CS 232
Project 4
Minesweeper

Introduction

In the game Minesweeper, the goal is to find where all the mines are located within an M x N field. The game shows a number in a square, which tells you how many mines are adjacent to that square. Each square has at most eight adjacent squares. The 4 x 4 field on the left contains two mines, each represented by a "#" character. If we represent the same field by the hint numbers described above, we end up with the field on the right:

```
#   .   .   .          #   1   0   0
.   .   .   .          2   2   1   0
.   #   .   .          1   #   1   0
.   .   .   .          1   1   1   0
```

Assignment

In this assignment, you are to implement a playable version of Minesweeper in Java. The application must be customizable (using command-line arguments) so that various sizes (width and height) of the board can be played, along with various numbers of mines. The default game should be an 8 x 8 board with 10 mines. The interface should have a button for starting a new game, a label that keeps up with the number of flags that are left for marking mines, and a label that ticks up as the seconds pass once a game begins. (A game should be considered to have begun once the player clicks his or her first square.)

The grid of locations should be left-clickable to reveal what is underneath (number or mine) and right-clickable to place a flag without revealing what is underneath. Left-clicking or right-clicking an already revealed location does nothing. Left-clicking a flagged location reveals the location and resets that flag into the player's pool. Right-clicking a flagged location just resets that flag into the player's pool. Once the player has revealed the entire board without triggering a mine, a popup window should state that he or she is the winner and report the elapsed time. If a mine is triggered, a popup window should be displayed that says that the game is over. Finally, the interface should contain an option (button or menu option) to save a game in progress and load a saved game.