CS 32 Lecture 2 – Professor Smallberg Leo Gretzinger

Homework #2 2/4/19

**Problem 2:**

Given the algorithm, maze and main function at the end of problem 1, the first 12 coordinates popped off the stack are:

(3,5), (3,6), (3,4), (2,4), (1,4), (1,3), (1,2), (1,1), (2,1), (3,3), (4,5), (5,5)

**Problem 4:**

Given the algorithm, maze and main function at the end of problem 1, the first 12 coordinates popped off the stack are:

(3,5), (4,5), (3,4), (3,6), (5,5), (3,3), (2,4), (6,5), (5,4), (1,4), (7,5), (5,3)

The order in which the coordinates are popped differs from between stacks and queues is because while stacks pop off the most recently pushed coordinate, queues pop of the earliest coordinate pushed. So, for example, if a coordinate in the stack is pushed and has all four spots open around it, the algorithm will push the open spots onto the stack in order of south, west, north, then east and will check the resulting paths to the east, north, west, then south (the reverse order that they were pushed). Meanwhile, with the queue, in the same situation, the algorithm will check the paths in order of south, west, north, then east (the order that they were pushed).