

```
1  #include <queue>
2  #include <iostream>
3
4  using namespace std;
5
6  class MyStack {
7  public:
8      MyStack() {
9
10     }
11
12     // Push element x to the top of the stack.
13     void push(int x) {
14         // Move all elements from mainQueue to tempQueue
15         while (!mainQueue.empty()) {
16             tempQueue.push(mainQueue.front());
17             mainQueue.pop();
18         }
19
20         // Add the new element to mainQueue
21         mainQueue.push(x);
22
23         // Move elements back from tempQueue to mainQueue
24         while (!tempQueue.empty()) {
25             mainQueue.push(tempQueue.front());
26             tempQueue.pop();
27         }
28     }
29
30     // Removes the element on the top of the stack and returns it.
31     int pop() {
32         int topElement = mainQueue.front();
33         mainQueue.pop();
34         return topElement;
35     }
36
37     // Get the top element.
38     int top() {
39         return mainQueue.front();
40     }
41
42     // Returns whether the stack is empty.
43     bool empty() {
44         return mainQueue.empty();
45     }
46
47 private:
48     std::queue<int> mainQueue;
49     std::queue<int> tempQueue;
```

```
50 };
51
52 int main() {
53     MyStack myStack;
54     myStack.push(1);
55     myStack.push(2);
56
57     // Test pop
58     int poppedValue = myStack.pop();
59     cout << "Popped Value: " << poppedValue << endl; // Should print 2
60     "Popped Value: 2"
61
62     // Test top
63     int topValue = myStack.top();
64     cout << "Top Value: " << topValue << endl; // Should print "Top Value: 1"
65     1"
66
67     // Test empty
68     bool isEmpty = myStack.empty();
69     cout << "Is Stack Empty: " << (isEmpty ? "true" : "false") << endl; // Should print "Is Stack Empty: false"
70     Should print "Is Stack Empty: false"
71
72     return 0;
73 }
```