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4/26/16

Homework 2 Writeup

2.

The first twelve coordinates popped off the stack by the algorithm are the following:

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 twelve coordinates popped off the stack by the algorithm are the following:

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 two algorithms differ from each other in the sequence of coordinates that they test. This is because a stack is first in first out, meaning the last coordinate that is available to move to is the next one that gets assigned to testing object “current” and subsequently popped off. Conversely, a queue is first in last out: it will take exactly the first twelve applicable coordinates that it encounters and assign them to “current” to get tested. The primary difference is that the next coordinate a “current” will test from a stack depends on what the previous coordinate was, whereas a queue just tests all the empty coordinates in the order that they were enqueued.