Permutation Generator

Hasan Jaddouh has invented a new algorithm for generating permutations this algorithm takes an array with length N as input and generate a permutation with length N from this array.

the array must satsify (1 <= Ai <= i) in order for the resulting array to be a permutation.

and here is the pseudo code of the algorithm:

```
read N
for i=1 to N do
 read A[i]
for i=1 to N do
 for j=1 to i-1 do
  if A[j] >= A[i] do
   A[j]=A[j]+1
for i=1 to N do
 print A[i]
```

but unfortunately for Hasan Jaddouh, his algorithm is too slow for big arrays so he asked you to help him to find a fast way to implement his algorithm.

your program should read input same as the pseudo code and output the new array

Input

first line contains integer N ($1 <= N <= 10^5$)

second line contains N integers separated by spaces each interger is between 1 and 10^9 inclusive

note: in order for Hasan Jaddouh's algorithm to work and generate a permutation the constrain (1 <= Ai <= i) must be satsified but to make this problem harder this constrian is **not** guaranteed so it's also not necessary that the output is a permutation.

Output

Output N integers separated by spaces, the new array after applying Hasan Jaddouh's algorithm

Example

Input:

4

4 2 1 3

Output:

7 4 1 3