# Problem G. Permutation

| | |
|---|---|
| Input file: | *standard input* |
| Output file: | *standard output* |
| Time limit: | 5 seconds |
| Memory limit: | 256 mebibytes |

Byteasar urgently needs two integer sequences for his research: an increasing one and a decreasing one. However, the only thing he has is a permutation $(p_1, p_2, \ldots, p_n)$ of the numbers in the range $[1, n]$. Can you help him partition this permutation into two such sequences?

Formally, we're looking for two subsequences $p_{r_1}, p_{r_2}, \ldots, p_{r_R}$ and $p_{m_1}, p_{m_2}, \ldots, p_{m_M}$ $(R, M \geq 0)$ such that:

- $1 \leq r_1 < \ldots < r_R \leq n$ and $p_{r_1} < \ldots < p_{r_R}$,
- $1 \leq m_1 < \ldots < m_M \leq n$ and $p_{m_1} > \ldots > p_{m_M}$,
- $r_i \neq m_j$ for all $i, j$ $(1 \leq i \leq R, 1 \leq j \leq M)$,
- $R + M = n$.

## Input

The first line of the input contains a single integer $t$ $(1 \leq t \leq 50)$ – the number of testcases in the input file. The following lines describe the consecutive testcases.

A single testcase description consists of two lines. The first of them contains an integer $n$ $(1 \leq n \leq 100\,000)$ – the length of the permutation $(p_i)$. The following line contains $n$ integers $p_1, \ldots, p_n$ $(1 \leq p_i \leq n$ and $p_i \neq p_j$ for all $i \neq j)$ – the permutation itself.

## Output

For each testcase (in the order they appear in the input) you should output `YES` if the permutation can be partitioned into suitable subsequences or `NO` otherwise. If the partitioning is possible, you should output another two lines describing a sample solution. You should follow the format described below:

$$R\ p_{r_1}\ p_{r_2}\ \ldots\ p_{r_R}$$

$$M\ p_{m_1}\ p_{m_2}\ \ldots\ p_{m_M}$$

In case there are many solutions, you can output any of them.

## Example

| standard input | standard output |
|---|---|
| 3<br>5<br>5 1 4 2 3<br>5<br>1 2 3 5 4<br>1<br>1 | YES<br>2 1 2<br>3 5 4 3<br>YES<br>3 1 2 3<br>2 5 4<br>YES<br>0<br>1 1 |