Problem G: Help R2-D2!

In Episode III of Star Wars (whose alleged title is *How I became Vader*), R2-D2 (Artoo-Detoo) is again confronted to a tedious work. He is responsible for the loading of the republic transport starships in the fastest way. Imagine a huge space area where n starships are parked. Each starship has a capacity of K cubic femtoparsec. Containers C_i arrive one at a time with some volume v_i (expressed in cubic femtoparsec). R2-D2 wants to minimize the number of starships used for a given sequence of containers.

Smart as he is, R2-D2 knows for sure that the problem is a hard one, even with the force being around. Here is the heuristics he selected to solve his problem. Start with all starships ready to load, and numbered S_0, S_1, etc.. When container C_j arrives, select the starship of minimal index i that can contain C_j and put it in S_i. In some sense, this heuristics minimizes the move of the container arriving before its loading.

At the end of the n arrivals, R2-D2 counts the number s of starships used and he measures the *total waste* w of the sequence. For i=0..s-1, the *waste* in starship i is given by the unused volume.

Your task is to simulate the algorithm of R2-D2.

1 Input

Each test file begins with capacity K on a line ($K \leq 1000$), followed by the number of containers in the sequence, n on the second line ($1 \leq n \leq 10^6$). There are two possible formats for the remaining lines. If it contains one integer, then this is the next v_i. If it begins with the character `b` (for block), it is followed by 2 integers r and v. This means that the r next containers arriving have volume v.

2 Output

Your program must output the number s of starships used, followed by a blank, followed by the total waste w.

3 Examples

The first example file contains:

```
100
3
50
25
70
```

You load starship S_0 with 50 and 25 and starship S_1 with 70, so that the waste is (100-75)+(100-70)=55. The answer must be

```
2 55
```

Example 2 contains:

```
100
4
50
b 2 40
20
```

which corresponds to the sequence 50, 40, 40, 20. S_0 will contain 90, S_1 will contain 60, so that the waste is 10+40=50 and the answer will be:

This document was translated from L^AT_EX by H^EV^EA.