

C. A-B Palindrome

time limit per test: 2 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

You are given a string s consisting of the characters '0', '1', and '?'. You need to replace all the characters with '?' in the string s by '0' or '1' so that the string becomes a palindrome and has **exactly** a characters '0' and **exactly** b characters '1'. Note that each of the characters '?' is replaced **independently** from the others.

A string t of length n is called a palindrome if the equality $t[i] = t[n - i + 1]$ is true for all i ($1 \leq i \leq n$).

For example, if $s = "01????0"$, $a = 4$ and $b = 4$, then you can replace the characters '?' in the following ways:

item "010"; item "0110".

For the given string s and the numbers a and b , replace all the characters with '?' in the string s by '0' or '1' so that the string becomes a palindrome and has **exactly** a characters '0' and **exactly** b characters '1'.

Input

The first line contains a single integer t ($1 \leq t \leq 10^4$). Then t test cases follow.

The first line of each test case contains two integers a and b ($0 \leq a, b \leq 2 \cdot 10^5$, $a + b \geq 1$).

The second line of each test case contains the string s of length $a + b$, consisting of the characters '0', '1', and '?'.

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

Output

For each test case, output:

- "-1", if you can't replace all the characters '?' in the string s by '0' or '1' so that the string becomes a palindrome and that it contains **exactly** a characters '0' and **exactly** b characters '1';
- the string that is obtained as a result of the replacement, otherwise.

If there are several suitable ways to replace characters, you can output any.

Example

input

Copy

```
9
4 4
01?????0
3 3
??????
1 0
?
2 2
0101
2 2
01?0
0 1
0
0 3
1?1
2 2
?00?
```

Codeforces Round #713 (Div. 3).

Contest is running

01:57:51

Contestant



→ Submit?

Language: GNU G++14 6.4.0

 Choose file: 선택된 파일 없음

```
4 3
??010?0

output
01011010
-1
0
-1
0110
-1
111
1001
0101010
```

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