# Problem L. Lisa's Sequences

Time limit: 5 seconds
Memory limit: 1024 megabytes

Lisa loves playing with the sequences of integers. When she gets a new integer sequence $a_i$ of length $n$, she starts looking for all *monotone* subsequences. A monotone subsequence $[l, r]$ is defined by two indices $l$ and $r$ ($1 \le l < r \le n$) such that $\forall i = l, l+1, \ldots, r-1 : a_i \le a_{i+1}$ or $\forall i = l, l+1, \ldots, r-1 : a_i \ge a_{i+1}$.

Lisa considers a sequence $a_i$ to be *boring* if there is a monotone subsequence $[l, r]$ that is as long as her boredom threshold $k$, that is when $r - l + 1 = k$.

Lucas has a sequence $b_i$ that he wants to present to Lisa, but the sequence might be boring for Lisa. So, he wants to change some elements of his sequence $b_i$, so that Lisa does not get bored playing with it. However, Lucas is lazy and wants to change as few elements of the sequence $b_i$ as possible. Your task is to help Lucas find the required changes.

## Input

The first line of the input contains two integers $n$ and $k$ ($3 \le k \le n \le 10^6$) — the length of the sequence and Lisa's boredom threshold. The second line contains $n$ integers $b_i$ ($1 \le b_i \le 99\,999$) — the original sequence that Lucas has.

## Output

On the first line output an integer $m$ — the minimal number of elements in $b_i$ that needs to be changed to make the sequence not boring for Lisa. On the second line output $n$ integers $a_i$ ($0 \le a_i \le 100\,000$), so that the sequence of integers $a_i$ is not boring for Lisa and is different from the original sequence $b_i$ in exactly $m$ positions.

## Examples

| standard input | standard output |
|---|---|
| 5 3<br>1 2 3 4 5 | 2<br>1 0 3 0 5 |
| 6 3<br>1 1 1 1 1 1 | 3<br>1 100000 0 1 0 1 |
| 6 4<br>1 1 4 4 1 1 | 1<br>1 1 4 0 1 1 |
| 6 4<br>4 4 4 2 2 2 | 2<br>4 4 0 2 0 2 |
| 6 4<br>4 4 4 3 4 4 | 1<br>4 4 100000 3 4 4 |
| 8 4<br>2 1 1 3 3 1 1 2 | 2<br>2 1 1 3 0 1 0 2 |
| 10 4<br>1 1 1 2 2 1 1 2 2 1 | 2<br>1 1 100000 2 2 100000 1 2 2 1 |
| 7 5<br>5 4 4 3 4 4 4 | 0<br>5 4 4 3 4 4 4 |
| 10 10<br>1 1 1 1 1 1 1 1 1 1 | 1<br>1 1 1 1 1 1 1 1 0 1 |