Feedback — Stacks and Queues

Help Center

You submitted this quiz on **Sun 13 Sep 2015 9:44 AM EDT**. You got a score of **1.60** out of **3.00**. You can attempt again, if you'd like.

```
To specify an array or sequence of values in an answer, separate the value
s in
the sequence by whitespace. For example, if the question asks for the firs
t
ten powers of two (starting at 1), then the following answer is acceptabl
e:

     1 2 4 8 16 32 64 128 256 512

If you wish to discuss a particular question and answer in the forums, ple
ase
post the entire question and answer, including the seed (which can be used
by
the course staff to uniquely identify the question) and the explanation (w
hich
contains the correct answer).
```

Question 1

```
(seed = 204282)
Suppose that an intermixed sequence of 10 push and 10 pop operations are pe
rformed
on a LIFO stack. The push operations add the values 0 through 9 to the stac
k, in the
order given; the intermixed pop operations delete and print out the return
values
Which of the following output sequence(s) could occur? Check all that appl
y.
```

Your Answer	Score	Explanation

☐ 3 2 4 1 9 8 7 6 5 0	✖	0.00	0 1 2 3 - - 4 - - 5 6 7 8 9 - - - - - -
☐ 1 2 7 6 5 8 4 9 3 0	✖	0.00	0 1 - 2 - 3 4 5 6 7 - - - 8 - - 9 - - -
☑ 4 3 2 1 0 5 6 7 8 9	✔	0.20	0 1 2 3 4 - - - - - 5 - 6 - 7 - 8 - 9 -
☐ 3 4 2 6 1 8 9 7 5 0	✔	0.20	When 6 is pushed, both 1 and 5 are still on the stack. So, 5 would be popped before 1.
☐ 2 5 4 3 6 1 8 0 7 9	✔	0.20	When 8 is pushed, both 0 and 7 are still on the stack. So, 7 would be popped before 0.
Total		0.60 / 1.00	

Question Explanation

Question 2

(seed = 521214)
Suppose that an intermixed sequence of 10 enqueue and 10 dequeue operations are performed
on a FIFO queue. The enqueue operations add the values 0 through 9 to the data structure,
in the order given; the dequeue operations delete and print out the return values.
Which of the following output sequence(s) could occur? Check all that apply.

Your Answer	Score	Explanation

☑ 0 1 2 3 4 5 6 7 8 9	✔	0.20	0 - 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 -
☐ 0 1 2 3 4 5 7 9 8 6	✔	0.20	The seventh item enqueued is 6 but the seventh item dequeued is 7.
☐ 0 1 6 4 7 3 5 9 8 2	✔	0.20	The third item enqueued is 2 but the third item dequeued is 6.
☐ 0 1 2 3 4 5 6 9 8 7	✔	0.20	The eighth item enqueued is 7 but the eighth item dequeued is 9.
☐ 0 1 2 3 4 5 6 8 9 7	✔	0.20	The eighth item enqueued is 7 but the eighth item dequeued is 8.
Total		1.00 / 1.00	

Question Explanation

Question 3

```
(seed = 599575)
Consider an object of type GenericMysteryBox<Boolean> that stores N items o
f type Boolean
in a generic doubly-linked list of N nodes, referenced by first.

    public class GenericMysteryBox<Item> {
        private Node first;

        private class Node {
            private Item item;
            private Node next;
            private Node prev;
        }
```

```
        ...
    }
```

Using the 64-bit memory cost model from the lecture, how many bytes does it use as a function of N?
Include all memory referenced by the object and use tilde notation to simplify your answer.
For example, enter ~ 4N if the number of bytes as a function of N is 4N + 32.

Hint: an object of the wrapper type Boolean uses 24 bytes.

You entered:

~ 5N

Your Answer		Score	Explanation
~ 5N	✖	0.00	
Total		0.00 / 1.00	

Question Explanation

A correct answer matches the regular expression: \s*~?\s*72\s*N\s*
For example, the following is a correct answer: ~ 72N
Below is a detailed accounting:

```
public class GenericMysteryBox<Item> {        //       16 (object overhead)
    private Node first;                       //        8 (reference)

    private class Node {                      //       16 (object overhead)
                                              //        8 (inner class overhead)
        private Item item;                    //        8 (reference to Boolean)
                                              //       24 (Boolean)
        private Node next;                    //        8 (reference)
        private Node prev;                    //        8 (reference)
```

```
    }                                                    -------
                                                        24 + 72N  ~ 72N

    ...
}
```