Problem B. Blacklist

Input file:	stdin
Output file:	stdout
Time limit:	1 second
Memory limit:	256 megabytes

In a certain online game, user IDs are represented as non-negative hexadecimal integers less than 10^{100}.

The administrator of the game received a message related to a hacker attack being planned. According to this message, hackers will use accounts with IDs which consist of pairwise distinct digits.

To prevent the attack, the administrator decided to put all such IDs into the blacklist. All possible IDs starting from 0 are processed sequentially. The IDs consisting of pairwise distinct digits are put into the blacklist. Processing all possible IDs is slow, and the administrator is in a hurry, so he asked you to solve the following problem: given the last processed ID (which can be put or not put into the blacklist), find the next ID that should be put into the blacklist.

Input

The input contains one integer P: the last processed ID written in hexadecimal form without leading zeroes ($0 \le P \le 2^{63} - 1$). Digits from A to F are represented by uppercase English letters from '`A`' to '`F`'.

Output

Print one integer written in hexadecimal form without leading zeroes: the next ID going to the blacklist. Use uppercase English letters from '`A`' to '`F`' to represent digits from A to F, respectively.

Examples

stdin	stdout
0	1
10	12
1FEE	2013