



Queue and Stack → Getting the max element of a stack

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 Hard  8 minutes  Share:

Code Challenge — Write a program

Write a program simulating a stack that can effectively return the current max element. Your program should read a sequence of commands of different types from the standard input.

There are three types of commands:

- **push v** - add an element (v) to a top of the stack;
- **pop** - remove the top element of the stack;
- **max** - return the current max in the stack.

The time complexity of these operations should not depend on the stack size (**constant time, O(1)**).

Hint: you may use several standard stacks to write a solution.

Input data format

The first line contains the number of commands. Next lines contain one of the following commands: **push v**, **pop**, **max**.

Output data format

The program must output the current max for each command **max**.

Sample Input 1:

```
5
push 2
push 1
max
pop
max
```

Sample Output 1:

```
2
2
```

Sample Input 2:

```
5
push 1
push 2
max
pop
max
```

Sample Output 2:

```
2
1
```

Sample Input 3:

```
10
push 2
push 3
push 9
push 7
push 2
max
max
max
pop
max
```

Sample Output 3:

```
9
9
9
9
```

Code Editor

IDE

Java

1 class Main {
2 }
3

Run

Start again (reset)

Show solution

Skip problem

Time limit: 3 seconds Memory limit: 256 MB

Comments (14)

Hints (0)

Useful links (0)

Solutions (0)

Share something, Sergey Kubatko

Post

Please do not post solutions here

Sort by:

Last posted ▾

- Mn

Mi ni

about 2 months ago

Report

This task is not hard at all but the problem(#54) with freaking 100000 operations makes this problem impossible to solve for some of us ... I don't know how their servers works but this seems like a waste of resources. They should fix it.

♡ 0

Reply
- U1

User 1738346

4 days ago

Report

I think its on purpose. I thought the same as you. Optimized even all my Scanner inputs, but in the description is a Hint about several Stacks. But if it works for 54 tests its not that obvious, that you solution wasn't the intended.

♡ 0

Reply
- A1

Anonymous 1041478

3 months ago

Report

care guys, first time - time execute excess, second time with same code is passed successful

♡ 2

Reply
- VT

Vitaliy Tretyakov

4 months ago

Report

Your compiler does not accept your solution:

Compilation error
Main.java:38: error: bad operand types for binary operator '>'
if (maxStack.isEmpty() || n > maxStack.peek()) {

♡ 0

Show all

Reply
- VT

Vitaliy Tretyakov

4 months ago

Report

Failed test #54. Time limit exceeded - Are you kidding? 100000 push operations and 100000 max operations!

♡ 0

Reply
- AL

Alexej L

5 months ago

Report

I love the provided solution. Also thought about solving it like this, but I was to lazy :-D
What still drives me crazy between the provided solution and my solution is, that Java doesn't have the ??-Operator like C#. So what is better/cleaner now to push on the maxStack? The provided if-else solution or a one liner like this with ?:-Operator as there is no ??-Operator, what I have used:

```
```java
```

♡ 0

Show all

Reply
- SK

**Sergey Kelnik**

5 months ago

Report

<https://www.geeksforgeeks.org/tracking-current-maximum-element-in-a-stack/>

This will help you

M

4

Reply

**mailtime** 5 months ago Report

@Moderator Failed test #54. Time limit exceeded dont work.  
i have downloaded the failed tests.  
They was not correct: "20000push 0maxpush 1maxpush 2maxpush 3maxpush 4maxpush 5maxpush"

0

Reply

Bw

brodzisław wąsowicz

5 months ago

Fixed

I've also got stuck on #54 (Time limit exceeded) so gave up and checked the reference solution and guess what.

0

Show all

E

Eduard

6 months ago

Report

What's wrong with my code?  
Scanner scanner = new Scanner(System.in);  
    ArrayDeque<Integer> dequeBrackets = new ArrayDeque<>();  
  
    int size = scanner.nextInt() + 1;

0

Show all

Reply

E

Eduard

6 months ago

Report

Failed test #54. Time limit exceeded  
In my IDE works perfect

0

Reply

J

JuliaOk

6 months ago

Report

#54 Time limit. Code complexity usr...

0

Reply

TD

Theo Dore

7 months ago

Report

Nice task

0

Reply

U

usr

10 months ago

Report

Failed test #54. Are you serious? How can i understand what went wrong?

0

Reply