

# Sprint 1 Challenge

## Mine Sweeper

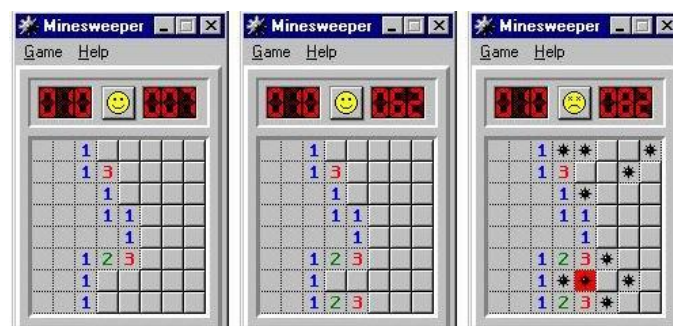
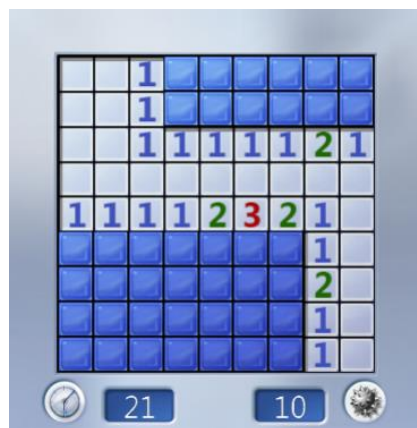
Blow your Mind

### Preview

Your challenge is to create the **Minesweeper game**, and it's not an easy one. Let's practice some breaths.

Good.

Play [the game](#) a little bit and relax



It's a good thing we studied about Matrixes. Isn't it?

## Features:

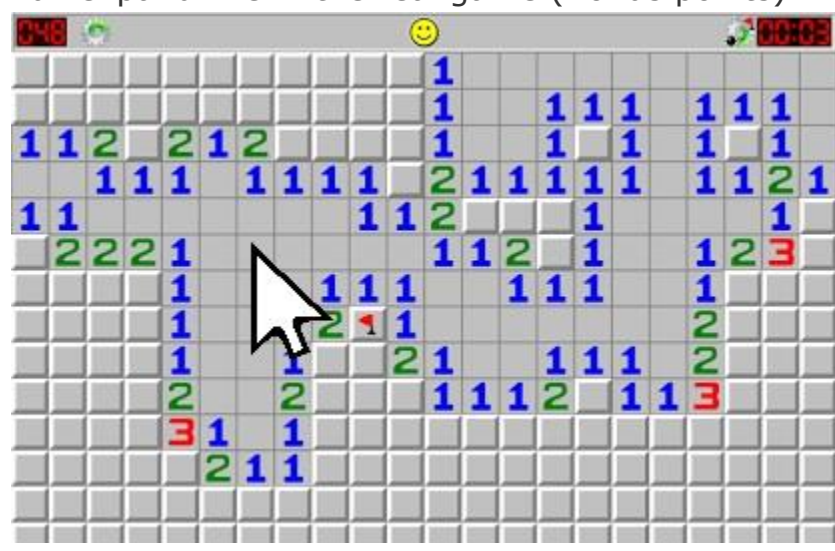
- Minesweeper functionality based on the reference game
- Show a timer that starts on first click (right / left) and stops when game is over.
- Left click reveals a cell
- Right click to flag/unflag a suspected cell (you cannot reveal a flagged cell)
- When clicking a mine, all mines should be revealed
- game ends when:
  - user clicked a mine
  - all the mines are flagged and all the other cells are shown
- Support 3 levels of the game
  - Beginner (4\*4 with 2 MINES)
  - Medium (6 \* 6 with 5 MINES)
  - Expert (8 \* 8 with 15 MINES)
- If you have the time, take freedom with the design and try giving it a nice shape.

## About Expanding

Expanding a cell to 2 levels:



Full expand like in the real game (Bonus points):



**Development - Tips and Guidelines**

As you know, there is usually more than one way to approach a challenge.

But as a guideline, we suggest having the following functions (it is ok to have more functions as needed).

|   |  |
|---|--|
| <code>initGame()</code>                       | This is called when page loads   |
| <code>buildBoard()</code>                     | Builds the board<br>Set mines at random locations<br>Call <code>setMinesNegsCount()</code><br>Return the created board |
| <code>setMinesNegsCount(board)</code>         | Sets mine's count to mine's neighbors  |
| <code>renderBoard(board)</code>               | Render the board as a <code>&lt;table&gt;</code> to the page   |
| <code>cellClicked(elCell, i, j)</code>        | Called when a cell (td) is clicked   |
| <code>cellMarked(elCell)</code>               | Called on right click to mark a cell (suspected to be a mine)  |
| <code>checkGameOver()</code>                  | Game ends when all mines are marked and all the other cells are shown  |
| <code>expandShown(board, elCell, i, j)</code> | When user clicks a cell with no mines around, we need to open not only that cell, but also its neighbors.              |

|  |  |
|--|--|
|  | <p>NOTE: start with a basic implementation that only opens the two-level neighbors</p> <p>BONUS: if you have the time later, try to work more like the real algorithm.</p> |
|--|--|

Here are the **globals** you might be using:

|  |   |
|--|---|
| <p><code>gBoard</code> - Matrix contains cell objects:</p> <pre>{   minesAroundCount: 4,   isShown: true,   isMine: false,   isMarked: true, }</pre> | <p>The model</p>  |
| <pre>gLevel = {   SIZE: 4,   MINES: 2 };</pre>   | <p>This is an object by which the board size is set (in this case: 4*4), and how many mines to put</p>  |
| <pre>gGame = {   isOn: false,   shownCount: 0,   markedCount: 0,   secsPassed: 0 }</pre>   | <p>This is an object in which you can keep and update the current game state:</p> <ul style="list-style-type: none"> <li><code>isOn</code> - boolean, when true we let the user play</li> <li><code>shownCount</code>: how many cells are shown</li> <li><code>markedCount</code>: how many cells are marked (with a flag)</li> <li><code>secsPassed</code>: how many seconds passed</li> </ul> |

## Next Steps

1. Make sure the first clicked cell is never a mine (like in the real game)

HINT: place the mines and count the neighbors only on first click.

2. Add support for hints:

- a. The user has 3 hints:



- b. When a hint is clicked, there is an indication to the user that he can safely click one (unrevealed) cell and *reveal* it and its neighbors for a second.
- c. The clicked hint disappears.

3. Add smiley :

- Normal
- Sad & Dead – stepped on a mine
- Sunglasses – Victory

4. Make it look nice
5. Bonus: keep the best score in [local storage](#) (per level) and show it on the page

## Rules & Delivery Schedule

In this sprint we will work alone, please respect the rules!

1. First day 8pm - Partial
2. Second day 8pm – Final
3. Saturday night 10pm - Optional