Lab 8 - P1

Problem Statement:

Suppose we start with an empty set S. We can perform three types of queries on S -

1) type 0 (t = 0): Given a number val, add val to the set S.

2) type 1 (t = 1): Given a rank r, output the number in S which has rank r.

3) type 2 (t = 2): Given a number val, remove val from the set S.

Note that the rank of a number in a set S is its position in the sorted list of numbers in S. For example, if S has the numbers {1,5,3,9,2}, the number with rank 4 is 5.

Input Format:

The first line contains a number q (1 <= q <= 10^5) – the number of queries.

The next q lines contain two numbers separated by a space. The first number is t (0 <= t <= 2), the type of query. Based on the value of t, the following can be the second number -

1) t = 0: num (1 <= num <= 10^6)

2) t = 1: r (1 <= r <= size of S)

3) t = 2: num (some number currently present in S to be deleted)

Output Format:

For every query of type 1 in the input, output the number in S which has rank r.

Sample Testcases:

Input	Output
7 0 2 0 4 1 2 2 2 1 1 0 3 1 1	4 4 3
9 0 9 0 7	7 9 4

0 5 1 2 2 5 1 2 0 3 0 4 1 2	