Problem A
Decimal Sequences

Input: Standard Input
Time Limit: 1 second

Hanako learned the conjecture that all the non-negative integers appear in the infinite digit sequence of the decimal representation of $\pi = 3.14159265\cdots$, the ratio of a circle's circumference to its diameter. After that, whenever she watches a sequence of digits, she tries to count up non-negative integers whose decimal representations appear as its subsequences.

For example, given a sequence "`3 0 1`", she finds representations of five non-negative integers 3, 0, 1, 30 and 301 that appear as its subsequences.

Your job is to write a program that, given a finite sequence of digits, outputs the smallest non-negative integer not appearing in the sequence. In the above example, 0 and 1 appear, but 2 does not. So, 2 should be the answer.

Input

The input consists of a single test case.

n
$d_1\ d_2\ \cdots\ d_n$

n is a positive integer that indicates the number of digits. Each of d_k's $(k = 1, \ldots, n)$ is a digit. There is a space or a newline between d_k and d_{k+1} $(k = 1, \ldots, n-1)$.

You can assume that $1 \leq n \leq 1000$.

Output

Print the smallest non-negative integer not appearing in the sequence.

Sample Input 1

```
3
3 0 1
```

Sample Output 1

```
2
```

Sample Input 2

```
11
9 8 7 6 5 4 3 2 1 1 0
```

Sample Output 2

```
12
```

Sample Input 3

```
10
9 0 8 7 6 5 4 3 2 1
```

Sample Output 3

```
10
```

Sample Input 4

```
100
3 6 7 5 3 5 6 2 9 1 2 7 0 9 3 6 0 6 2
6 1 8 7 9 2 0 2 3 7 5 9 2 2 8 9 7 3 6
1 2 9 3 1 9 4 7 8 4 5 0 3 6 1 0 6 3 2
0 6 1 5 5 4 7 6 5 6 9 3 7 4 5 2 5 4 7
4 4 3 0 7 8 6 8 8 4 3 1 4 9 2 0 6 8 9
2 6 6 4 9
```

Sample Output 4

```
11
```

Sample Input 5

```
100
7 2 7 5 4 7 4 4 5 8 1 5 7 7 0 5 6 2 0
4 3 4 1 1 0 6 1 6 6 2 1 7 9 2 4 6 9 3
6 2 8 0 5 9 7 6 3 1 4 9 1 9 1 2 6 4 2
9 7 8 3 9 5 5 2 3 3 8 4 0 6 8 2 5 5 0
6 7 1 8 5 1 4 8 1 3 7 3 3 5 3 0 6 0 6
5 3 2 2 2
```

Sample Output 5

```
86
```

Sample Input 6

```
1
3
```

Sample Output 6

```
0
```