

Implement Queue using Stacks

Implement a first in first out (FIFO) queue using only two stacks. The implemented queue should support all the functions of a normal queue (push, peek, pop, and empty).

Implement the MyQueue class:

- void push(int x) Pushes element x to the back of the queue.
- int pop() Removes the element from the front of the queue and returns it.
- int peek() Returns the element at the front of the queue.
- boolean empty() Returns true if the queue is empty, false otherwise.

Notes:

- You must use **only** standard operations of a stack, which means only push to top, peek/pop from top, size, and is empty operations are valid.
- Depending on your language, the stack may not be supported natively. You may simulate a stack using a list or deque (double-ended queue) as long as you use only a stack's standard operations.

Example 1:

Input

```
["MyQueue", "push", "push", "peek", "pop", "empty"]
```

```
[[], [1], [2], [], [], []]
```

Output

```
[null, null, null, 1, 1, false]
```

Explanation

```
MyQueue myQueue = new MyQueue();  
myQueue.push(1); // queue is: [1]  
myQueue.push(2); // queue is: [1, 2] (leftmost is front of the queue)  
myQueue.peek(); // return 1  
myQueue.pop(); // return 1, queue is [2]  
myQueue.empty(); // return false
```

Constraints:

- $1 \leq x \leq 9$
- At most 100 calls will be made to push, pop, peek, and empty.
- All the calls to pop and peek are valid.

Output in cpp :-

```
class MyQueue {
private:
    stack<int> s1;
    stack<int> s2;

public:
    MyQueue() {}

    void push(int x) {
        while (!s1.empty()) {
            s2.push(s1.top());
            s1.pop();
        }
        s1.push(x);
        while (!s2.empty()) {
            s1.push(s2.top());
            s2.pop();
        }
    }

    int pop() {
        int temp = s1.top();
        s1.pop();
```

```
        return temp;
    }

    int peek() {
        return s1.top();
    }

    bool empty() {
        return s1.empty();
    }
};
```

Link of problem on Leetcode :-

Link : <https://leetcode.com/problems/last-moment-before-all-ants-fall-out-of-a-plank/submissions/?envType=daily-question&envId=2023-11-04>