PAINLESS

BinaryGap

START

Find longest sequence of zeros in binary representation of an integer.

Programming language: C++

A *binary gap* within a positive integer N is any maximal sequence of consecutive zeros that is surrounded by ones at both ends in the binary representation of N.

For example, number 9 has binary representation `1001` and contains a binary gap of length 2. The number 529 has binary representation `1000010001` and contains two binary gaps: one of length 4 and one of length 3. The number 20 has binary representation `10100` and contains one binary gap of length 1. The number 15 has binary representation `1111` and has no binary gaps.

Write a function:

```
int solution(int N);
```

that, given a positive integer N, returns the length of its longest binary gap. The function should return 0 if N doesn't contain a binary gap.

For example, given N = 1041 the function should return 5, because N has binary representation `10000010001` and so its longest binary gap is of length 5.

Assume that:

- N is an integer within the range [1..2,147,483,647].

Complexity:

- expected worst-case time complexity is O(log(N));
- expected worst-case space complexity is O(1).

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