Mikroskil Ideafuse 2021 Competition
Competitive Programming Competition
for College Students
Final Round

# Problem I
# Screening Test

After triumphantly defeating the dark lord and finally graduating from the school of witchcraft and wizardry, Harry goes looking for a career as a dark wizard catcher. However, he stumbled upon a question asked by the recruiter. The question is unlike anything he has learned or experienced for 7 years of magical life. He then consults you, his non-magical friend, about this problem.

The question asked by the recruiter was this: "Given two binary string $A$ and $B$ where $|A| \geq |B|$, write a program to count how many substrings of $A$ with the same length of $B$ are there that will result in an odd number after being XORed with $B$. Two substrings are considered different if their positions of occurrence are different."

Of course, Harry doesn't know anything about binary string, program, substring, or XOR. Being a student in computer science, it is your time to shine in front of Harry.

Just in case you didn't know, a binary string is a string that contains only 0 or 1. XOR is the exclusive-or operation.

Let's try an example. Let $A$ = 10010010 and $B$ = 01101. There are $4$ substrings of $A$ with a length of $5$ (the same length with $B$). Let's see what happened if we XOR each of those substrings with $B$.

```
10010010          10010010          10010010          10010010
01101              01101              01101              01101
-------- xor      -------- xor      -------- xor      -------- xor
11111    = 31      01001   = 9        00100 = 4          11111 = 31
```

In this example, there are $3$ substrings which result in an odd number when XORed with $B$. They are: 10010, 00100, and 10010.

Later, Harry learned that this question was only to test whether Harry knows much about non-magical people. Alas, you are challenged by this question and going to solve it to show Harry that you are a smart non-magical person.

### Input

Input begins with an integer $T$ $(1 \leq T \leq 10)$ representing the number of cases.

Each case contains two binary strings $A$ $B$ $(1 \leq |B| \leq |A| \leq 200\,000)$ representing the first and second binary string, respectively.

### Output

For each case, output in a line "`Case #X: Y`" (without quotes) where `X` is the case number (starts from 1) and `Y` is the output for the respective case.

### Sample Input #1

```
3
10010010 01101
011101101 1011101
11111 100
```

### Sample Output #1

```
Case #1: 3
Case #2: 1
Case #3: 3
```

*Explanation for the sample input/output #1*

For the $3^{rd}$ case, all substring of 11111 with the length of $3$ (i.e. $\underline{111}11$, $1\underline{111}1$, and $11\underline{111}$) will result in an odd number when XORed with 100.