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Question 1 [15 Points]

You are given a stack of integers. Write a function named **filter_and_sort_stack()** that takes a stack **st** and an integer **k** as input parameters. The function modifies and returns the input stack such that:

1. All elements greater than **k** are removed from the stack.
2. The remaining elements are sorted in ascending order in the stack.

Assume the Stack class is already given and provides standard methods: push, pop, peek, and isEmpty.

Constraints:

- You can only use instances of the provided Stack class and its methods.
- No other data structures can be used apart from additional Stack instances.

Sample Input	Sample Output	Explanation
Stack: 50 40 70 20 10 80 30 k = 40	Stack: 10 20 30 40	Remove elements greater than 40 (i.e., 50, 70, and 80). The remaining elements 40, 20, 10, 30 are sorted into 10, 20, 30, 40.