

# Faulty Pendulum

## — Problem Description

Given the initial position of a pendulum, apply *Force(s)* provided as input and figure out if it can be brought to rest i.e., no motion.

Only, the magnitude of the Force is provided. Magnitude will always be greater than zero. It will be your job to decide the direction in which to apply the force. There will be N number of Forces provided. Your job is to figure out if one or more Forces can be combined to bring the pendulum to rest. It is not necessary to apply all the Forces.

Also, it is a simple pendulum i.e., one end of the pendulum is fixed, and the maximum angle formed between pendulum at rest and the pendulum at either extreme is 90-degrees. Also, assume no amount of force can displace it up to or beyond the extremes.

Only condition that one needs to obey is that Forces should be chosen sequentially i.e., they must be used in the order that they appear in the input. Choosing Forces out of order is not permitted.

Example:

Consider initial position as 4 units to the right from the rest position. Let's say 2 Forces of magnitude 2 each are provided as input. Then it is easily possible to use both these Forces to push the pendulum to the left and bring it to rest.

The *Examples* section provides more details

## — Constraints

$0 < N \leq 20$

## — Input

First line contains an integer N, which denotes the number of Forces given, from which to choose one or more Forces to bring the pendulum to rest

Second line contains a space separated integer and a string in the format "<Distance> <Direction>" where Distance is the distance from the rest position and Direction is either Left or Right

Third line contains N space separated integers depicting the magnitude of Forces.

## — Output

Print "Possible" if the pendulum can be brought to rest position legally OR

Print "Not Possible" if the pendulum cannot be brought to rest position legally

## — Time Limit (secs)

1

## — Examples

Example 1

Input

5

5 Right

2 3 4 6 5

Output

Possible

Explanation:

Given that, N = 5 implies that there are 5 Forces from which you must choose

Initial position: 5 units towards the right

If we choose the Forces of magnitude 2 and 3 and apply both in the Left direction, the pendulum will come to rest. We then do not need to process the other 3 Forces provided in the input.

Also note that choosing 2 and then 3 is a legal choice because they appear in the same sequence as their appearance in the input.

Example 2

Input

1

5 Right

2

Output

Not Possible

Explanation:

Given that, N = 1 implies that there is 1 Force which must be applied

Initial position: 5 units towards the right

With available input, it is not possible to bring the output to rest. Hence the output will be "Not Possible".

