# DHARMA Sonar Fence

The high-frequency sonar fence was a continuous stream of high-intensity sound waves generated by a series of evenly-spaced pylons. It was built by the DHARMA Initiative. Its purpose is to protect the members of the Initiative from the Hostiles and everything else that threatens DHARMVile.

However, the Hostiles managed to pass through the fence and endanger the DHARMA Initiative. Stewart Radzinsky, head of the security, has asked you to reprogram the fence, so no one can pass through it.

You will start receiving **32-bit** integers, representing fence components, while "**Reprogram**" command is given. You must pass through the bits of every fence component, from **left** to **right** and reprogram all sequence of **2 equal** bits. Reprogramming means, you should flip them(**11** 🡪 **00**, **00** 🡪 **11**).

For example, 2147000000 represents the bit sequence 1111111111110001001111011000000. We switch from left to right all 2 consecutive equal bits:

1111111111110001001111011000000 🡪

0000000000001101110000000111111. The obtained 32-bit number after switching is 450623.

Your task is to write a program that receives 32-bit integers, performs the above described reprogramming, and prints the obtained results as integers each on new line.

# Input

The input data should be read from the console. It consists of 32-bit integer numbers.

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

# Output

Print at the console all integers after the reprogramming.

# Constraints

* The **input numbers** will be a 32-bit integer in the range [0 … 2 147 483 647].
* Allowed working time for your program: 0.1 seconds.
* Allowed memory: 16 MB.

# Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 2147000000  Reprogram | 450623 |
| **Explanation** | |
| 2147000000 🡪  1111111111110001001111011000000 🡪  0000000000001101110000000111111 🡪  450623 | |

|  |  |
| --- | --- |
| **Input** | **Output** |
| 1782767470  63633148  61307961  Reprogram | 201195778  4231659523  4239984591 |