

## 1136 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.

### Input

Input consists of several test cases, each of them following the description below. A blank line separates two consecutive cases.

Each test case 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  $v$ .

### Output

For each test case, your program must output the number  $s$  of starships used, followed by a blank, followed by the total waste  $w$ .

The outputs of two consecutive cases will be separated by a blank line.

### Note:

In the first sample input below, 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'

The second case 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: '2 50'.

### Sample Input

```
100
3
50
25
70

100
4
50
b 2 40
```

20

**Sample Output**

2 55

2 50