

Magical furnace

Description



Motivation

Long long ago, underneath the material tower at ShanghaiTech university, there is a mysterious lab. In the lab, a magical furnace is there. No one know who built that. There is only a manual for that and an experiment worksheet left by a crazy scientist.

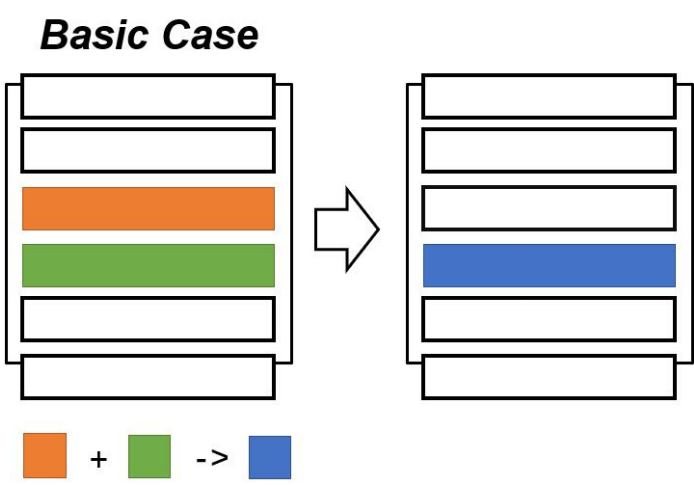
Furnace manual

The unknown sage defines some rules to use it:

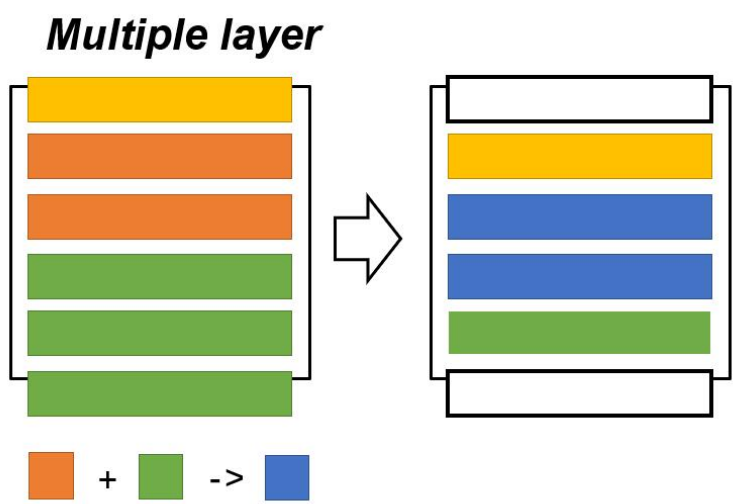
- 1. When add substances, you must add it from the top.
- 2. When remove substances, you can only remove it from the bottom.

In the furnace, some rules are found when reaction takes place:

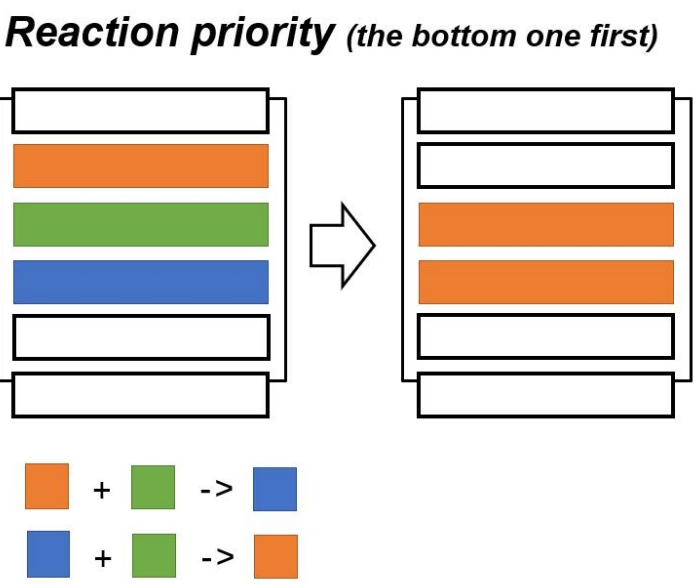
- 1. only adjacent layer reacts



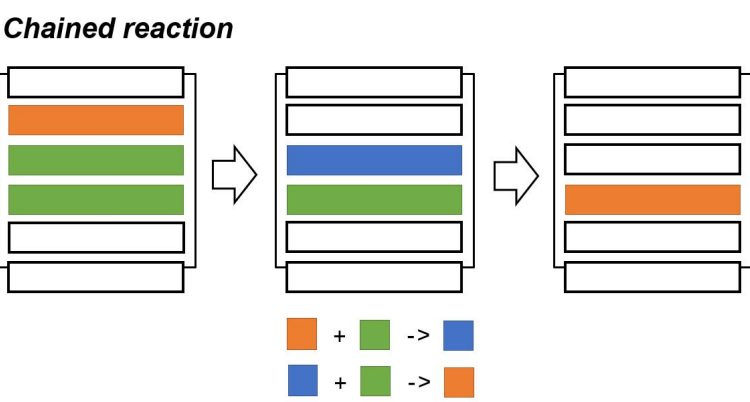
- 2.If layer of the same substance stacked, the reaction will regard them as an integrity. For example, if $A + B \rightarrow C$, then 3 layers of substance A and 2 layers of substance B will consume 2 layers of substance of A&B, and generate the 2 layers of substance C at the middle.



- 3. If one of the layer can react with the upper one and the lower one at the same time, the reaction with lower layer takes place first.



- 4. The newly generated substance can be input of other chemical reactions.



- 5. Due to the gravity, there is no hole between layers of substance after chemical reactions. The upper substance will automatically falls down.

Experiment worksheet

In experiment, you will use at most n kinds of substance, indexed by 0 to $n-1$.

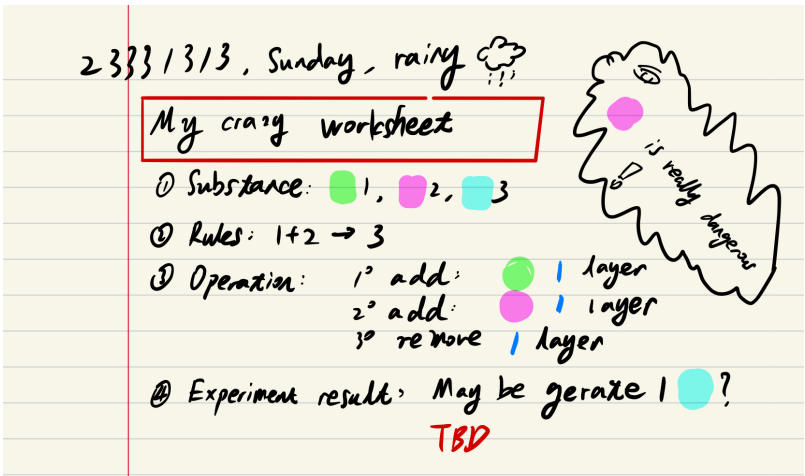
Among those n kinds of substance, m rules of chemical reaction exist. Each rule transforms two different substance into another one(the three substance involved in a rule are different).

In a whole process of experiment. At first, the magical furnace is empty. Then, Apply a sequence of addition and removal of substance. Between operations, all the substance are fully interacted and steps to a stable condition.

Goal

In the worksheet, k operations are recorded. You have verified all operations are legal: there is no overflow(You can assume the furnace large enough) or underflow(remove from an empty furnace).

In order to clean the furnace, you are trying to estimate how many layers of substance left in furnace after the experiment.



An example of worksheet from a crazy scientist.

Input

At first line, there are three integers.

- 1. n : # substance
- 2. m : # rules of chemical reaction
- 3. k : # operations

Then, for next m lines, each line includes three integers x, y, z : indicating the rule of $x + y \rightarrow z$.

Finally, for the last k lines, each line includes three integers s, q :

- 1. s : the index of input substance. If the operation is to remove/output, s is set to -1 by default.

Problems

Announcements

Submissions

Rankings

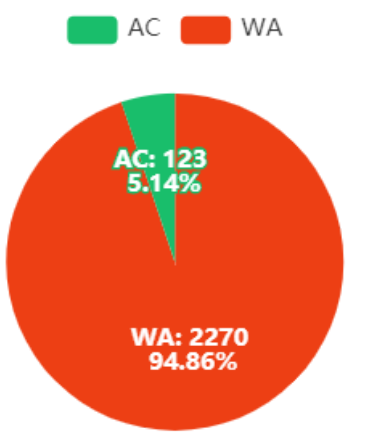
View Contest

Information

ID	203
Time Limit	1000MS
Memory Limit	256MB
IO Mode	Standard IO
Created By	root
Level	Low
Score	100
Tags	Show

Statistic

Details



e.g: s = -1, q = 2 means remove 2 layer of substance from the bottom.

- For 50% TestCase, $n \leq 20$, $m \leq 30$, $k \leq 50$
- For 80% TestCase, $n \leq 1000$, $m \leq 5000$, $k \leq 10000$
- For 100% TestCase, $n \leq 3000$, $m \leq 100000$, $k \leq 300000$

Output

Only an integer in one line, indicating the layers of substance left in the furnace.

Sample Input 1

```
5 5 10
2 3 4
1 4 3
1 2 0
0 4 2
2 4 0
0 885
2 1011
4 461
2 1551
2 995
2 1276
0 1387
-1 1844
0 1863
1 276
```

Sample Output 1

```
7400
```

Hint

We provide compiled AC code on Ubuntu/Windows. If you are puzzled with the input/output, you can write your own testcase based on it.

This code could only handle legal input.

Windows version:mf.exe

Ubuntu version:mf.o

MacOS version:mf.out

Update10/26:

We have detected that some of you have used standard library in your programming homework, which is forbidden in your homework.

If you have ACed your homework by standard library,we will record your score to 0 after DDL.

And we will judge this by the latest submission of each sub-homework.

CS101 TA Team

Language: C++



Theme: Solarized Light

Submit