Problem H: Hardcoded Median

For any array a of n non-negative integers $a_0, a_1, \ldots, a_{n-1}$, where n is **odd**, the median of a is defined as the $\frac{n-1}{2}$-th element of a when the elements are sorted in increasing order. For example:

- For $a = [5, 7, 8]$, the median of a is 7 (as a is already sorted, and $a_{\frac{n-1}{2}} = a_1 = 7$).
- For $a = [4, 8, 6, 0, 2]$, the median of a is 4 (since a after sorted is $[0, 2, 4, 6, 8]$, and $a_{\frac{n-1}{2}} = a_2 = 4$).
- For $a = [0, 100, 0]$, the median of a is 0.

Given an array b of n non-negative integers $b_0, b_1, \ldots, b_{n-1}$, where n is **odd**, and a non-negative integer x. Some elements of b are missing (indicated by $b_i = -1$). Recover the missing elements of b so that the median of the array b is exactly x, or report that it is impossible to do so.

Input

The first line contains a positive integer t $(1 \le t \le 10^4)$ – the number of test cases. The description of each test case is as follows.

The first line contains two integers n and x ($1 \le n < 2 \cdot 10^5$, $0 \le x \le 10^9$) – the length of the array b and the required median value.

The second line contains n integers $b_0, b_1, \ldots, b_{n-1}$ ($-1 \le b_i \le 10^9$) – the elements of b (where $b_i = -1$ denotes that b_i is missing).

It is guaranteed that the sum of n over all test cases does not exceed $2 \cdot 10^5$.

Output

For each test case, print "YES" (without quotes) if there is a way to recover the missing elements of b so that the median of b is x. Otherwise, print "NO" (without quotes).

If the answer is "YES", on the second line, print n integers $b'_0, b'_1, \ldots, b'_{n-1}$ ($0 \le b'_i \le 10^9$), which represent the elements of array b after recovering the missing values. If there are multiple valid arrays b', print any of them. *It can be proven that under the constraints of this problem, if a valid array b' exists, there also exists an array b' where all elements are between 0 and 10^9.*

Sample Explanation

In the first test case, a possible recovery of b is $b' = [0, 4, 2]$, which has a median value of 2 (as the sorted b' is $[0, 2, 4]$).

In the second test case, a possible recovery of b is $b' = [4, 8, 6, 0, 2]$, which has a median value of 4 (as the sorted b' is $[0, 2, 4, 6, 8]$).

In the third test case, the only possible recovery of b is $b' = b$ itself, which has a median value of 8 (equal to x).

In the fourth test case, the only possible recovery of b is $b' = b$ itself, but it has a median value of 8 (which is different from $x = 9$).

In the fifth test case, it can be shown that the median of b' is always 4 regardless of the recovery, so no recovery of b exists where the median is 8.

Sample Input 1

```
5
3 2
0 -1 2
5 4
4 -1 6 0 -1
7 8
2 5 6 8 9 10 11
7 9
2 5 6 8 9 10 11
5 8
4 4 4 -1 -1
```

Sample Output 1

```
YES
0 4 2
YES
4 8 6 0 2
YES
2 5 6 8 9 10 11
NO
NO
```