Given the same main function and maze as are shown at the end of problem 1, what are the first 12 (r,c) coordinates popped from the queue in your stack/queue-based algorithm?

Stack:

(6,4)

(6,3)

(6,5)

(7,5)

(8,5)

(8,6)

(8,7)

(8,8)

(7,8)

(6,6)

(5,4)

(4,4)

(4,5)

(4,6)

(3,6)

(3,7)

(3,8)

(4,8)

(5,8)

(3,4)

(2,4)

(1,4)

(1,3)

(1,2)

(1,1)

Solvable!

Queue:

(6,4)

(6,3)

(6,5)

(5,4)

(6,6)

(7,5)

(4,4)

(8,5)

(4,5)

(3,4)

(8,6)

(4,6)

(2,4)

(8,7)

(3,6)

(1,4)

(8,8)

(3,7)

(1,3)

(1,5)

(7,8)

(3,8)

(1,2)

(1,6)

(4,8)

(1,1)

Solvable!

Highlight = First 12 elements popped off stack/queue, respectively

How do the two algorithms differ from each other? (Hint: how and why do they visit cells in the maze in a different order?)

The stack-based algorithm requires one less step than the queue-based algorithm, so therefore it is more efficient. The methods differ because the stack utilizes a depth-first search, visiting a path fully before dedicating to another one, while the queue checks all surrounding paths simultaneously.