

Binary vs Ternary

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 1024 megabytes

A *binary string* is a sequence of bits, i.e., “0”s and “1”s. For a binary string S , you can perform the following operations for any number of times:

- Choose a non-empty substring $S[l, r] = S_l S_{l+1} \dots S_r$, consider it as a ternary (i.e., base 3) integer, and then convert it to the corresponding binary integer. For example, $(101)_3 = (1010)_2$, so you can transform **110110** into **1101010**.

Note that the selected substring **may have leading zeros**, but the transformed substring will have no leading zeros. We consider 0 as a proper binary integer without leading zeros. For example, you can transform 01 to 1 because $(01)_3 = (1)_2$. You can also transform 0 to 0 because $(0)_3 = (0)_2$.

Given two binary strings A and B , both starting with the digit “1”, you need to determine whether A can be transformed into B in no more than 512 operations. And you need to keep the length of the string no more than 128 during the transformation. If it is possible, print a solution.

Input

There are multiple test cases in a single test file. The first line of the input contains a single integer T ($1 \leq T \leq 1000$), indicating the number of test cases.

For each test case, the first line contains the string A ($1 \leq |A| \leq 64$). The second line contains the string B ($1 \leq |B| \leq 64$).

It is guaranteed that A and B start with the digit “1” and consist of only “1” and “0”.

Output

For each test, if it is impossible to transform string A to B , output “-1”.

Otherwise, output an integer n ($0 \leq n \leq 512$) first, indicating the number of steps. In the next n lines, output two integers l, r ($1 \leq l \leq r$) indicating the substring you choose in each step. The indices are 1-based. r should be no more than the length of the current string.

Example

standard input	standard output
3	-1
1	1
111	2 4
110110	2
1101010	1 3
1111	2 5
111111	

Note

In the first test case, it can be shown that there is no possible solution.

In the second test case, for $A = 110110$, we can choose $l = 2$ and $r = 4$ first. Since $A[2, 4] = 101$, and $(101)_3 = (1010)_2$, so **110110** will be changed to **1101010**.