Problem A

In this problem, you need to create a singly linked list and insert integer values at the first and last of the linked list.

Input:
First line: n, a number. (1<=n<=10^6)
Next n lines: p v, two integers (0<=p<=1, -1000<=v <=1000). If p = 0, insert v at the first of the linked list. Otherwise, insert v at the last.

Output:
n lines, each containing the values stored in the linked list from head to tail.

Sample Case:

Input	Output
5 0 1 0 2 0 3 1 4 1 5	3 2 1 4 5
3 0 1 1 2 0 3	3 1 2

Problem B

In this problem, you need to create a singly linked list. You will be given n integers, v_i, which you will insert at the last of the linked list according to the given order. Then you have to delete all the integers in the list within a given range [l, u] where l is the lower limit and u is the upper limit.

You must use the template named "*template_b.cpp"* stored in the template folder.

Input:
First line: n, a number (1<=n<=10^6).
Next n lines: v_i, a integer (-10000<=v <=10000).
Next line: Two integers, l u, (-10000<= l < u <=10000).

Output:
Each line will contain the values stored in the linked list from head to tail.

Sample Case:

Input	Output
5 1 2 3 4 5 2 3	1 4 5

Problem C

In this problem, you need to create a singly linked list. You will be given n integers, v_i, which you will insert at the last of the linked list according to the given order. Then you will sort the integers in ascending order. Do not use data structures like array, vector, etc. Output the numbers in the linked list from head to tail.

You must use the template named "*template_c.cpp"* stored in the template folder.
Sample Case:

Input:
First line: n, a number (1<=n<=10^3).
Next n lines: v_i, a integer (-10000<= v_i <=10000).

Output:
Each line will contain the values stored in the linked list from head to tail after sorting.

Input	Output
3 2 1 3	1 2 3

Problem D

In this problem, you will be given an postfix expression where each operand is a digit. Evaluate it. In addition to the usual arithmetic operators as +, -, *, /, there will be two new unary operators as described below. In mathematics, a unary operation is an operation with only one operand.

#, where A# = A + 1
$, where A$ = A - 1

In case of divided by zero, increase the divisor by two.

Sample Case:

Input	Output
168*+	49
5#	6
7$	6
168*+#	50
6/0	3