Divisible Subsequences

Given a sequence of positive integers, count all contiguous subsequences (sometimes called substrings, in contrast to subsequences, which may leave out elements) the sum of which is divisible by a given number. These subsequences may overlap. For example, the sequence (see sample input)

2,1,2,1,1,2,1,2

contains six contiguous subsequences the sum of which is divisible by four: the first to eighth number, the second to fourth number, the second to seventh number, the third to fifth number, the fourth to sixth number, and the fifth to seventh number.

Input

The first line of the input contains an integer t. t test cases follow, each of them separated by a blank line. Each test case starts with a line consisting of two integers d and n, the divisor of the sum of the subsequences and the length of the sequence, respectively. The second line of a test case contains the elements of the sequence $w_1, \ldots, w_n$.

Output

For each test case, print a line containing "Case #i: s", where i is its number starting at 1 and s is the number of contiguous subsequences the sum of which is divisible by d.

Constraints

- $1 \leq t \leq 20$
- $1 \leq d \leq 10^6$
- $1 \leq n \leq 50000$
- $1 \leq w_i \leq 10^9$ for all $1 \leq i \leq n$

Sample Input 1	Sample Output 1
2 7 3 1 2 3 4 8 2 1 2 1 1 2 1 2	Case #1: 0 Case #2: 6