



## Objective

You spend your afternoon with Sacha, who asks you again and again to play Pokemon card game:

- Each player starts the game with a deck containing an identical number of cards for both players.
- Each round, both players present on the table the card on top of their deck.
- The player with the highest card hands the card below his deck, the player with the weakest card gets rid of his card.
- When two cards are of the same values, both cards are eliminated.
- The game continues like this until one of the two players no longer has cards.

Knowing the decks of both players, you are asked to predict whether you or Sacha will win the game. There is a draw in case the last deck cards happen to be of the same values.

## Data format

### Input

Row 1: an integer **N**, between 1 and 50, indicating the number of cards contained in each player's decks.

Row 2: **N** integers between 1 and 42 separated by spaces describing the value of each card of Sacha's deck, from the top to the bottom of the card stack.

Row 3: **N** integers between 1 and 42 separated by spaces describing the value of each card on your deck, from the top to the bottom of the card stack.

## Output

An integer:

- G: If you win the game
- P: if it's Sacha who wins
- N: in the event of a draw

## **Example**

### Input

3

1 2 3

3 2 1

### Output

N