

## E2 – Superdelegates

As the Democratic Party's nomination process continues, we've been hearing about how their nomination process has two facets:

- “committed delegates”, who are selected by the primary and caucus processes in each state
- “superdelegates”, who are free to choose any candidate they want.

Suppose, for the sake of simplicity, that there are only two candidates for the nomination. When the convention comes around, all of the committed delegates will be allocated to one candidate or the other. Additionally, some of the superdelegates have pledged their support to one candidate or another. The candidates then try to sway enough of the superdelegates that have not yet pledged their support to their side, in an effort to secure the majority of the delegates (and thus win the nomination).

You're working in the office of Candidate A, who's running against Candidate B. Given the total amounts of committed delegates, and the current situation of the pledged superdelegates, you need to figure out how many of the unpledged superdelegates you need to win over to your side to have a majority of delegates overall.

### Input:

The input consists of five non-negative integers on a line:  $ca\ cb\ pa\ pb\ u$  ( $ca$  = committed delegates for candidate  $a$ ;  $cb$  = committed delegates for candidate  $b$ ;  $pa$  = pledged superdelegates for candidate  $a$ ;  $pb$  = pledged superdelegates for candidate  $b$  and  $u$  = unpledged superdelegates). Each value will be an integer  $< 10,000$ .

### Output:

Output the line:

Candidate A needs at least  $x$  of the unpledged superdelegates.

where  $x$  is the smallest number of unpledged superdelegates needed to achieve a majority of the total delegates. The value of  $x$  should never be negative. If Candidate A can't gain a majority even with all of the unpledged superdelegates, output the line:

Candidate A has lost the nomination!

### Input and output samples:

Input: 10 10 10 10 10	Output: Candidate A needs at least 6 of the unpledged superdelegates.
Input: 1 2 3 4 5	Output: Candidate A needs at least 4 of the unpledged superdelegates.
Input: 10 100 10 100 10	Output: Candidate A has lost the nomination!