# Problem 5 – Friend Bits

"**Friend bits**" are sequences of bits with the same value. All other bits are "**alone bits**". For example in the sequence 11101010011011010000111010110001 the friend bits (marked in grey, from left to right) are: **111**, **00**, **11**, **11**, **0000**, **111**, **11** and **000**. In the same sequence alone bits are: 0101, 0, 01, 010 and 1.

We are given a 32-bit integer **n**. Write a program that **extracts all friend bits and all alone bits from n**. Append all friend bits in the same order in which they appear in **n** and print their decimal representation **f**. Respectively, append all alone bits in the order in which they appear in **n** and print their decimal representation **a**.

## Input

The input data should be read from the console. It holds the number **n** at the first line.

The input data will always be valid and in the format described. There is no need to check it explicitly.

## Output

The output should be printed on the console. It should consist of exactly 2 lines: the numbers **f** and **a**.

## Constraints

* All input and output numbers should be **unsigned 32-bit integers** in the range [0 to 4 294 967 295].
* Time limit: 0.1 seconds.
* Memory limit: 16 MB.

## Examples

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Explanation** |
| 3933015729 | 1896696  661 | 3933015729 = 11101010011011010000111010110001(2)  friend bits =111001111000011111000**(2)** = 1896696  alone bits = 0101 0 01 010 1(2) = 661 |
| 3822674602 | 466840  2730 | 3822674602 = **1110001111**0**1100**10**11000**1010101010(2)  friend bits = 1110001111 1100 11000 (2) = 466840  alone bits = 0 10 1010101010(2) = 2730 |
| 21 | 0  21 | 21 = 10101(2)  friend bits = (empty) = 0  alone bits = 10101(2) = 21 |
| 15 | 15  0 | 15 = **1111**(2)  friend bits = 1111(2) = 15  alone bits = (empty) = 0 |