

2710. Minimum Operations to Reduce an Integer to 0

Difficulty : Medium

<https://leetcode.com/problems/minimum-operations-to-reduce-an-integer-to-0>

You are given a positive integer n , you can do the following operation **any** number of times:

- Add or subtract a **power** of 2 from n .

Return the **minimum** number of operations to make n equal to 0.

A number x is power of 2 if $x == 2^i$ where $i \geq 0$.

Example 1:

Input: $n = 39$

Output: 3

Explanation: We can do the following operations:

- Add $2^0 = 1$ to n , so now $n = 40$.
- Subtract $2^3 = 8$ from n , so now $n = 32$.
- Subtract $2^5 = 32$ from n , so now $n = 0$.

It can be shown that 3 is the minimum number of operations we need to make n equal to 0.

Example 2:

Input: $n = 54$

Output: 3

Explanation: We can do the following operations:

- Add $2^1 = 2$ to n , so now $n = 56$.
- Add $2^3 = 8$ to n , so now $n = 64$.
- Subtract $2^6 = 64$ from n , so now $n = 0$.

So the minimum number of operations is 3.

Constraints:

- $1 \leq n \leq 10^5$