Codility_

CodeCheck Report: trainingBTWU2A-M55

Test Name:

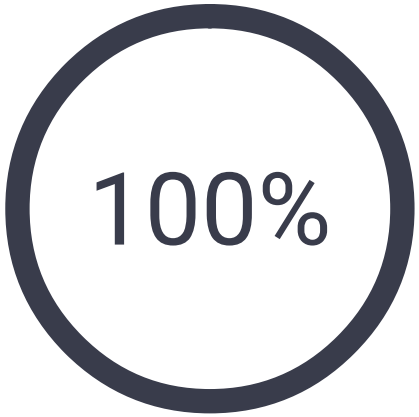
Check out Codility training tasks

Summary Timeline

Tasks summary

Task	Time spent	Score
BinaryGap Java 8 ⚠	62 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

Solution

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 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].

Programming language used:	Java 8
Total time used:	62 minutes
Effective time used:	62 minutes
Notes:	*not defined yet*

Task timeline

18:23:32 19:25:10

Code: 19:25:10 UTC, java, final, score: **100** show code in pop-up

```
1  // you can also use imports, for example:
2  // import java.util.*;
3
4  // you can write to stdout for debugging purposes, e.g.
5  // System.out.println("this is a debug message");
6
7  class Solution {
8      public int solution(int N) {
9          // range check
10         if (N < 1) return 0;
11
12         // initialize state
13         boolean gotFirstOne = false;
14         boolean gotFirstZero = false;
15         int gapSize = 0;
16         int maxGapSize = 0;
17
18         // shift all bits of number right
19         for ( ; N != 0; N >>= 1 ) {
20             if ((N & 1) == 1) {
```

```
21                  // got 1 bit, advance state
22                  gotFirstOne = true;
23                  if (gotFirstZero) {
24                      // already saw a 0 bit previously, compu
25                      maxGapSize = Math.max(gapSize, maxGapSiz
26                      gapSize = 0;
27                  }
28                  gotFirstZero = false;
29                  continue;
30              }
31              // got 0 bit
32              if (gotFirstOne) {
33                  // already saw a 1 bit previously, advance s
34                  gotFirstZero = true;
35                  gapSize++;
36              }
37          }
38          return maxGapSize;
39      }
40  }
```

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=110000000000000000000001_2	✓ OK
▶ large2 n=74901729=10001110110111010001110000 01	✓ OK
▶ large3 n=805306373=11000000000000000000000 000101_2	✓ OK
▶ large4 n=1376796946=10100100001000001000001 00010010_2	✓ OK
▶ large5 n=1073741825=10000000000000000000000	✓ OK

00000001_2

▶	large6 n=1610612737=11000000000000000000000000000001_2	✓ OK