Maximum number in base three P51176_en

Here, we consider the base three representation of the natural numbers. For example, 59 is represented as 2012, because $2 \cdot 3^3 + 0 \cdot 3^2 + 1 \cdot 3^1 + 2 \cdot 3^0 = 59$. Note that all digits are between 0 and 2, and that we have no zeros on the left.

Write a program to print the result of rearranging the base three digits of each given number, so that the result is the maximum possible, with an additional condition: we cannot have two equal consecutive digits.

Input

Input consists of several n, all between 1 and 10^{18}.

Output

For every given n, print its base three digit rearrangement without equal adjacent digits that produces the maximum possible result. If no reordering is possible, tell so.

Sample input 1

```
59
1
4
12
9
1000000000
999999999999998378
1000000000000000000
```

Sample output 1

```
59 : 2120
1 : 1
4 : no
12 : 101
9 : no
1000000000 : no
999999999999998378 : no
1000000000000000000 : 212121212121202020202020202010101010
```

Problem information

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