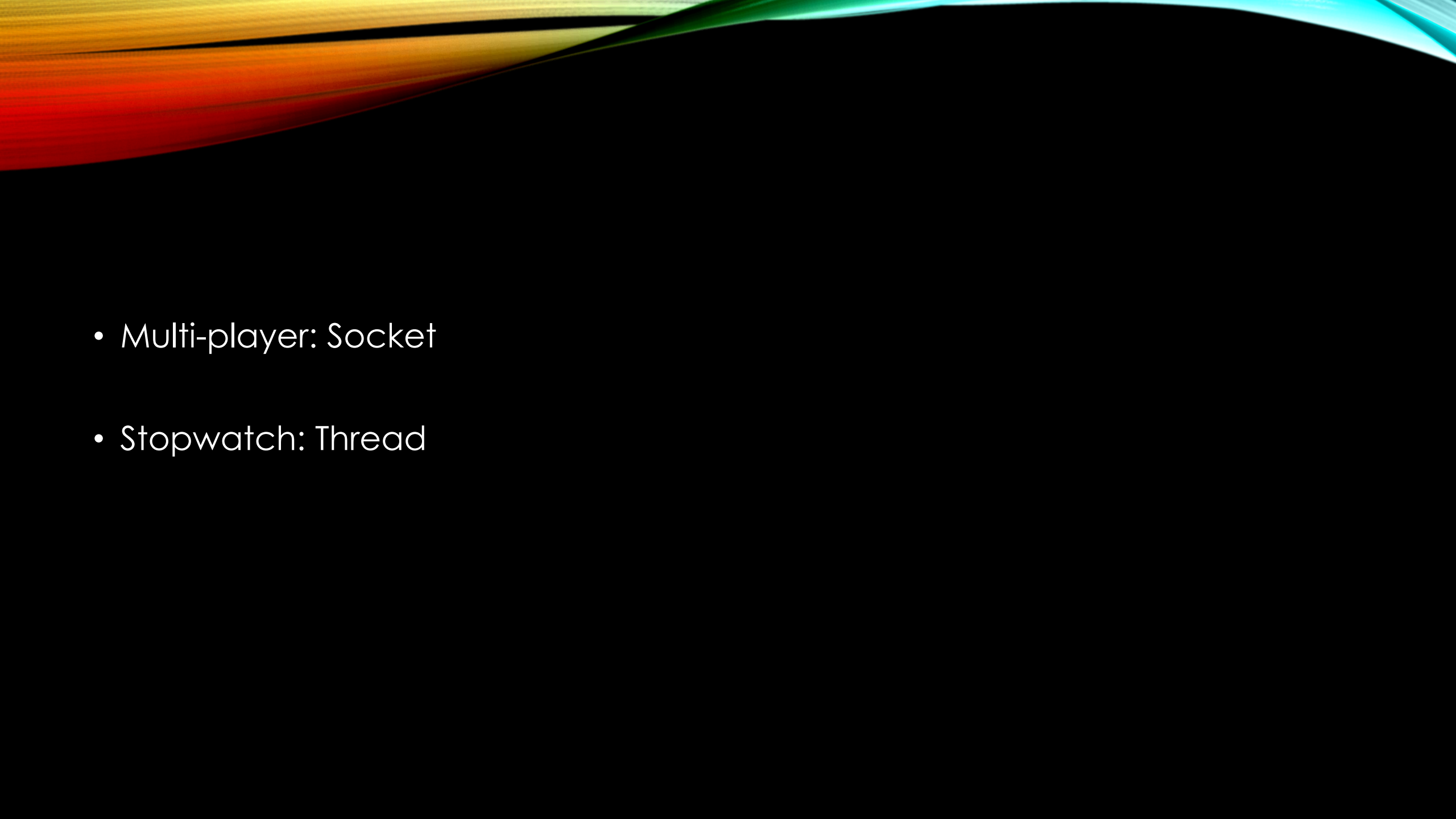


MVC



FUTURE PLAN



- 
- Multi-player: Socket
 - Stopwatch: Thread



THANK YOU

Thanks for your attention!