https://codeforces.com/group/MWSDmqGsZm/contest/219856/problem/C

C. Compare

Given two strings X and Y . Print the **smallest lexicographical** one.

Note: Lexicographical is the way of ordering the words based on the alphabetical order of their component letters.

Input

Only one line contains two strings X, $Y(1 \leq |X|, |Y| \leq 20)$ consists of lowercase English letters.

Output

Print the **smallest lexicographical** string.

Note: If both of X and Y are equal, print any of them.

Example

input

Copy

```
acm
acpc
```

output

```
acm
```

Note

For more information visit Lexicographical order: https://en.wikipedia.org/wiki/Lexicographical_order

https://codeforces.com/group/MWSDmqGsZm/contest/219774/problem/K

K. Sum Digits

Given a number N and an array A of N digits **(not separated by space)**. Print the **summation** of these digits.

Input

First line contains a number N ($1 \leq N \leq 10^6$) number of digits.

Second line contains N digits $(0 \leq A_i \leq 9)$.

Output

Print the **summation** of these digits.

Example

input

```
5
13305
```

output

```
12
```

Note

First Example :

1 + 3 + 3 + 0 + 5 = 12 .

https://codeforces.com/group/MWSDmqGsZm/contest/219856/problem/J

J. Count Letters

Given a string S. Determine how many times does each letter **occurred** in S.

Input

Only one line contains the string S $(1 \leq |S| \leq 10^7)$ where |S| is the length of the string and it consists of only **lowercase** English letters.

Output

For each character that appears in S, print a single line that contains the following format: "X : Y" where X is the letter and Y is the number of times that letter X occurred in S.

Note: you must print letters in **ascending** order.

Examples

input

```
aaabbc
```

output

```
a : 3
b : 2
c : 1
```

input

```
regff
```

output

```
e : 1
f : 2
g : 1
r : 1
```

https://codeforces.com/group/MWSDmqGsZm/contest/219774/problem/V

V. Frequency Array

Given **2** numbers N, M and an array A of N numbers. For every number from **1** to M, print how many times this number **appears** in this array.

Input

First line contains two numbers N, $M (1 \le N \le 10^5, 1 \le M \le 10^5)$.

Second line contains N numbers $(1 \le A_i \le M)$.

Output

Print M lines, the i^{th} line should contain number of times that the number i appears in A

Example

input

```
10 5
1 2 3 4 5 3 2 1 5 3
```

output

Copy

```
2
2
3
1
2
```

Note

Numbers from 1 to 5 appearance are :

- 1 appears **2** times in the array .
- 2 appears **2** times in the array.
- 3 appears **3** times in the array.
- 4 appears **once** in the array.
- 5 appears **2** times in the array.