B Balanced Breakdown

Time limit: 1s



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For communication through space between earth and satellites, one cannot simply transmit a message in the same way as cellular communication like 4G. Because of the extremely long distance a signal travels, the message might be distorted by noise.

Throughout the years, researchers have found ways to bypass this problem, and the solution lies in introducing redundant data. This gives the receiver a method to test if the received data contains an error, in which case it can ask the sender to transmit the message again, or it might be able to recover the original message if there was only a small error. This area of research is called Coding Theory.

The TU Delft Space Institute has asked you to research a new way of transmitting numbers in which errors are more easily observed. The idea is as follows: given a number n, you write it as a sum of 'balanced numbers'. We call a number 'balanced' when it is non-negative and a palindrome when written in base 10, i.e. the digits are the same when read from left to right as when read from right to left. To send a number, you simply find a way to express it as a sum of balanced numbers, and send each balanced number as you would normally do. The receiver may now check if it received a number which was not balanced, in which case there was an error.

To keep the communication efficient enough, the institute has added the constraint that a number can only be broken down into the sum of at most 10 balanced numbers. Now it is up to you to write a program which breaks a number down into balanced numbers[1].

Input

The input consists of:

- One line containing a single integer n ($1 \leq n < 10^{18}$), the number you want to write as a sum of balanced numbers.

Output

Output one line containing $1 \leq k \leq 10$, the number of balanced numbers you need, followed by k lines, containing the balanced numbers you want to send.

If there are multiple possible solutions, you may output any one of them.

Sample Input 1	Sample Output 1
1100000	2 645546 454454

[1] A recent paper has shown that every positive integer is a sum of three balanced numbers.

Sample Input 2	**Sample Output 2**
1000	5 1 99 1 898 1