CS 32 HW 2

Junhong Wang

# Problem 2

**Given the algorithm, main function, and maze shown at the end of problem 1, what are the first 12 (r,c) coordinates popped off the stack by the algorithm?**

1: (3, 5)

2: (3, 6)

3: (3, 4)

4: (2, 4)

5: (1, 4)

6: (1, 3)

7: (1, 2)

8: (1, 1)

9: (2, 1)

10: (3, 3)

11: (4, 5)

12: (5, 5)

# Problem 4

**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 queue-based algorithm?**

1: (3, 5)

2: (4, 5)

3: (3, 4)

4: (3, 6)

5: (5, 5)

6: (3, 3)

7: (2, 4)

8: (6, 5)

9: (5, 4)

10: (1, 4)

11: (7, 5)

12: (5, 3)

**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 version visits cells like a depth first search. It visits the cells further away, and come back, and then further away again. This is because stack is FILO. On the other hand, the queue version visits cells like a breadth first search. It visits the cells near where current position is, and spreads out gradually. This is because queue is FIFO.