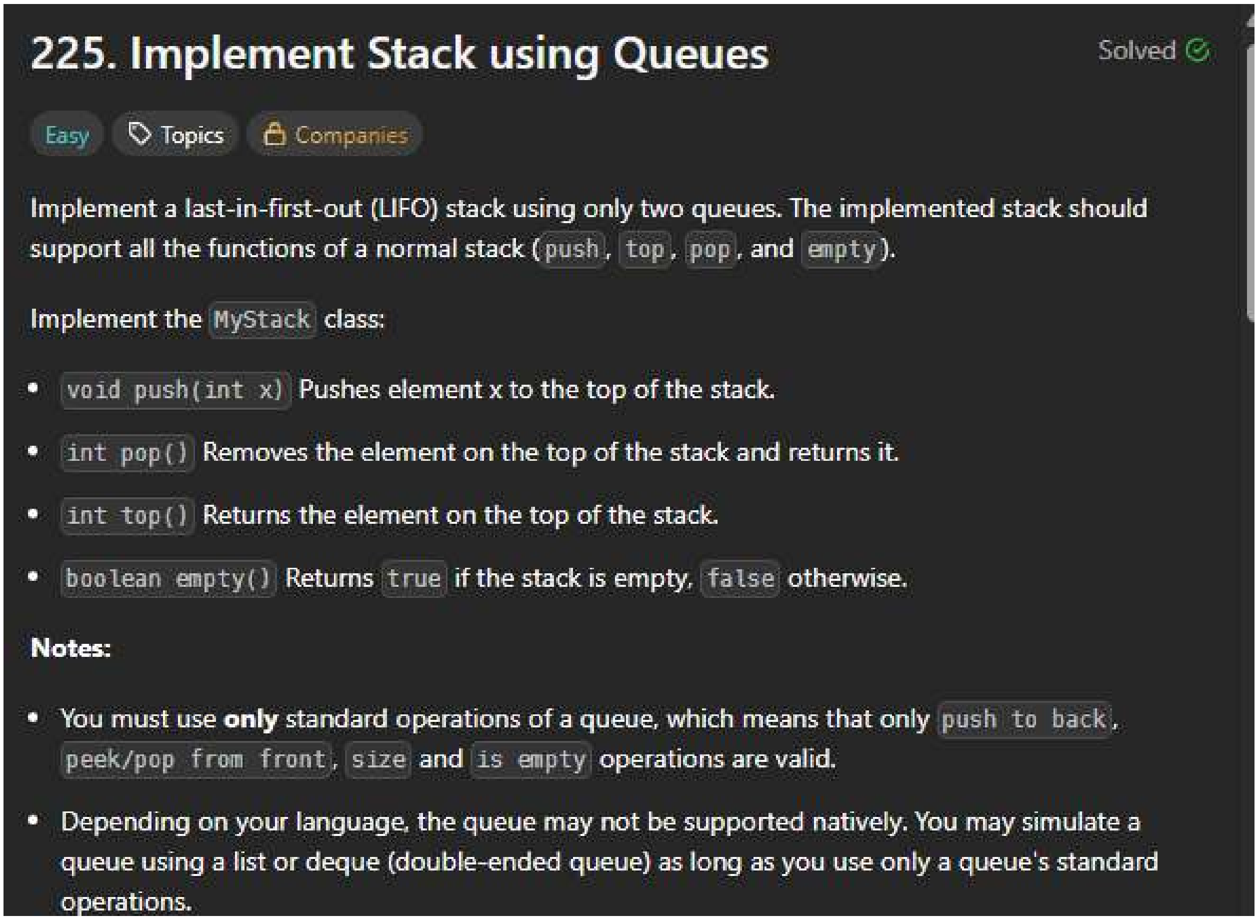


225. Implement Stack using Queues

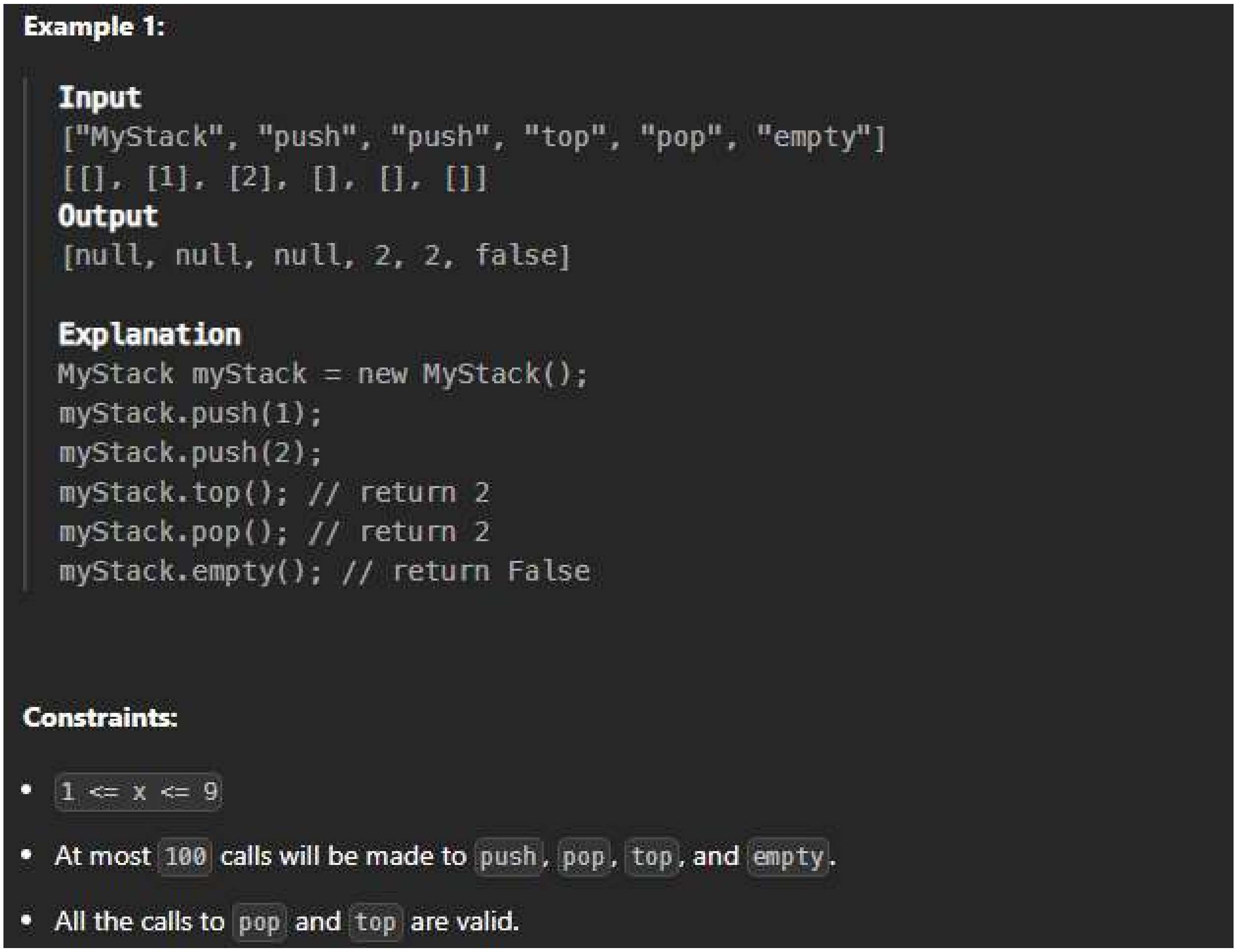
Implement a last-in-first-out (LIFO) stack using only two queues. The implemented stack should support all the functions of a normal stack (`push`, `top`, `pop`, and `empty`).

Implement the `MyStack` class:

- `void push(int x)` Pushes element x to the top of the stack.
- `int pop()` Removes the element on the top of the stack and returns it.
- `int top()` Returns the element on the top of the stack.
- `boolean empty()` Returns `true` if the stack is empty, `false` otherwise.

Notes:

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

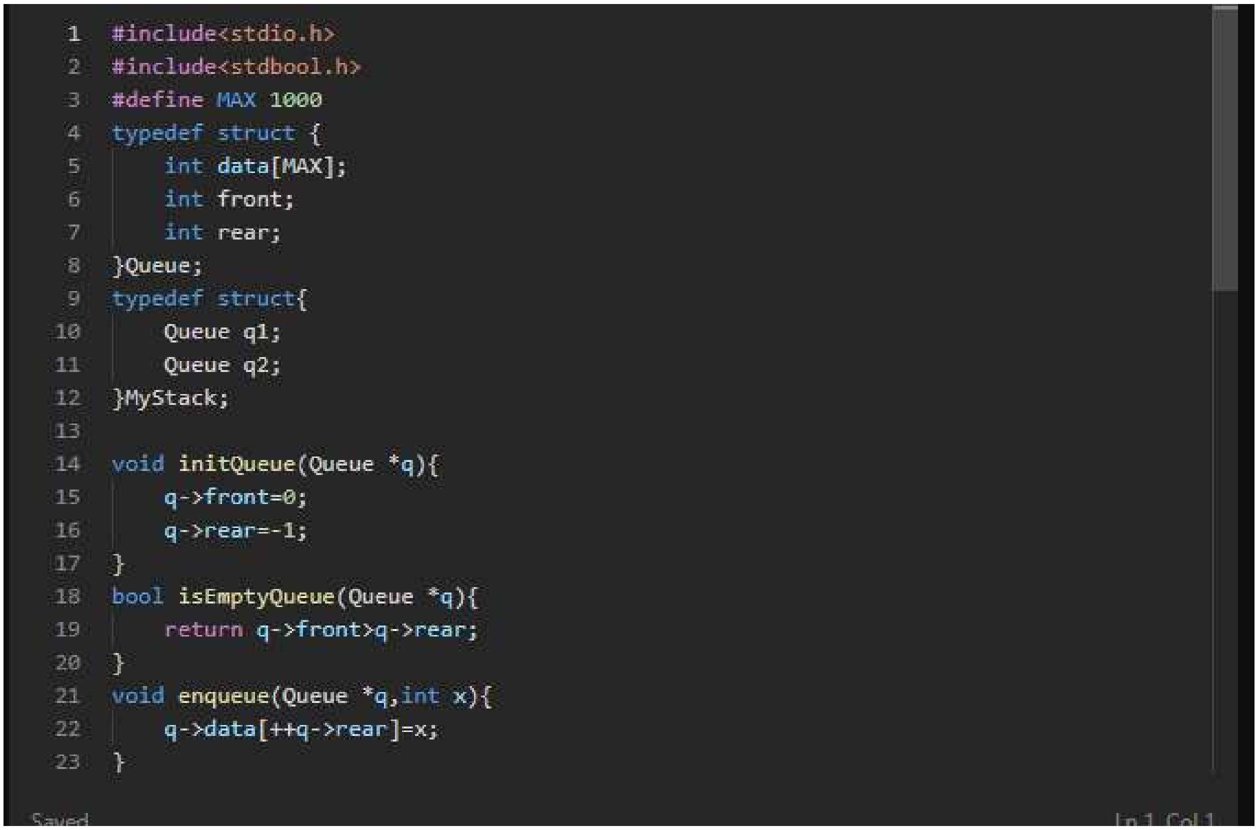


Example 1:

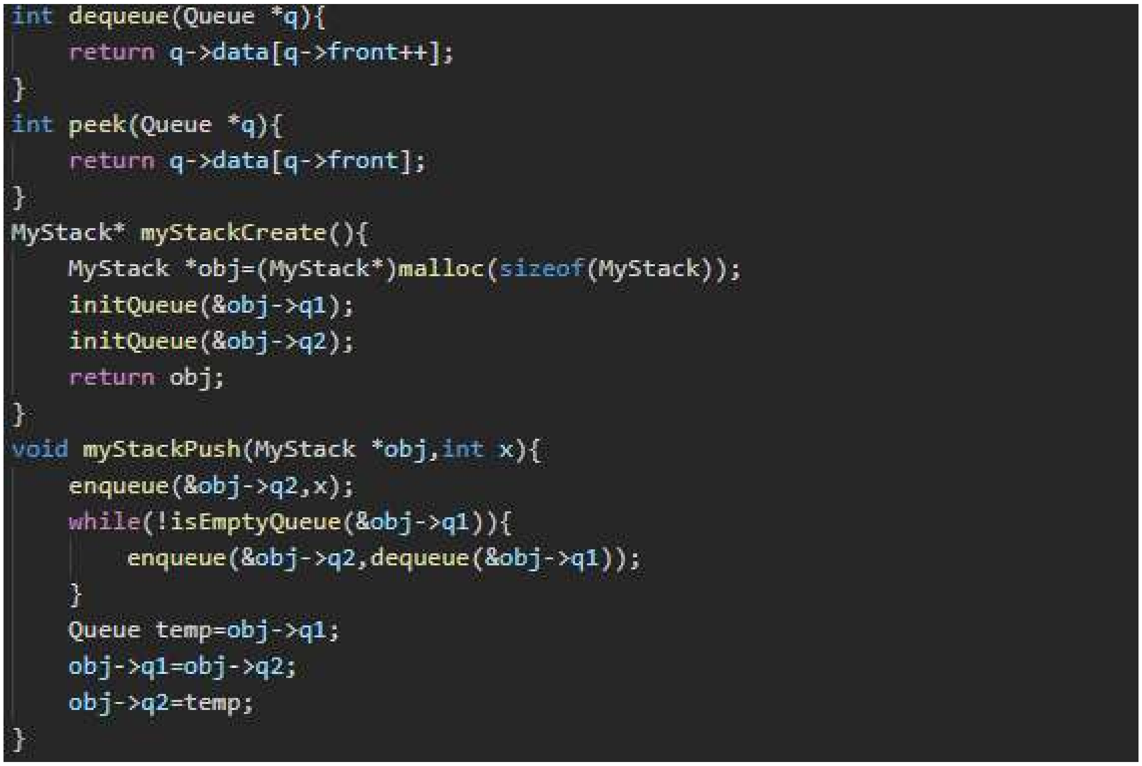
```
Input
["MyStack", "push", "push", "top", "pop", "empty"]
[[], [1], [2], [], [], []]
Output
[null, null, null, 2, 2, false]

Explanation
MyStack myStack = new MyStack();
myStack.push(1);
myStack.push(2);
myStack.top(); // return 2
myStack.pop(); // return 2
myStack.empty(); // return False
```

Constraints:

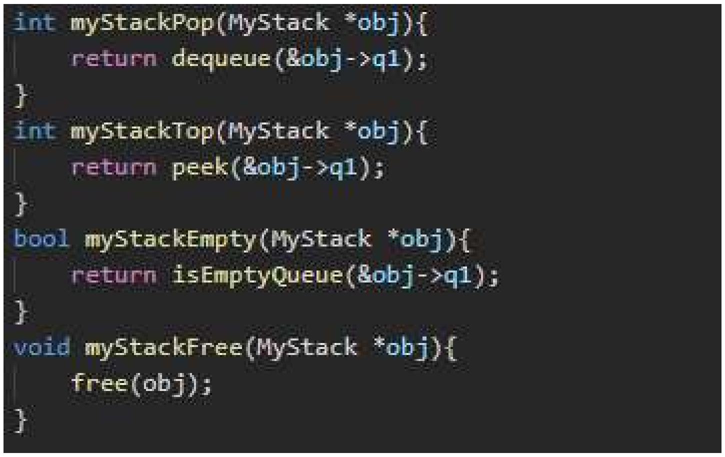
- `1 <= x <= 9`
- At most `100` calls will be made to `push`, `pop`, `top`, and `empty`.
- All the calls to `pop` and `top` are valid.



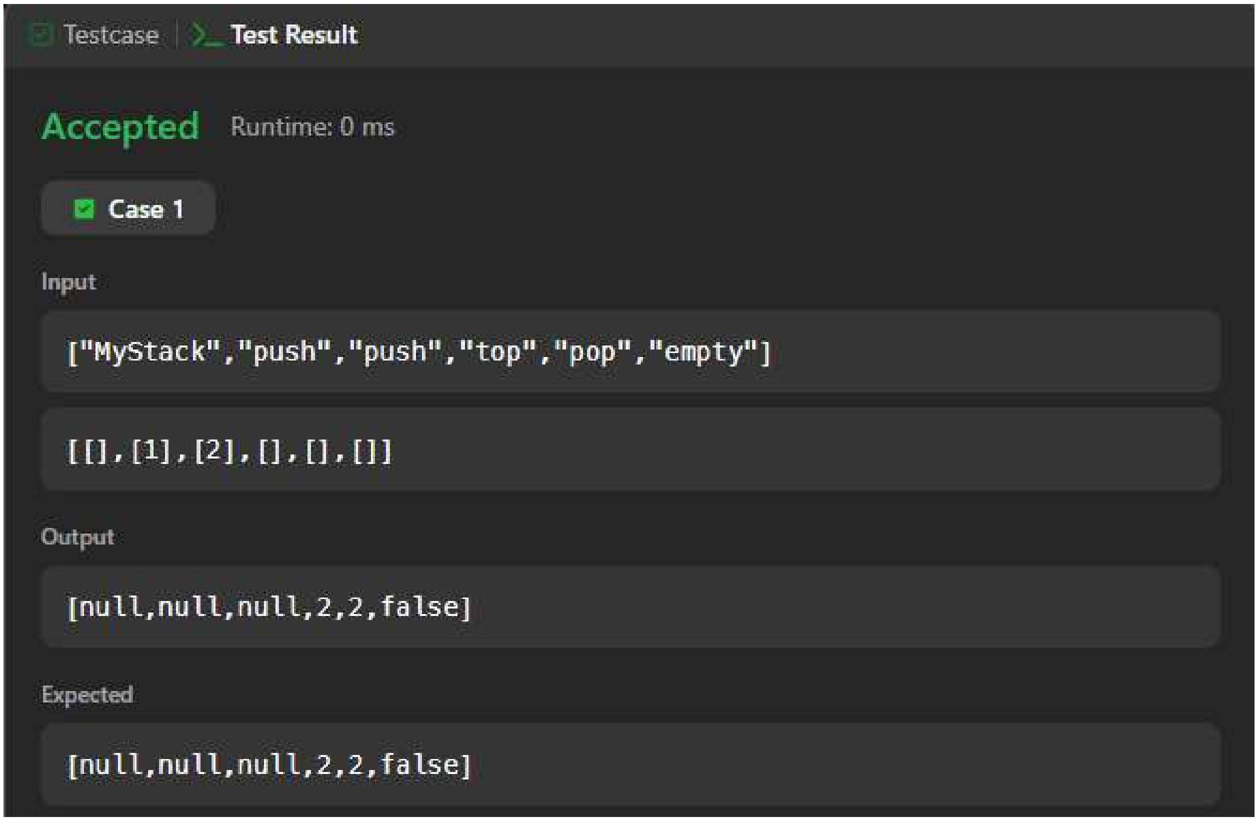
```c
#include<stdio.h>
#include<stdbool.h>
#define MAX 1000
typedef struct {
    int data[MAX];
    int front;
    int rear;
}Queue;
typedef struct{
    Queue q1;
    Queue q2;
}MyStack;

void initQueue(Queue *q){
    q->front=0;
    q->rear=-1;
}
bool isEmptyQueue(Queue *q){
    return q->front>q->rear;
}
void enqueue(Queue *q,int x){
    q->data[++q->rear]=x;
}
```



```c
int dequeue(Queue *q){
    return q->data[q->front++];
}
int peek(Queue *q){
    return q->data[q->front];
}
MyStack* myStackCreate(){
    MyStack *obj=(MyStack*)malloc(sizeof(MyStack));
    initQueue(&obj->q1);
    initQueue(&obj->q2);
    return obj;
}
void myStackPush(MyStack *obj,int x){
    enqueue(&obj->q2,x);
    while(!isEmptyQueue(&obj->q1)){
        enqueue(&obj->q2,dequeue(&obj->q1));
    }
    Queue temp=obj->q1;
    obj->q1=obj->q2;
    obj->q2=temp;
}
```



```c
int myStackPop(MyStack *obj){
    return dequeue(&obj->q1);
}
int myStackTop(MyStack *obj){
    return peek(&obj->q1);
}
bool myStackEmpty(MyStack *obj){
    return isEmptyQueue(&obj->q1);
}
void myStackFree(MyStack *obj){
    free(obj);
}
```



Accepted Runtime: 0 ms

☑ Case 1

Input

```
["MyStack","push","push","top","pop","empty"]
```

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

Output

```
[null,null,null,2,2,false]
```

Expected

```
[null,null,null,2,2,false]
```