I could be misinterpreting what the algorithm entails as its wording isn’t entirely clear but if I am getting it properly it is this...

If the next item in the input queue is less than the last item on the output queue, put the item from the input queue onto the stack.

If the next item in the input queue is greater than the last item on the output queue, but the item on top of the stack is both greater than the end of the output queue and lesser than (or equal to) the item from the input queue, move the top item from the stack to the output queue.

Any other time, move the item from the input queue to the output queue.

I’m doing this on paper and it seems to simply not work. Take the simple example from the assign1 page for example: 2 4 5 3 1

The Input Queue, Stack, and Output Queue would look like this after each pass through the above set of conditions...

Start
Input: [2,4,5,3,1]
Stack: []
Output: []

Pass 1.a
Input: [4,5,3,1]
Stack: []
Output: [2]

Pass 1.b
Input: [5,3,1]
Stack: []
Output: [2,4]

Pass 1.c
Input: [3,1]
Stack: []
Output: [2,4,5]

Pass 1.d
Input: [1]
Stack: [3]
Output: [2,4,5]

Pass 1.e
Input: []
Stack: [1,3]
Output: [2,4,5]

At this point, there is a little bit of confusion in the instructions as it says: "Once all elements have been placed on output, you swap the input and the output queues."

However, that can't happen since the requirements for moving items over for the stack can't happen anymore.

The algorithm does work if you just leave those items in the stack, switch output and input, and then treat an empty output stack as the case where both the next element from the input queue and the element from the top of the stack are greater than the last element of the output queue. However, in that version of the algorithm, the times when the queue needs to be displayed don't make sense.

If there's any clarification you could do on what I may be misinterpreting, that would be phenomenal, thanks!

---

Mr. Robinson (the GTA and progenitor of this assignment) will correct me if I'm wrong, but

* you can never look at the last item on a queue, but you can cache the last value - you can also peek at the queue

* when the input queue is exhausted, it is reasonable to move all the stack elements, if any, to the output queue

Dr. Lusth is correct. Once the input queue is empty then move any items from stack to the output queue.