

```
(function() { var po = document.createElement('script'); po.type = 'text/javascript'; po.async = true;
po.src = 'https://apis.google.com/js/plusone.js'; var s =
document.getElementsByTagName('script')[0]; s.parentNode.insertBefore(po, s); })();
```

SPOJ Problem Set (oi)

10336. PLACE

Problem code: PLACE

Mirko loves cars and he finally managed to start his own car factory! Factory has N employees, each of them has exactly one superior (except Mirko - he is by default everybody's superior). Mirko is denoted by number 1, and the rest of the employees with numbers 2 to N .

Every employee can raise or lower the wages of all of his subordinates (both direct subordinates and those lower in the hierarchy tree). Mirko's role is to prevent abuse of such power, so from time to time he wants to know wage of a particular employee.

He is asking you to write a program which will help him monitor wage changes, given a sequence of commands described in the input section.

Remark: at any time, all of the wages will be positive integers and will fit in standard 32-bit integer type (int in C/C++, longint in Pascal).

Input

First line of input contains two space-separated positive integers N ($1 \leq N \leq 500\,000$), number of employees, and M ($1 \leq M \leq 500\,000$), number of wage changes and wage queries.

Next N lines contain the information about employees 1, 2, ..., N (respectively): starting wage and the identifier of his direct supervisor. Remark: Mirko has no supervisor, so his line will contain only his starting wage.

Next M lines contain one of the following:

1. **p A X** - employee A increases (or decreases in case of a negative X) wage of all his subordinates by the amount X ($-10\,000 \leq X \leq 10\,000$);
2. **u A** - Mirko wants to know the wage of employee A .

Output

Output should contain one line for each '2' query in the input - the current wage of the given employee.

Example

Input :

```
6 7 5 4 1 3 2 7 3 2 3 3 5 p 3 2 p 2 4 u 3 u 6 p 5 -2 u 6 u 1
```

Output :

7 975

Added by: Yellow Flash

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Time limit: 4s

Source limit:50000B

Languages: C C# C++ 4.3.2 C++ 4.0.0-8 JAR JAVA LUA PAS fpc PAS gpc PERL PHP RUBY

Resource: COCI 2011-2012 - Contest 3