762. Prime Number of Set Bits in Binary Representation

Solved

Easy | Topics | Companies | Hint

Given two integers `left` and `right`, return *the **count** of numbers in the **inclusive** range* `[left, right]` *having a **prime number of set bits** in their binary representation.*

Recall that the **number of set bits** an integer has is the number of `1`'s present when written in binary.

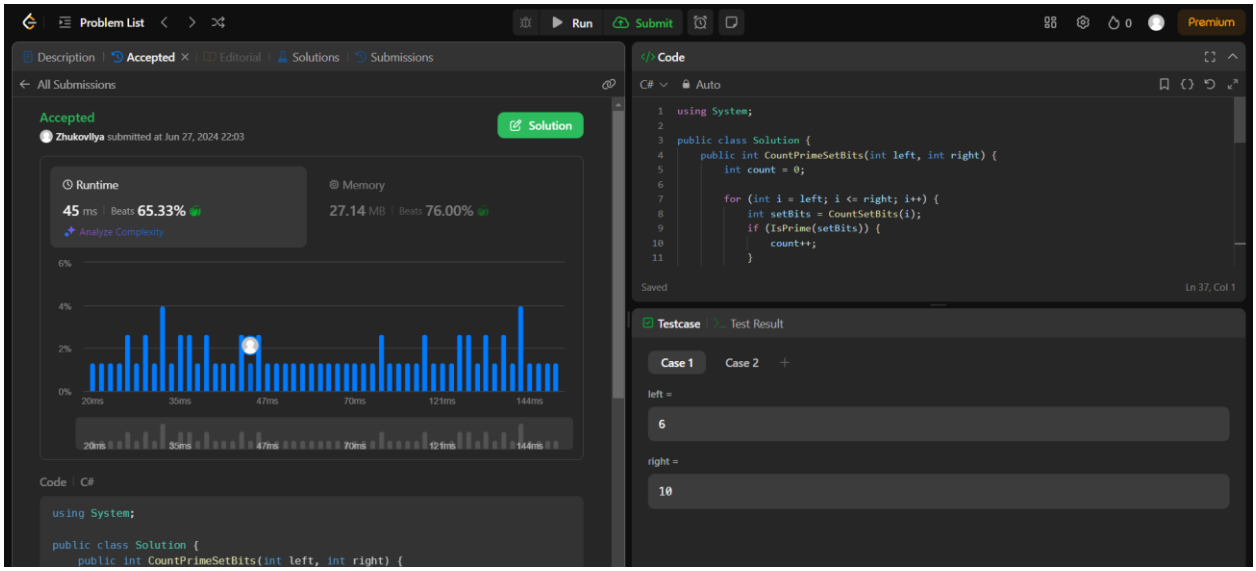
- For example, `21` written in binary is `10101`, which has `3` set bits.

Example 1:

```
Input: left = 6, right = 10
Output: 4
Explanation:
6  -> 110 (2 set bits, 2 is prime)
7  -> 111 (3 set bits, 3 is prime)
8  -> 1000 (1 set bit, 1 is not prime)
9  -> 1001 (2 set bits, 2 is prime)
10 -> 1010 (2 set bits, 2 is prime)
4 numbers have a prime number of set bits.
```

Example 2:

```
Input: left = 10, right = 15
Output: 5
Explanation:
```



Код:

```
using System;

public class Solution
{
    public int CountPrimeSetBits(int left, int right)
    {
        int count = 0;
```

```
        for (int i = left; i <= right; i++)
        {
            int setBits = CountSetBits(i);
            if (IsPrime(setBits))
            {
                count++;
            }
        }

        return count;
    }

    private int CountSetBits(int n)
    {
        int count = 0;
        while (n > 0)
        {
            count += n & 1;
            n >>= 1;
        }
        return count;
    }

    private bool IsPrime(int n)
    {
        if (n <= 1) return false;
        if (n == 2) return true;

        for (int i = 2; i <= Math.Sqrt(n); i++)
        {
            if (n % i == 0) return false;
        }

        return true;
    }
}
```