

F1 – Next permutation

Given an integer A , only other integers that are permutations of A are useful. All other numbers are useless. Find the next largest integer B , where the digits in B is a permutation of the digits of A . For example, suppose $A = 2413$, then the next largest permutation is 2431. If A is already the largest permutation, output “USELESS”.

Input

The first line in the data file is an integer that represents the number of data sets to follow. Each line is a single integer A ($A \leq 2.000.000$).

Output

Print B , the next largest permutation. If it doesn't exist print “USELESS”.

Example

Input : 237531	Output : 251337
Input : 1234	Output : 1243
Input : 4321	Output : USELESS
Input : 3444	Output : 4344