# Problem 5 – Bit Flipper

We are given a **bit sequence** in the form of **64-bit integer**. We pass through the bits from left to right and we **flip all sequences of 3 equal bits** (111 🡪 000, 000 🡪 111). For example, 8773276988229695713 represents the bit sequence 0111100111000000111100001111000000011111100010100011100011100001. We flip from left to right all 3 consecutive equal bits: 0**111**100**111000000111**1**000**0**111**1**000000**0**111111000**101**000111000111000**01 🡪 0**000**100**000111111000**1**111**0**000**1**111111**0**000000111**101**111000111000111**01. The obtained 64-bit number after flipping is 594226797558351645.

Your task is to write a program that enters a 64-bit integer, performs the above described flipping, and prints the obtained result as a 64-bit integer.

### Input

The input data should be read from the console. It consists of a single 64-bit integer number.

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 the 64-bit integer, representing the obtained bits after the flipping.

### Constraints

* The **input number** will be a 64-bit integer in the range [0 … 18 446 744 073 709 551 615].
* Allowed working time for your program: 0.1 seconds.
* Allowed memory: 16 MB.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 8773276988229695713 | 594226797558351645 |
| **Explanation** | |
| 8773276988229695713 🡪  0**111**100**111000000111**1**000**0**111**1**000000**0**111111000**101**000111000111000**01 🡪 0**000**100**000111111000**1**111**0**000**1**111111**0**000000111**101**111000111000111**01 🡪  594226797558351645 | |

|  |  |
| --- | --- |
| **Input** | **Output** |
| 594226797558350599 | 17222015390969265120 |
| **Explanation** | |
| 594226797558350599 🡪  **000**01**000**00**111111000111**1**000**0**111111**1**000000**0**111**10**111**1**000**011**000**00**111** 🡪 **111**01**111**00**000000111000**1**111**0**000000**1**111111**0**000**10**000**1**111**011**111**00**000** 🡪  17222015390969265120 | |