



COMPETITIVE

PROG-A-THON

10: Ratios

Level: intermediate/difficult

Time limit: 2.000 seconds

You are given a string consisting of black (B) and white (W) blocks. You need to partition it into some number of contiguous strings that have the same ratio of black and white blocks. Of course, you can always “partition” the items into one single string, but that’s not very interesting. We want to have as many blocks of the same ratio as possible. For example, consider the following strings and partitions:

- WBBBWW = WB + BBWW (ratio 1:1)
- BBBWWB BBBB BBBW = BBBW + WWBBBBBB + BBBW (ratio 3:1).

Note that both of these partitions are optimal in the sense that they have the largest number of blocks possible (i.e. there does not exist a partition of blocks all with the same ratio consisting of a larger number of blocks).

Input

The first line of input specifies the number of test cases T . Each testcase then consists of the following lines: First of all, one line containing an integer n ($1 \leq n \leq 10^5$) for the length of the description of a string. Each of the following n lines contains an integer k ($1 \leq k \leq 10^9$) and either the character W or B, meaning that the k next characters of the string are of that color. The total length of the string is not bigger than 10^9 .

Output

For each test case, output a single number indicating the largest number of blocks of equal ratio the string can be split into.

Sample input 1

3
3
1 W
3 B
2 W
4
3 B
3 W
9 B
1 W
2
2 B
4 B

Sample output 1

2
3
6

Note that the first and second test case correspond to the two strings mentioned in the text above.