Project Architecture

Modules

* Cell
* Board
* Main

Cell

* Members
  + Val: contents/adjacency
    - 0 = no adjacent mines
    - 1 – 8 = number of adjacent mines
    - 9 = mine
  + Tag: status
    - 0 = hidden
    - 1 = cleared
    - 2 = flagged
    - 3 = triggered
* Methods
  + \_\_repr\_\_
    - Class representation for use in terminal interface
  + \_\_str\_\_
    - String representation for use in terminal interface

Board

* Members
  + Size
    - Dimension of square board
  + Array
    - 2D game board array, containing instances of Cell class
  + Alive
    - True = player is still alive
    - False = player is dead/game is lost
  + BOMB\_VALUE
    - 9 (constant value for use in code)
* Methods
  + printArray
    - prints game board for terminal interface
  + populate
    - places mines on the game board
    - calls update\_adjacency helper function to update adjacency indicators of adjacent cells
  + select
    - handles effects of user input
    - flags or unflags cell as appropriate, if user selects to flag cell
    - calls reveal helper function to reveal cell if user selects to reveal cell
  + update\_adjacency
    - called by populate
    - increments adjacency value of adjacent cells, unless they are outside the bounds of the board or already contain a mine
  + reveal
    - called by select when user selects to reveal cell
    - verifies that the cell can be revealed
    - depending on cell contents, sets ‘alive’ member to False, sets cell ‘tag’ member to 1 for cleared, and/or calls rec\_reveal helper function to reveal additional cells
    - returns True is cell was revealed, regardless of outcome
    - returns False is cell was not revealed
  + rec\_reveal
    - called by reveal if revealed cell’s ‘val’ member is 0 for no adjacent mines
    - for each adjacent cell, if it is within bounds of the board, calls reveal function to handle additional reveals
  + show\_contents
    - used in development/testing or for terminal interface
    - shows the hidden contents/value of cells by setting ‘tag’ member of each cell to 1 for cleared
    - causes printArray to show the ‘val’ member value of each cell