B. Lucky Numbers

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Petya loves lucky numbers. Everybody knows that positive integers are lucky if their decimal representation doesn't contain digits other than 4 and 7. For example, numbers 47, 744, 4 are lucky and 5, 17, 467 are not.

Lucky number is super lucky if it's decimal representation contains equal amount of digits 4 and 7. For example, numbers 47, 7744, 474477 are super lucky and 4, 744, 467 are not.

One day Petya came across a positive integer n. Help him to find the least super lucky number which is not less than n.

Input

The only line contains a positive integer n ($1 \le n \le 10^{100000}$). This number doesn't have leading zeroes.

Output

Output the least super lucky number that is more than or equal to n.

Examples

input
4500
output
4747

input
47
output
47