

### Problem 5 – The Cat Ate It!

I had a **number** (with distinct digits) written on a sheet of paper.  
My cat (Sid) ate it (she loves to eat paper)!

Now I can only remember that some digits were before or after others. My memory is good and the order of digits I remember are always correct.

Please help me **find the smallest possible number that corresponds to the digits order I remember.**

The number was valid integer number with no leading zeroes.

There is always a possible solution.



#### Input

The input data should be read from the console.

On the first line there will be the number **N**.

On each of the next **N** lines there will be a string in the format "***X is before Y***" or "***X is after Y***". **X** and **Y** will be valid digits ('0' – '9').

The input data will always be valid and in the format described. There is no need to check it explicitly.

#### Output

The output data should be printed on the console.

On the only output line write the smallest possible number that corresponds to the rules described in the input.

#### Constraints

- **N** will be between 1 and 20.
- Allowed working time for your program: 0.05 seconds. Allowed memory: 16 MB.

#### Examples

Example input	Example output
5 1 is before 2 4 is after 2 3 is before 4 6 is after 4 6 is before 8	123468
6 8 is before 7 6 is before 5 3 is after 4 1 is after 2 2 is before 1 1 is after 2	21436587

Mew.