Codility_

CodeCheck Report: trainingR88ED2-BC7
Test Name:

Summary   Timeline

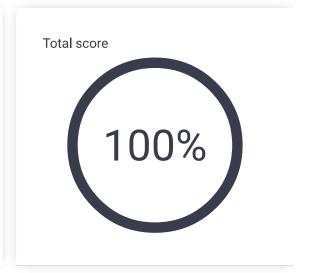### Tasks summary

Task		Time spent	Score
ChocolatesByNumbers C#	⚠️	4 min	100%

Total score

100%

Tasks Details

Easy

1.
ChocolatesByNumbers
There are N chocolates in a circle. Count the number of chocolates you will eat.

Task Score	Correctness	Performance
100%	100%	100%

Task description

Two positive integers N and M are given. Integer N represents the number of chocolates arranged in a circle, numbered from 0 to N − 1.

You start to eat the chocolates. After eating a chocolate you leave only a wrapper.

You begin with eating chocolate number 0. Then you omit the next M − 1 chocolates or wrappers on the circle, and eat the following one.

More precisely, if you ate chocolate number X, then you will next eat the chocolate with number (X + M) modulo N (remainder of division).

You stop eating when you encounter an empty wrapper.

For example, given integers N = 10 and M = 4. You will eat the following chocolates: 0, 4, 8, 2, 6.

Solution

Programming language used:	C#
Total time used:	4 minutes ❓
Effective time used:	4 minutes ❓
Notes:	*not defined yet*

Task timeline ❓

⏮ ⏪ ▶ ⏹ ⏩ ⏭

12:32:31   12:35:36

The goal is to count the number of chocolates that you will eat, following the above rules.

Write a function:

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

that, given two positive integers N and M, returns the number of chocolates that you will eat.

For example, given integers N = 10 and M = 4. the function should return 5, as explained above.

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

- N and M are integers within the range [1..1,000,000,000].

Code: 12:35:36 UTC, cs, final, score: **100**   show code in pop-up

```cs
1    using System;
2
3    /**
4     * 12.1 - Chocolate by Numbers
5     * Paulo Santos
6     * 27.Dec.2022
7     */
8    class Solution {
9        public int solution(int N, int M) {
10           return (N / gdcModulo(N, M));
11       }
12
13       private int gdcModulo(int a, int b) {
14           if (a % b == 0) return b;
15           return gdcModulo(b, a % b);
16       }
17   }
```

Analysis summary

The solution obtained perfect score.

Analysis

Detected time complexity: $O(\log(N + M))$

expand all	Example tests	
▶ example		✓ OK
example test		

expand all	Correctness tests	
▶ extreme_small		✓ OK
very small N and M		
▶ simple		✓ OK
simple test, N = 24, M = 18		
▶ small1		✓ OK
small tests		
▶ small2		✓ OK
small tests		

expand all	Performance tests	
▶ medium		✓ OK
medium tests		
▶ large		✓ OK
large tests		
▶ large2		✓ OK
N = (3**9)*(2**14), M=(2**14)*(2**14)		
▶ extreme_large		✓ OK
maximal and minimal values		