UNITED INTERNATIONAL UNIVERSITY
Department of Computer Science and Engineering (CSE)

Course Title: Data Structure & Algorithm Lab II **Course Code: CSE2218**
Trimester & Year: Summer 2023 **Section: B** **Credit Hours: 1.0** **Lec Raiyan**

Assignment on KMP

A string is a finite sequence of symbols that are chosen from an alphabet. In this problem you are given two non-empty strings A and B, both contain lower case English alphabets. You have to find one, several, or all occurrences of a defined string (B) in a large string (A) such that each matching is perfect. All alphabets of B must be matched to corresponding matched subsequence. Additionally, find the number of times B occurs as a substring of A.

Input

Input starts with an integer **T (≤ 5),** denoting the number of test cases.

Each case starts with two lines. First line contains A and second line contains B. You can assume than **1 ≤ length(A), length(B) ≤ 10^{6}.**

Output

For each case, print the case number and the staring indices of **B** if found in **A** along with the number of times **B** occurs as a substring of **A**.

Sample Input	Sample Output

4
axbyczd
abc
abcabcabcabc
abc
aabacbaabbaaz
aab
aaaaaa
aa
	Case 1: Not Found
	        0 times
	
	Case 2: Found at 0, 3, 6, 9 position
	        4 times
	
	Case 3: Found at 0, 6 position
	        2 times
	
	Case 4: Found at 0, 1, 2, 3, 4
	        5 times

Submit your .cpp file on LMS by Friday, 18 Aug. Name it as yourID_KMPAsn.cpp