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CS 32

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**CS 32 HW 2**

2. The first 12 (r,c) coordinates popped off the stack by the algorithm are:

(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. The first 12 (r,c) coordinates popped off the stack by the algorithm are:

(6,4)

(5,4)

(6,5)

(6,3)

(4,4)

(6,6)

(7,5)

(3,4)

(4,5)

(8,5)

(2,4)

(4,6)

The reason why they visit cells in the maze in a different order is due to the difference between their algorithms. The stack’s algorithm checks to see if there is a possibility to move North, East, South and West. Then, it stacks the possibilities on top of each other. Therfore, when we want to pick a coordinate, we have to pick the one on the top, which is the last one that was inserted into the stack (LIFO). Stack’s search algorithm is called Depth First Search (DFS). However, in queues, after it checks the possibilities, it puts them in order in a line. Therefore, when we want to pick a possibility, we have to start from the front of the line, which will be the first possibility that was inserted the queue (FIFO). Queue’s search algorithm is called Breadth First Search (BFS). That is why we get different coordinates in parts 1 and 3.