Who turned out the lights?!?!

Program Name: light.cpp   Input File: light.dat

There are 3 light switches that control a single light. The light switches can be in the up or down position and are wired such that if exactly 1 of the 3 is in theup position or if all 3 are in the up position, the light is on. The following switch positions would result in the light being on.

1. Up, Down, Down
2. Down, Up, Down
3. Down, Down, Up
4. Up, Up, Up.

All other settings result in a light that is off. Your program will be given an initial set of switch positions followed by a series of switch toggles. Toggling a switch means that if the switch is up, it is changed to down., and if a switch is down, it is changed to up. Your program is to determine the status of the light after all of the switch toggles are applied to the original positions.

Input
Input to your program consists of a series of tests each on a line by itself. Each line consists of the initial switch positions followed by up to 20 switch toggles. Specifically, the line starts with column 1 containing the position of switch 1, column 3 containing the position of switch 2, and column 5 containing the position of switch 3. If the switch is in the up position, the initial position value will be "u". If the switch is in the down position, the initial position value will be a "d". The number of toggles ($0 \le T \le 20$) is given as an integer starting in column 7. The rest of the line contains T switch identifiers (1, 2, or 3) as single digit integers separated by single spaces. These identifiers each represent that the indicated switch was toggled.

Output
For each test, your program should print the state of the light on a line by itself. If the light is in the on state, then your program should print "on". Otherwise, your program should print "off".

Example: Input File
```
u d u 5 1 3 2 3 2
d d d 11 3 2 3 1 3 2 3 2 1 3 2
u u d 14 3 2 1 3 3 2 3 1 1 3 2 1 3 1
```
Output to screen
```
on
on
off
```