Problem L. Secret of Tianqiu Valley

In the north tower of Tianqiu Valley's ruins, there are some flame torch puzzles and Lumine the traveler is facing the last and the hardest one.



Source: Genshin Impact Official

There are n torches in a circle and some torches have been ignited initially. The i-th and the (i mod $n+1$)-th are adjacent for all $1 \leq i \leq n$.

To solve the puzzle, all the torches should be ignited. In each move, Lumine can ignite an extinguished torch, and the status of the adjacent torches will be reversed affected by the supernatural. That is, each of the adjacent torches will be ignited if it is currently extinguished, or be extinguished if it is currently ignited.

Time is money, Lumine wants to solve the puzzle in $2n$ moves or determine that the puzzle is unsolvable.

Input

There are multiple test cases. The first line of the input contains an integer T indicating the number of test cases. For each test case:

The first line of the input contains an integer n ($3 \leq n \leq 10^5$) indicating the number of torches in the circle.

The second line contains a binary string $s_1 s_2 \cdots s_n$ of length n ($s_i \in \{\text{'0'}, \text{'1'}\}$). If $s_i =$ '0' the i-th torch is extinguished initially; If $s_i =$ '1' the i-th torch is ignited initially. It is guaranteed that not all the torches have been ignited initially.

It is also guaranteed that the sum of n of all test cases will not exceed 10^6.

Output

If the puzzle is unsolvable, output "0" (without quotes).

Otherwise, output an integer k ($1 \leq k \leq 2n$) in the first line indicating the number of moves Lumine needs to solve the puzzle. Then output a line containing k integers $t_1, t_2, \cdots, t_k$ separated by a space, where t_i indicating that Lumine will ignite the t_i-th torch in the i-th move. If there are multiple answers print any of them.

Please, DO NOT output extra spaces at the end of each line or your solution may be considered incorrect!

Example

standard input	standard output
2 5 00000 3 001	7 2 5 1 2 3 4 2 0

Note

For the first sample test case, the status of the torch will change like this: 00000 $\rightarrow$ 11100 $\rightarrow$ 01111 $\rightarrow$ 10110 $\rightarrow$ 01010 $\rightarrow$ 00100 $\rightarrow$ 00011 $\rightarrow$ 11111.