Solver Class:

- Instance Variables:
  - Board
- Methods:
  - solveCurrentBoard

Board Class:

- Instance Variables:
  - 2D-Array of Pebbles
- Methods:
  - addPebble - add pebble to specified location on board

Pebble Class:

- Instance Variables:
  - Color
  - Iteration Value
  - Left Pebble
  - Right Pebble
  - Up Pebble
  - Down Pebble
- Methods:
  - flipColor - if black, set Color to white, else set Color to black

Algorithm 1 Solve Current Board: Belongs to Solver Class

1: **procedure** SOLVECURRENTBOARD
2: **Input:** A board representation that contains a 2 dimensional array of pebble representations.
3: **Output:** Number of iterations that pebble representations are replaced and whether or not there are any black pebble representations remaining.
4: $Q \leftarrow \emptyset$ (Queue)
5: *blackPebbles* $\leftarrow 0$
6: **for** each *pebble* on board **do**
7: **if** *pebble* is white **then**
8: add *pebble* to Q
9: set *pebble* iteration level to *0*
10: **else**
11: *blackPebbles* $\leftarrow$ *blackPebbles* $+ 1$
12: *currentPebble* $\leftarrow \emptyset$
13: **while** Q is not empty **do**
14: *currentPebble* $\leftarrow$ pebble deqeued from Q
15: Change color of *currentPebble*'s black neighbors to white and enqueue them to Q with iteration level of one greater than currentPebble's iteration level.
16: Decrement *blackPebbles* by 1 for each black neighbor flipped
17: **return** *currentPebble*'s iteration level and True if blackPebbles > 0, False otherwise