

Problem 5 – Wiggle Wiggle

Nakov likes Hip-hop music. He got inspired by the music clips he saw on YouTube and now he really wants to learn how to twerk. You got to help him to accomplish his goal. Since he is a lot into bits, you need to use bitwise operations.

You are given a **sequence of 64 bit integer** numbers on **one line**, separated by a space. You have to take each **consecutive pair** of numbers (first with second, third with fourth and so on). Then you have to pass through the bits from **right to left** and switch **every bit at even positions** from these two numbers. Assume the **position '0' is even**.

For example, the first number pair is 36854775807 and 2285477580.

[illegible]

After switching, the numbers are:

36519493358	0000000000000000000000000000100010000000101100110011111011101110
2554175453	0000000000000000000000000000000010011100001111011001111111011101

In the end, you need to **reverse** the whole two numbers **bitwise**. The final result is:

9223372000335806737	1111111111111111111111111011101111111010011001100000100010001
9223372034233491490	111111111111111111111111111111101100011110000100110000000100010

Input

The input data should be read from the console. It consists of a sequence of 64-bit integer numbers, separated by a space. The sequence **count** will always be an **even** number.

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

Output

Print each of the obtained numbers on a single line in the following format:

```
{decimal} {binary}
```

Constraints

- **Every input number** will be a 64-bit integer in the range [0 ... 9,223,372,036,854,775,807].
- The sequence **count** will always be an **even** number.
- Allowed working time for your program: 0.1 seconds.
- Allowed memory: 16 MB.
- Hint: You should print all **63** bits in the final result for each number (without the sign bit).

Examples

Input
36854775807 2285477580
Output
9223372000335806737 11111111111111111111111111110111011111111010011001100000100010001 9223372034233491490 11111111111111111111111111111111011000111110000100110000000100010

[illegible][illegible]