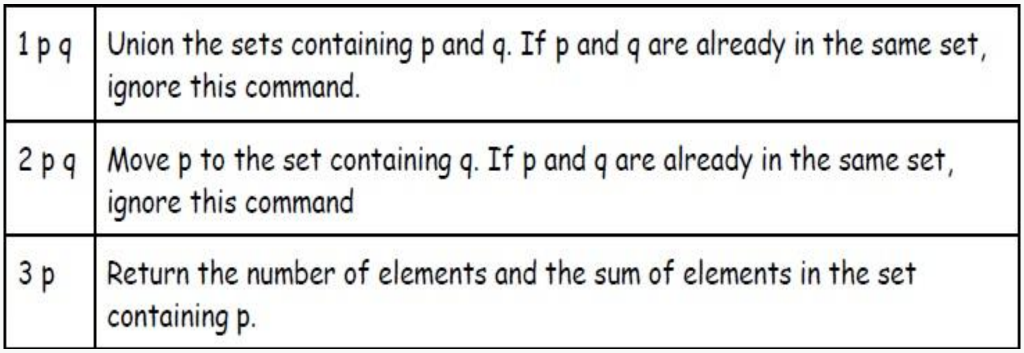
Título: Almost Union-Find

Planteamiento

I hope you know the beautiful Union-Find structure. In this problem, you're to implement something similar, but not identical.
The data structure you need to write is also a collection of disjoint sets, supporting 3 operations:



1 p q	Union the sets containing p and q. If p and q are already in the same set, ignore this command.
2 p q	Move p to the set containing q. If p and q are already in the same set, ignore this command
3 p	Return the number of elements and the sum of elements in the set containing p.

Initially, the collection contains n sets: {1}, {2}, {3}, ..., {n}.

Descripción de Entrada

There are several test cases. Each test case begins with a line containing two integers n and m (1<=n,m<=100,000), the number of integers, and the number of commands. Each of the next m lines contains a command. For every operation, 1<=p,q<=n. The input is terminated by end-of-file (EOF). The size of input file does
not exceed 5MB.

Descripción de Salida

For each type-3 command, output 2 integers: the number of elements and the sum
of elements.

Ejemplo de Entrada

```
5 7
1 1 2
2 3 4
1 3 5
3 4
2 4 1
3 4
3 3
```

Ejemplo de Salida

```
3 12
3 7
2 8
```

Explanation

Initially: {1}, {2}, {3}, {4}, {5} Collection after operation 1 1 2: {1,2}, {3}, {4}, {5}
Collection after operation 2 3 4: {1,2}, {3,4}, {5} (we omit the empty set that is produced when taking out 3 from {3}) Collection after operation 1 3 5: {1,2}, {3,4,5}
Collection after operation 2 4 1: {1,2,4}, {3,5}

Tiempo Máximo

1000 (MS)

Memoria Máxima

65000 (KB)

Limite Fuente

5000 (B)

Problem ID: 822