Project Euler #169: Exploring the number of different ways a number can be expressed as a sum of powers of 2.

This problem is a programming version of Problem 169 from projecteuler.net

Define $f(0) = 1$ and $f(n)$ to be the number of different ways n can be expressed as a sum of integer powers of 2 using each power no more than twice.

For example, $f(10) = 5$ since there are five different ways to express 10:

$$1+1+8$$
$$1+1+4+4$$
$$1+1+2+2+4$$
$$2+4+4$$
$$2+8$$

What is $f(n)$ for a given n?

Input Format

One integer is given on first line representing n.

Constraints

- $1 \leqslant n < 10^{27}$

Output Format

Print one integer which is the answer to the problem.

Sample Input 0

```
10
```

Sample Output 0

```
5
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