Marvel Night

Input file:	**standard input**
Output file:	**standard output**
Time limit:	3 seconds
Memory limit:	256 megabytes

$Mina$ has started to watch all Marvel movies starting from Hulk to Spiderman - No way home. But, he had a task to finish. $Mina$ had a tricky idea, he swapped the tasks between him and his teammate $Maria$ as he wanted an easy task.

When $Maria$ started to do her task she found out that it was replaced by someone else. But first, she wanted to watch her favourite series then she will find out who swapped the tasks. So, she gave you the task to solve it.

You have an array A which is initially empty.

You have to perform n operations. Each operation may be one of the following two types.

- 1 x − Add the element x to the end of A.

- 2 x y l r − Replace the first occurrence of element x with an index in the interval $[l, r]$ inclusive (if one exists) with element y.

Finally, print the size of the *array* and the resulting *array* after performing n operations.

It is guaranteed that l and r are always less than or equal to the current size of the array.

Input

The first line contains a single integer n $(1 \leq n \leq 10^6)$ − the number of operations to perform.

The next n lines contain operations, each operation is of one of two types:

- 1 x $(1 \leq x \leq 10^5)$

- 2 x y l r $(1 \leq x, y \leq 10^5)$, $(1 \leq l \leq r \leq current\_size(A))$.

Output

In the first line Print the size of A.

In the second line print the array A where each element is separated by a single space.

Example

standard input	standard output
5 1 2 1 3 1 2 2 2 4 1 2 2 2 5 1 3	3 4 3 5

Note

In the example, the array A changes as follows:

- (2)

- $(2, 3)$

- $(2, 3, 2)$
- $(4, 3, 2)$
- $(4, 3, 5)$