Codility_

CodeCheck Report: trainingE5CJM2-VHH

Test Name:

Check out Codility training tasks

Summary | Timeline

Tasks summary

Task	Time spent	Score
BinaryGap Python	24 min	100%

Total score

Tasks Details

Easy

1. **BinaryGap**
Find longest sequence of zeros in binary representation of an integer.

Task Score	Correctness	Performance
100%	100%	Not assessed

Task description

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. The number 32 has binary representation `100000` and has no binary gaps.

Write a function:

```
def solution(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. Given N = 32 the function should return 0, because N has binary representation '100000' and thus no binary gaps.

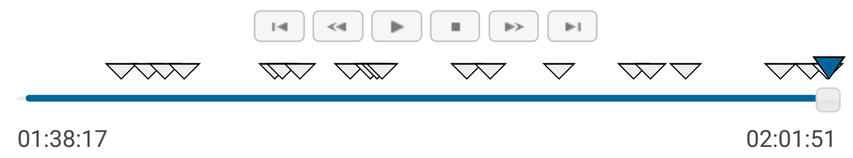
Write an **efficient** algorithm for the following assumptions:

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

Solution

Programming language used:	Python
Total time used:	24 minutes
Effective time used:	24 minutes
Notes:	*not defined yet*

Task timeline



01:38:17 02:01:51

Code: 02:01:51 UTC, py, final, score: **100** show code in pop-up

```python
# you can write to stdout for debugging purposes, e.g.
# print("this is a debug message")

def solution(N):
    # write your code in Python 3.6
    if N < 1:
        return -1
    if N > 2147483647:
        return -1

    max_ = 0
    counter = 0
    for d in str(bin( N )[2:]):
        if d=='0':
            counter += 1
        else:
            max_ = max(max_, counter)
            counter = 0

    return max_
```

Analysis summary

The solution obtained perfect score.

Analysis

expand all	Example tests	
▶	example1 example test n=1041=10000010001_2	✔ OK
▶	example2 example test n=15=1111_2	✔ OK
▶	example3 example test n=32=100000_2	✔ OK
expand all	**Correctness tests**	
▶	extremes n=1, n=5=101_2 and n=2147483647=2**31-1	✔ OK
▶	trailing_zeroes n=6=110_2 and n=328=101001000_2	✔ OK
▶	power_of_2 n=5=101_2, n=16=2**4 and n=1024=2**10	✔ OK
▶	simple1 n=9=1001_2 and n=11=1011_2	✔ OK
▶	simple2 n=19=10011 and n=42=101010_2	✔ OK
▶	simple3 n=1162=10010001010_2 and n=5=101_2	✔ OK
▶	medium1 n=51712=110010100000000_2 and n=20=10100_2	✔ OK
▶	medium2 n=561892=10001001001011100100_2 and n=9=1001_2	✔ OK
▶	medium3 n=66561=10000010000000001_2	✔ OK
▶	large1 n=6291457=11000000000000000000001_2	✔ OK
▶	large2 n=74901729=10001110110111010001100001	✔ OK
▶	large3 n=805306373=11000000000000000000000000010 1_2	✔ OK
▶	large4 n=1376796946=10100100001000001000001000010 010_2	✔ OK
▶	large5 n=1073741825=10000000000000000000000000000 001_2	✔ OK
▶	large6 n=1610612737=11000000000000000000000000000 001_2	✔ OK