

## 1552 Interactive Permutation Guessing

There is a permutation  $a$  of size  $n$  that you have to guess interactively.

You are allowed to make queries of the following kind. You output any permutation  $b$  of size  $n$ . The information given back to you is the length of the longest common subsequence of permutations  $a$  and  $b$ .

### Interaction protocol

First, your program must read from the standard input one line with integer  $n$ , the size of the permutation you have to guess.

Your program must then write to the standard output one line with a permutation and wait for a line in the standard input with a response, then write next query and read next response, and so on until you know  $a$ .

Once you receive response  $n$  (which means you've found  $a$ ), you're done and your program must exit.

### Input

The first line of the standard input contains integer  $n$ , the size of the permutation ( $1 \leq n \leq 40$ ).

Each of the next lines of the standard input contains response to your query — the length of the longest common subsequence of the permutation queried by you and the permutation  $a$ .

### Output

Each line of the standard output should contain a space-separated list of integers that form a permutation you're querying.

You can make at most  $5n^2$  queries.

You must flush the standard output after printing each line. You must not print any lines after you receive the response  $n$ , just exit.

### Sample Input

```
4
3
2
2
4
```

### Sample Output

```
1 2 3 4
1 3 4 2
4 1 2 3
3 1 2 4
```