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April 26, 2018

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Discussion 1A

Homework 2

2.) The first 12 coordinates popped off the stack are:

(6,5)

(6,6)

(6,4)

(7.4)

(8,4)

(8,3)

(8,2)

(8,1)

(7,1)

(6,3)

(5,4)

(4,5)

4.) The first 12 coordinates popped off the queue are:

(6,5)

(5,5)

(6,4)

(6,6)

(4,5)

(6,3)

(7,4)

(3,5)

(4,4)

(8,4)

(2,5)

(4,3)

In a stack, items are added and removed to the end of the stack.

In a queue, items are added to the back of the queue and removed from the front.

At the start of each iteration of the while loop, the end element of the stack/queue is popped off.

The algorithm implemented with a stack will pop off the coordinates in the chronologically backwards order with which they were visited. This means popped off coordinates will be in the *opposite* order of North, West, South, East.

A stack would look something like this, the number representing the chronology of the function (assuming all coordinates could be moved to for a given iteration):  
<North (1), West (2), South (3), East (4), North (5), West (6), South (7), East (8)>

And when the stack is popped, it is read right->left

The algorithm implemented in a queue will pop off the coordinates in the same order they were visited. A queue would look something like this, the number representing the chronology of the function (assuming all coordinates could be moved to for a given iteration):

<East (8), South (7), West (6), North (5), East (4), South (3), West (2), North (1)>

When the queue is popped, it is also read right->left