

## Problem F: Nine

Source: `nine.{c, cpp, java}`

Randall Munroe from [xkcd.com](http://xkcd.com) pointed out that 9 is the most rarely used key on a microwave. Let's all share the load.

Given a desired cooking time, find a sequence of keys with the greatest number of 9's such that the resulting time has less than 10% error compared to the desired cooking time. In other words, if  $T$  is the desired cooking time in seconds, and  $T9$  is the cooking time specified by the found sequence, then  $10|T - T9| < T$ . If there are multiple possibilities, choose the one that has the smallest error (in magnitude). If there are still ties, choose the one that is lexicographically smallest.

For example, for  $T = 01:15$ , the times 00:68-00:82 and 1:08-1:22 have less than 10% error. Of these, 00:69, 00:79, 01:09, and 01:19 have the greatest number of 9's, and the ones with the smallest error are 00:79 and 01:19. The lexicographically smaller of these is 00:79.

### Input

The input consists of a number of cases. For each case, the desired cooking time in **MM:SS** format is specified on one line. Each **M** or **S** can be any digit from 0 to 9. The end of input is indicated by 00:00.

### Output

For each case, output on a single line the four keys to use as input to the microwave, in **MM:SS** format.



EVER SINCE I HEARD THE SIMILE "AS NEGLECTED AS THE NINE BUTTON ON THE MICROWAVE" I'VE FOUND MYSELF ADJUSTING COOK TIMES.

## Sample Input

00:30  
01:00  
02:00  
91:30  
46:03  
00:00

## Sample Output

00:29  
00:59  
01:59  
90:99  
49:99