

Solution 1

```
1  # Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3  # O(nm*8^s + ws) time | O(nm + ws) space
4  def boggleBoard(board, words):
5      trie = Trie()
6      for word in words:
7          trie.add(word)
8      finalWords = {}
9      visited = [[False for letter in row] for row in board]
10     for i in range(len(board)):
11         for j in range(len(board[i])):
12             explore(i, j, board, trie.root, visited, finalWords)
13     return list(finalWords.keys())
14
15
16 def explore(i, j, board, trieNode, visited, finalWords):
17     if visited[i][j]:
18         return
19     letter = board[i][j]
20     if letter not in trieNode:
21         return
22     visited[i][j] = True
23     trieNode = trieNode[letter]
24     if "*" in trieNode:
25         finalWords[trieNode["*"]] = True
26     neighbors = getNeighbors(i, j, board)
27     for neighbor in neighbors:
28         explore(neighbor[0], neighbor[1], board, trieNode, visited, finalWords)
29     visited[i][j] = False
30
31
32 def getNeighbors(i, j, board):
33     neighbors = []
34     if i > 0 and j > 0:
35         neighbors.append([i - 1, j - 1])
36     if i > 0 and j < len(board[0]) - 1:
37         neighbors.append([i - 1, j + 1])
38     if i < len(board) - 1 and j < len(board[0]) - 1:
39         neighbors.append([i + 1, j + 1])
40     if i < len(board) - 1 and j > 0:
41         neighbors.append([i + 1, j - 1])
42     if i > 0:
43         neighbors.append([i - 1, j])
44     if i < len(board) - 1:
45         neighbors.append([i + 1, j])
46     if j > 0:
47         neighbors.append([i, j - 1])
48     if j < len(board[0]) - 1:
49         neighbors.append([i, j + 1])
50     return neighbors
51
52
53 class Trie:
54     def __init__(self):
55         self.root = {}
56         self.endSymbol = "*"
57
58     def add(self, word):
59         current = self.root
60         for letter in word:
61             if letter not in current:
62                 current[letter] = {}
63             current = current[letter]
64         current[self.endSymbol] = word
65
```