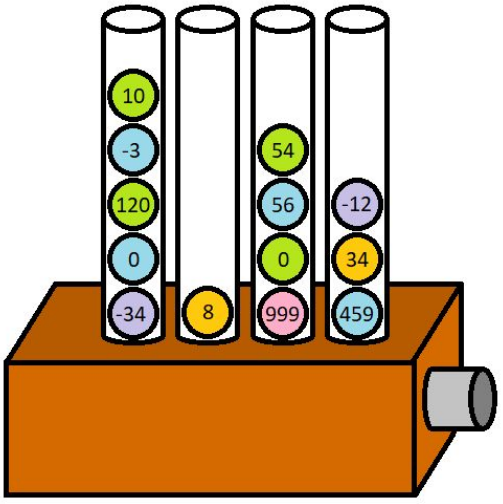
Lottery Star

Description

Lately, Namron ★ feels that luck is on his side, so he tried lottery. This particular lottery is very famous and different from any other lottery machine in general. This lottery often played by top celebrities; it's the lottery is called the Lottery ★.

Lottery ★ has **X tubes** marked with numbers (1st tube, 2nd tube, 3rd tube, ... X-th tube) which are initially empty and can be filled with balls marked in numbers. All the balls that enter the tube have the same diameter with the diameter of the tube, so that every ball be arranged in the order in which the balls are entered. Under the tubes, there is a **main box** containing to hold all the balls that come out of the tube. There are several special commands to play the lottery ★.



Picture Illustration

Type A command: The player puts **one ball** with **k** value into the **i**-th tube.

Type B command: The player takes **n balls** from **a tube** and puts them in the main box. If the number of balls requested by the player is more than the number of balls in the tube, remove all balls from the tube.

Type C command: The player takes **q balls** from **all tubes** simultaneously and puts them into the main box. Similar to command B, if the number of balls requested by the player is more than the number of balls in a tube, remove all balls from the tube.

Command type D: Player takes the ball out of the **main box** when the number of numbers on the ball in the main box is more than or equal to **m**. If it is fulfilled, the main box is emptied (the tube is not

emptied). Quite the contrary, the main box cannot be emptied if the number of numbers on the ball in the main box haven't meet the value requirements.

Help Namron ★ play the lottery ★ and get the grand prize.

Input

```
N
A x1 k
B x2 p
C q
D m
```

The first line is N which is the number of orders. The next N lines are commands A, B, C or D.

- A type command is followed by 2 numbers, which are the tube number and the entered ball value
- Type B command is followed by 2 numbers, the tube number and the number of balls released
- Type C command is followed by 1 number, which is the number of balls to be ejected from all cylinders
- Type D command is followed by 1 number, which is the condition for the number of numbers on the balls in the box

Output

```
GAGAL
RESET K
```

Output Description

Output printed only when the D type command is called. There are 2 types of output, namely "GAGAL" and "RESET K". Output "GAGAL" when the total value of the ball in the main box is less than the condition (m). Output "RESET K" when the sum of the ball in the main box is more than or equal to condition (m). K is the sum of the ball values in the main box.

Limitation

$1 \leq N \leq 1000$ (number of commands)
$1 \leq x1, x2 \leq 3000$ (tube number)
$-100{,}000 \leq k, m \leq 100{,}000$
$1 \leq p, q \leq 3000$ (number of balls in the tube)

Guaranteed that $N \cdot p \cdot x \leq 10^8$

Input Example 1

```
6
C 1
A 1 2
B 1 1
A 2 3
C 1
D 5
```

Output Example 1

```
RESET 5
```

Description 1

- Command C 1 does not release any balls because all the tubes are empty
- Command A 1 2 inserts one ball of value 2 into the 1st cylinder
- Command B 1 1 takes 1 ball from the 1st tube to the main box. The total value in the main box is 2
- Command A 2 3 adds one ball of value 3 to the 2nd tube
- Command C 1 takes one ball from all cylinders. The total value in the main box is 2 + 3 = 5
- Command D 5 checks the total value in the main box. After reaching the requirement (5), print "RESET 5"

Input Example 2

```
10
D 5
A 1 4
B 1 1
A 2 -4
A 3 5
A 3 3
A 3 9
C 1
B 3 2
D 15
```

Output Example 2

```
GAGAL
RESET 17
```

Description 2

- The first output “GAGAL” indicating the number of values in the box when command D 5 is running is still 0 (the tube haven't released any balls yet).
- Command A 1 2 causes a ball with the value of 2 to be inserted in the 1st tube. Command B 1 1 makes a ball with the value 2 to be inserted in the 1st tube.
- After 4 A commands (command to insert the ball), command C 1 causes one ball to come out of the 2nd and 3rd tube (the 1st tube is empty so that it does not release the ball). The total value in the main box is currently 4-4 + 5 = 5
- Command B 3 2 causes 2 balls in the 3rd tube to enter the main box. The total value in the main box is 5 + 3 + 9 = 17
- Command D 15 checks whether the total ball value has exceeded the requirements. Because the total value (17) has exceeded the condition (15), the resulting output is "RESET 17"