

Question 1 [15 Points]

A stack of integers is given to you. Now perform summation of the odd integers and even integers to rearrange the given stack in such a way so that if the summation of the even integers is more than the summation of the odd integers then keep the odd integers at the bottom and the even integers at the top of the given stack. Otherwise, keep the odd integers at the top and even integers at the bottom. You have to maintain the relative sequence of the even numbers and the odd numbers.

You need to solve the above problem using **Stack class**. You cannot use other methods than `pop()`, `peek()`, `push()`, `isEmpty()` methods of Stack. Assume the Stack class is already given and provides standard methods: `push`, `pop`, `peek`, and `isEmpty`.

Constraints:

- No other data structures can be used other than Stack.

[Hint: You can create multiple instances of the Stack class to assist in solving the problem.]

Sample Input	Sample Output	Explanation
Stack: 11 22 24 35 41	Stack: 11 ← top 35 41 22 24	The summation of odd integers $11+35+41=87$ is greater than the summation of even integers $22+24=46$. So, all the even integers will be placed after the odd integers.
Stack: 8 10 7 5 12 3	Stack: 8 ← top 10 12 7 5 3	The summation of even integers $8+10+12=30$ is greater than the summation of odd integers $7+5+3=15$. So, all the odd integers will be placed after the even integers.