LCS of Permutations

For two sequences x and y, we define $LCS(x, y)$ as the length of their longest common subsequence.

You are given 4 integers n, a, b, c. Determine if there exist 3 permutations p, q, r of integers from 1 to n, such that:

- $LCS(p, q) = a$
- $LCS(p, r) = b$
- $LCS(q, r) = c$

If such permutations exist, find any such triple of permutations.

A permutation p of integers from 1 to n is a sequence of length n such that all elements are distinct integers in the range $[1, n]$. For example, $(2, 4, 3, 5, 1)$ is a permutation of integers from 1 to 5 while $(1, 2, 1, 3, 5)$ and $(1, 2, 3, 4, 6)$ are not.

A sequence c is a subsequence of a sequence d if c can be obtained from d by deletion of several (possibly, zero or all) elements. For example, $(1, 3, 5)$ is a subsequence of $(1, 2, 3, 4, 5)$ while $(3, 1)$ is not.

The longest common subsequence of the sequences x and y is the longest sequence z which is a subsequence of both x and y. For example, the longest common subsequence of the sequences $x = (1, 3, 2, 4, 5)$ and $y = (5, 2, 3, 4, 1)$ is $z = (2, 4)$ since it is a subsequence of both sequences and is the longest among such subsequences. $LCS(x, y)$ is the length of the longest common subsequence, which is 2 in the example above.

Input

The first line of the input contains a single integer t ($1 \le t \le 10^5$) - the number of test cases. The description of the test cases follows.

The only line of each test case contains 5 integers $n, a, b, c, output$ ($1 \le a \le b \le c \le n \le 2 \cdot 10^5$, $0 \le output \le 1$).

If $output = 0$, just determine if such permutations exist. If $output = 1$, you also have to find such a triple of permutations if it exists.

It's guaranteed that the sum of n over all test cases doesn't exceed $2 \cdot 10^5$.

Output

For each test case, in the first line, output "YES", if such permutations p, q, r exist, and "NO" otherwise. If $output = 1$, and such permutations exist, output three more lines:

In the first line output n integers $p_1, p_2, \ldots, p_n$ - the elements of the permutation p.

In the second line output n integers $q_1, q_2, \ldots, q_n$ - the elements of the permutation q.

In the third line output n integers $r_1, r_2, \ldots, r_n$ - the elements of the permutation r.

If there are multiple triples, output any of them.

You can output each letter in any case (for example, "YES", "Yes", "yes", "yEs", "yEs" will be recognized as a positive answer).

Example

Input:

```
8
1 1 1 1 1
4 2 3 4 1
6 4 5 5 1
7 1 2 3 1
1 1 1 1 0
4 2 3 4 0
6 4 5 5 0
7 1 2 3 0
```

Output:

```
YES
1
1
1
NO
YES
1 3 5 2 6 4
3 1 5 2 4 6
1 3 5 2 4 6
NO
YES
NO
YES
NO
```

Note

In the first test case, $LCS((1),(1))$ is 1.

In the second test case, it can be shown that no such permutations exist.

In the third test case, one of the examples is $p=(1,3,5,2,6,4)$, $q=(3,1,5,2,4,6)$, $r=(1,3,5,2,4,6)$. It's easy to see that:

- $LCS(p,q)=4$ (one of the longest common subsequences is $(1,5,2,6)$)
- $LCS(p,r)=5$ (one of the longest common subsequences is $(1,3,5,2,4)$)
- $LCS(q,r)=5$ (one of the longest common subsequences is $(3,5,2,4,6)$)

In the fourth test case, it can be shown that no such permutations exist.

Scoring

1. (3 points): $a=b=1, c=n, output=1$
2. (8 points): $n \leq 6, output=1$
3. (10 points): $c=n, output=1$
4. (17 points): $a=1, output=1$
5. (22 points): $output=0$
6. (40 points): $output=1$