
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 add pebble to  $Q$ 
8:     else  $blackPebbles \leftarrow blackPebbles + 1$ 
9:    $T \leftarrow$  result of performing the flipPebbles procedure on  $Q$  and
       $blackPebbles$ .
10:   $anyBlackRemaing \leftarrow$  True if number of black remaining in  $T > 0$ , False
      otherwise
11:   $R \leftarrow$  number of iterations in  $T$  and  $anyBlackRemaining$ 
12:  return  $R$ 
```

Algorithm 2 Flip Pebbles: Belongs to Solver Class

```
1: procedure FLIPPEBBLES
2:   Input: Queue of pebbles to flip,  $Q$ , and number of remaining black
      pebbles,  $blackPebbles$ .
3:   Output: Number of iterations that pebble representations are replaced
      and the remaining number of black pebbles.
4:   if  $Q$  is empty then
5:     return 0 (number of iterations) and remaining number of black pebbles
6:    $R \leftarrow \emptyset$  (Queue)
7:    $remaining \leftarrow blackPebbles$ 
8:   for each pebble  $p$  in  $Q$  do
9:     Change color of  $p$ 's black neighbors to white and add them to  $R$ .
10:    Decrement  $remaining$  by 1 for each black neighbor flipped
11:   $T \leftarrow$  result of performing the flipPebbles procedure on  $R$  and  $remaining$ .
12:  Add 1 to number of number of iterations in  $T$ 
13:  return  $T$ 
```

Algorithm 3 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 add  $pebble$  to  $Q$ 
8:     else  $blackPebbles \leftarrow blackPebbles + 1$ 
9:   while  $Q$  is not empty do
```
