Problem C. Bubbles

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

One popular method of controlling the spread of disease are Bubbles. Each person chooses a bubble of other people to associate with and avoids contact with others. Infection in one bubble should not spread to people in other bubbles.

The concept fails, however, when a person belongs to multiple bubbles. For example, a person might have a personal bubble of family and friends and a work bubble of colleagues. In this problem, we will make the following simplifying assumptions:

- Each personal bubble contains the same number of people, P.
- Each work bubble contains the same number of people, W.
- Each person is in exactly one personal bubble and one work bubble.
- Each pair of personal bubble and work bubble has exactly one person in common.

Given a list of the bubbles that have been infected, determine how many people have been infected.

Input

First line: three integers P, W, N, the number of people in each personal and work bubble and the number of infected bubbles. These numbers satisfy the constraints $1 \leq P, W \leq 200,000$ and $0 \leq N \leq min(P + W, 10\ 000)$. Next N lines: the letter `P` or `W`, a space, and an integer B, indicating that personal or work bubble number B is infected. When the letter is `P`, B satisfies the constraint $0 \leq B < W$. When the letter is `W`, B satisfies the constraint $0 \leq B < P$. Each infected bubble is listed only once.

Output

A single integer I, the total number of people infected.

Example

standard input	standard output
2 3 2 W 1 P 1	4