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Mines Sweeper Game

In this assignment, you'll be required to implement the famous game of Minesweeper.

Mines Sweeper is a game that shows you a grid of cells. Under some cells, lay some mines. If a cell doesn't contain any bombs, it shows the number of the bombs in the adjacent cells surrounding that cell.

Two cells are considered adjacent, if the absolute difference between either coordinate is 1. Well, just go and take a look at the game. It's everywhere!

The player defines the board at the beginning of the game, by specifying the size of the grid and the number of bombs and the position of each one.

Afterwards, the player provides his actions. Each action is a position in the grid and an option "f" and "r", that is respectively, if he chooses to flag that cell as a bomb or to reveal it.

Regardless of the action, If the cell is already revealed, nothing happens and the cell remains the same. If user chooses to flag an unrevealed cell, it's marked as flagged. If it is already flagged, the flag is removed. If the user chooses to reveal a cell that contains a bomb, the player loses the game. If he chooses to reveal a regular cell, it's revealed. So any cell of the grid can have any of three disjoint states; revealed, flagged or unrevealed.

The player wins only if, and only if, all cells, that contain bombs, are flagged and all the remaining cells are revealed. If, at some point, the grid contained some flagged cells that don't contain bombs, the game is not considered finished, even if all remaining cells were either revealed or flagged.

Sample run: (inputs in green)

Board size: 3 3
Number of bombs: 2
Define bombs:
2 0
2 2
Starting game
Next movement: 0 0 r
0 0 0
1 2 1
– – –
Next movement: 2 0 f
0 0 0
1 2 1

F – –
Next movement: 2 1 r
0 0 0
1 2 1
F 2 –
Next movement: 0 1 r
0 0 0
1 2 1
F 2 –
Next movement: 2 0 f
You win!
0 0 0
1 2 1
F 2 F

Sample run 2:

Board size: 3 3
Number of bombs: 2
Define bombs:
2 0
2 2
Start game
Next movement: 0 0 r
0 0 0
1 2 1
– – –
Next movement: 2 0 r
0 0 0
1 2 1
B – –

Sample run 3:

Board size: 3 3
Number of bombs: 2
Define bombs:
2 0
2 2
Starting game
Next movement: 0 0 r
0 0 0
1 2 1
– – –
Next movement: 2 1 f
0 0 0
1 2 1
– F –
Next movement: 2 1 f
0 0 0
1 2 1
– – –
Next movement: 2 0 f
0 0 0
1 2 1
F – –
Next movement: 2 1 r
0 0 0
1 2 1
F 2 –
Next movement: 0 1 r
0 0 0
1 2 1
F 2 –
Next movement: 2 0 f
You win!
0 0 0
1 2 1
F 2 F