CS 32 Homework 2 Q2 and Q4 Solutions

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Ans 2:

4, 6

3, 6

5, 6

5, 7

5, 8

6, 8

7, 8

8, 8

8, 7

6, 6

4, 5

4, 4

Ans 4:

4, 6

4, 5

5, 6

3, 6

4, 4

6, 6

5, 7

4, 3

5, 4

5, 8

4, 2

6, 4

The difference between the two algorithms:

1. The stack implementation of the algorithm always processes the last item that is pushed on to the stack, which is next to the current square that is being processed. As a result, we keep exploring in one direction till we hit a dead end. This is called Depth First Search (DFS).
2. The queue implementation of the algorithm always processes the front item from the queue, even though the new coordinates are being pushed to the end of the queue. Therefore, the coordinates closer to the starting coordinate are being explored before the ones further away. An analogy to this can be exploring new points as ripples expand in a pond. This is called Breadth First Search (BFS).