

## A. Chat Server's Outgoing Traffic

time limit per test: 1 second  
 memory limit per test: 64 megabytes  
 input: standard input  
 output: standard output

Polycarp is working on a new project called "Polychat". Following modern tendencies in IT, he decided, that this project should contain chat as well. To achieve this goal, Polycarp has spent several hours in front of his laptop and implemented a chat server that can process three types of commands:

- Include a person to the chat ('Add' command).
- Remove a person from the chat ('Remove' command).
- Send a message from a person to all people, who are currently in the chat, including the one, who sends the message ('Send' command).

Now Polycarp wants to find out the amount of outgoing traffic that the server will produce while processing a particular set of commands.

Polycarp knows that chat server sends no traffic for 'Add' and 'Remove' commands. When 'Send' command is processed, server sends  $l$  bytes to each participant of the chat, where  $l$  is the length of the message.

As Polycarp has no time, he is asking for your help in solving this problem.

### Input

Input file will contain not more than 100 commands, each in its own line. No line will exceed 100 characters. Formats of the commands will be the following:

- `+<name>` for 'Add' command.
- `-<name>` for 'Remove' command.
- `<sender_name>:<message_text>` for 'Send' command.

`<name>` and `<sender_name>` is a non-empty sequence of Latin letters and digits.  
`<message_text>` can contain letters, digits and spaces, but can't start or end with a space.  
`<message_text>` can be an empty line.

It is guaranteed, that input data are correct, i.e. there will be no 'Add' command if person with such a name is already in the chat, there will be no 'Remove' command if there is no person with such a name in the chat etc.

All names are case-sensitive.

### Output

Print a single number — answer to the problem.

### Examples

input
+Mike Mike:hello +Kate +Dmitry -Dmitry Kate:hi -Kate
output
9

input
+Mike -Mike

### → Attention

Package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then value 800 ms will be displayed and used to determine the verdict.

### Codeforces Beta Round #5

Finished

### → Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.


Start virtual contest

### → Problem tags

implementation

No tag edit access

### → Contest materials

- Announcement 
- Tutorial 

+Mike Mike:Hi I am here -Mike +Kate -Kate
<b>output</b>
14