

9. Repetition-free numbers

A repetition-free number is one in which each digit $\{1,2,3,\dots,9\}$ appears at most once and the digit 0 does not appear. A repetition-free number can have at most nine digits, but may also have fewer than nine digits. Some examples of repetition-free numbers are 9, 32, 489, 98761 and 983245.

You will be given an integer N with at most nine digits. Your task is to print out the smallest repetition-free number bigger than N . For example, for 99 the answer is 123, for 881 the answer is 891, and for 133 the answer is 134.

Input format

A single line with a single integer with at most 9 digits.

Output format

A single line containing the smallest repetition-free number bigger than the given number. If there is no repetition-free number bigger than the given number, print 0.

Example

We now illustrate the input and output formats using the example described above.

Sample input

99

Sample output

123