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

1. (4, 3)

2. (3, 3)

3. (5, 3)

4. (5, 2)

5. (5, 1)

6. (6, 1)

7. (7, 1)

8. (8, 1)

9. (8, 2)

10. (6, 3)

11. (4, 4)

12. (4, 5)

4. Given the same main function and maze as are shown at the end of problem 1, the first 12 (r,c) coordinates popped from the queue in the queue-based algorithm are:

1. (4, 3)

2. (4, 4)

3. (5, 3)

4. (3, 3)

5. (4, 5)

6. (6, 3)

7. (5, 2)

8. (4, 6)

9. (5, 5)

10. (5, 1)

11. (4, 7)

12. (6, 5)

The algorithms differ from each other because stack is a LIFO (last in, first out) structure and queue is a FIFO (first in, first out) structure. This means that the stack looks at the last coordinate pushed on top of the stack while the queue looks at the first coordinate. Additionally, the stack uses a depth-first search method, meaning that every path is explored as far as it can be before switching to the next path. On the other hand, the queue uses a breadth-first search method so that it branches out in every direction starting from the first coordinate, and then branches out in every direction of the next coordinate.