XYZ-Strings

Coach Pang likes strings. He is also interested in algorithms. A few days ago he discovered for himself a very nice problem:
You are given an XY-string S. You need to count the number of substrings of S, which have an equal number of 'X'-s and 'Y'-s.
Do you know how to solve it? Good. Coach Pang will make the problem a little bit more difficult for you.

You are given an XYZ-string S. You need to count the number of substrings of S, which have an equal number of 'X'-s, 'Y'-s and 'Z'-s.

A string is called XY-string if it doesn't contain any symbols except 'X' or 'Y'. A string is called XYZ-string if it doesn't contain any symbols except 'X', 'Y' or 'Z'.
A bit more difficulty is added to the Question characters 'X' ,'Y' and 'Z' will change for each test case.

Input:

The first line of the input contains T (number of test cases).For each test case there will be two lines.First contains a string of length three ("XYZ") (only upper case letters) representing 'X' , 'y' and 'Z' respectively.Second line contains the XYZ-String S.

Output:

For each test case your output should contain the only integer, denoting the number of substrings of S, which have an equal number of 'X'-s, 'Y'-s and 'Z'-s.

Constraints

1 ≤ T ≤ 6
1 ≤ |S| ≤ 1000000; where |S| denotes the length of the given XYZ-string.
Sum of all the strings S in the test file will not exceed 5000000.

Example

Input:

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2
XYZ
XYZXYZ
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ABC
ABACABA

Output:

5
2

Explanation :

In the first example you should count S[1..3] = "XYZ" , S[2..4] = "YZX", S[3..5] = "ZXY" , S[4..6] = "XYZ" and S[1..6] = "XYZXYZ".
Similarly in the second example you should count S[2..4] = "BAC" and S[4..6] = "CAB".