

# USA Computing Olympiad

OVERVIEW

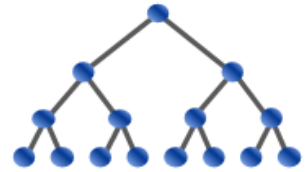
TRAINING

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## USACO 2017 JANUARY CONTEST, BRONZE PROBLEM 2. HOOF, PAPER, SCISSORS

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Contest has ended.

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English (en)



You have probably heard of the game "Rock, Paper, Scissors". The cows like to play a similar game they call "Hoof, Paper, Scissors".

The rules of "Hoof, Paper, Scissors" are simple. Two cows play against each-other. They both count to three and then each simultaneously makes a gesture that represents either a hoof, a piece of paper, or a pair of scissors. Hoof beats scissors (since a hoof can smash a pair of scissors), scissors beats paper (since scissors can cut paper), and paper beats hoof (since the hoof can get a papercut). For example, if the first cow makes a "hoof" gesture and the second a "paper" gesture, then the second cow wins. Of course, it is also possible to tie, if both cows make the same gesture.

Farmer John watches in fascination as two of his cows play a series of  $N$  games of "Hoof, Paper, Scissors" ( $1 \leq N \leq 100$ ). Unfortunately, while he can see that the cows are making three distinct types of gestures, he can't tell which one represents "hoof", which one represents "paper" and which one represents "scissors" (to Farmer John's untrained eye, they all seem to be variations on "hoof"...)

Not knowing the meaning of the three gestures, Farmer John assigns them numbers 1, 2, and 3. Perhaps gesture 1 stands for "hoof", or maybe it stands for "paper"; the meaning is not clear to him. Given the gestures made by both cows over all  $N$  games, please help Farmer John determine the maximum possible number of games the first cow could have possibly won, given an appropriate mapping between numbers and their respective gestures.

### INPUT FORMAT (file hps.in):

The first line of the input file contains  $N$ .

Each of the remaining  $N$  lines contain two integers (each 1, 2, or 3), describing a game from Farmer John's perspective.

### OUTPUT FORMAT (file hps.out):

Print the maximum number of games the first of the two cows could possibly have won.

### SAMPLE INPUT:

```
5
1 2
2 2
1 3
1 1
3 2
```

### SAMPLE OUTPUT:

```
2
```

One solution (of several) for this sample case is to have 1 represent "scissors", 2 represent "hoof", and 3 represent "paper". This assignment gives 2 victories to the first cow ("1 3" and "3 2"). No other assignment leads to more victories.

Problem credits: Brian Dean

Contest has ended. No further submissions allowed.

