Programming Paradigms 2021-2022
Haskell Assignment: Minesweeper

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*Note: Similar to the exercises: try to **not** use any functions from the prelude.*

1 Minesweeper

Your program should fulfill the following requirements:

- You start with a game board of `n` by `m`. You do not have to generate this board, you can either hard-code a board or read from input or file. The board consists out of squares, each containing a number (0 - 8), or a bomb. The number should represent the amount of bombs adjacent to the square. Start by checking whether the board is valid or not.
- At the start of the game, all squares are hidden.
- Each turn, the player should either reveal a square, or place or remove a flag. The program will then print the updated game board.
- The player has the same amount of flags as the amount of bombs. If a flag is placed, that square can no longer be revealed until the flag is removed. The flag will act as a marker and safe guard for when the player thinks he knows the location of a bomb.
- Any time a square containing a zero is revealed, all adjacent numbers are revealed as well. This can trigger other squares containing zero to reveal their neighbors as well.
- If a bomb is revealed, the game is lost. A message is printed, as well as the fully revealed game board.
- If all squares are revealed which are not bombs, the game is won. A message is printed, as well as the fully revealed game board.
- Provide exception handling for the most obvious errors (i.e wrong input).

Make sure to use data types in a logical way.

Reminder: The goal of this assignment isn't to bludgeon a procedural or object oriented solution into Haskell, but rather to write idiomatic Haskell code that elegantly solves the problem.

2 Practical

Submit your solution before the imposed deadline through Blackboard in a zip archive. Don't forget to add a README file that explains your project. No solutions will be accepted via e-mail; only timely submissions posted on BlackBoard will be accepted and assessed; no extensions of the deadline will be granted. You are expected to work on this assignment individually. Recall that work submitted for grading must ultimately be your own work, reflecting your personal learning curve and performance. Cheating is a serious academic offense; we do not tolerate cheating, nor assisting others to do so.