Codility_

CodeCheck Report: trainingT37YYK-KZJ

Test Name:

Check out Codility training tasks

Summary Timeline

Tasks summary

Task	Time spent	Score
BinaryGap C# ⚠	2 min	100%

Total score

100%

Tasks Details

	1. BinaryGap Find longest sequence of zeros in binary representation of an integer.	Task Score	Correctness	Performance
Easy		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:

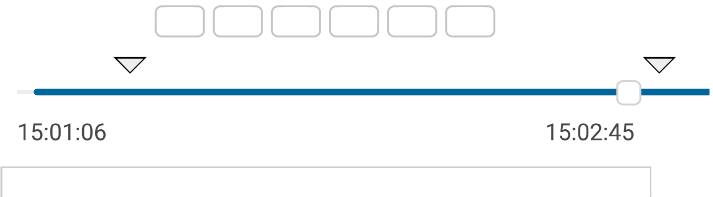
```
class Solution { public int solution(int N); }
```

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

Solution

Programming language used:	C#
Total time used:	2 minutes
Effective time used:	2 minutes
Notes:	*not defined yet*

Task timeline



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].

Code: 15:02:45 UTC, cs, final, score: **100**

show code in pop-up

```
using System;

/* Lesson 1.1 - Binary gap
 * Paulo Santos
 * 24.Nov.2022
 */
class Solution {
    public int solution(int N) {

                /*
                 * Check the input
                 */
                if (N < 1 || N > 2147483647) {
                        throw new
                Exception("N expected between 1 and
                }

        var i = 0;     // indicate if a '1' bit was
        var cnt = 0;   // countes of '0' bit
        var ans = -1;  // answer

        while (N > 0){
                        /*
                         * Check if the last bit of
                         * If it is add the counter
                         * if a '1' bit was found a
                         */
            cnt += ((i == 1) && ((N & 1) == 0)) ? 1
            if ((N & 1) == 1) {
                                /*
                                 * Found a '1' bit.
                                 * Reset counter an
                                 * the answer accor
                                 */
                ans = (cnt > ans) ? cnt : ans;
                i = 1; cnt = 0;
            }

                        /*
                         * Shifts N to the right.
                         * (Divide by 2)
                         */
            N = N >> 1;
        }
        return ans;
    }
}
```

Analysis summary

The solution obtained perfect score.

Analysis

expand all — Example tests

▶ example1 ✓ OK

example test n=1041=10000010001_2

▶ example2 ✓ OK

example test n=15=1111_2

▶

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=1100000000000000000000001_2	✓ OK
▶	large2 n=74901729=100011101101110100011100001	✓ OK
▶	large3 n=805306373=110000000000000000000000000101_2	✓ OK
▶	large4 n=1376796946=1010010000100000100000100010010_2	✓ OK
▶	large5 n=1073741825=1000000000000000000000000000001_2	✓ OK
▶	large6 n=1610612737=1100000000000000000000000000001_2	✓ OK