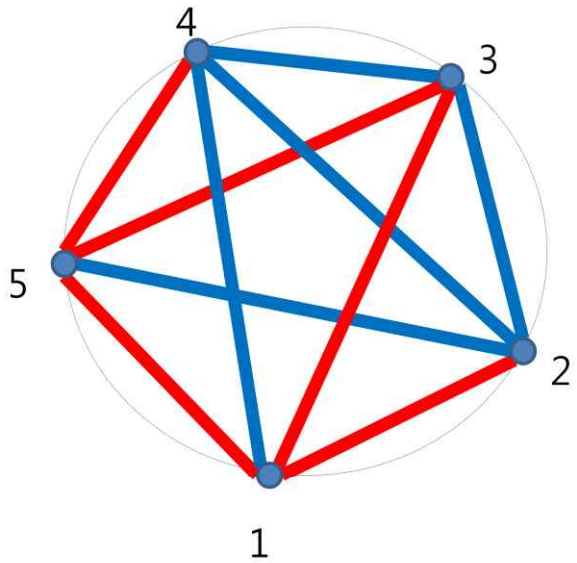
The 36th Annual
ACM International Collegiate Programming Contest
Asia Regional - Daejeon

Problem H
Neon Sign

JungHeum recently opened a restaurant called 'Triangle' and has ordered the following neon sign for his restaurant. The neon sign has N corners positioned on the circumference of a circle, and $N * (N-1)/2$ luminous tubes that connect the corners. There are only two colors for luminous tubes, red and blue.

JungHeum wants the sign to show only one shape of a triangle at a time, whose luminous tubes colors are same, continuously. Hence, he wants to know the number of uni-color triangles.

For example, the following neon sign has only two uni-color triangles (1, 3, 5) and (2, 3, 4).



Given the number of corners of the neon sign and the colors of the luminous tubes in the sign, write a program that finds the number of uni-color triangles.

Input
Your program is to read from standard input. The input consists of T test cases. The number of test cases T is given in the first line of the input. Each test case starts with an integer N ($3 \le N \le 1{,}000$), which represents the number of corners of the neon sign. In the following $N-1$ lines, the information about the color of the luminous tubes are given. For the i-th line of these lines, the color information of the luminous tubes that connect corner i to corners from corner $i+1$ to N are given. Note that the color red is represented as 1 and the color blue is represented as 0.

Output
Your program is to write to standard output. Print exactly one line for each test case. The line should contain the number of uni-color triangles.

The following shows sample input and output for two test cases.

Sample Input	Output for the Sample Input
2 5 1 1 0 1 0 0 0 0 1 1 5 1 1 1 1 0 0 1 0 1 1	2 4