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CS32 HW 2 Report

Problem 2:

The first 12 (r,c) coordinates popped off the stack by the algorithm (in order from left to right) are:

(4,6) (3,6) (5,6) (5,7) (5,8) (6,8) (7,8) (8,8) (8,7) (6,6) (4,5) (4,4).

Problem 4:

The first 12 (r,c) coordinates popped from the queue-based algorithm (in order from left to right) are:

(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 first difference between the two algorithms is that the first one uses a stack while the second one uses a queue. The stack algorithm pops off the newest coordinate - it will try to go west, then south, then east, then north. It will continue to do this until it has either found a dead end or reached the goal. If it reaches a dead end, then it will go back and search a different area until it once again reaches a dead end or reaches the goal. The queue algorithm operated differently, it would attempt to move one unit in all directions, searching different paths simultaneously. This is because the queue pops off the front coordinate. The stack’s algorithm’s type of searching is called depth first, while the queue’s algorithm’s type of searching is called breadth first.