Counting Satellites

Problem ID: countingsatellites

Time limit: 1 second

Nick likes satellites. He likes them so much that he looks for them everywhere. One day he found a string of letters and counted a lot of instances of the word "SATELLITE" among all subsequences of the string. However the next day he forgot this string. Can you help him construct such a string?

String s is a subsequence of string t if and only if it is possible to delete some (possibly zero) characters from t to get s. Two subsequences are considered different if some character at a given position in t is deleted in one subsequence but not the other.

Input

The single line of input contains a single integer k ($1 \leq k \leq 10^{18}$), which is the number of instances of the word "SATELLITE" in the string Nick forgot.

Output

Output a string of at most $5\,000$ uppercase letters. The string must have exactly k instances of the word "SATELLITE" among all its subsequences. It can be proven that under the given constraints a solution always exists. Note that the length of the string does *not* have to be minimized.

Sample Input 1	Sample Output 1
1	SATELLITE

Sample Input 2	Sample Output 2
2	NICKLIKESSATELLITES

Sample Input 3	Sample Output 3
3	SSSATELLITE

Sample Input 4	Sample Output 4
19	SATELLITESATELLITE