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Code Test Results

Time Taken: 39 minutes
Pass/Fail: Congratulations you passed!
Score: 285

Details:

Palindromes

A palindrome is a word, number, phrase, or other sequence of characters which reads the same backward as forward, such as madam, racecar, or the number 10801.

What is the sum of all numeric palindromes that are less than 10,000?

Code

```
class Program
{
    static void Main(string[] args)
    {
        Task1();

        Console.ReadKey();
    }

    private static void Task1()
    {
        int result = 0;
        for (int i = 1; i < 10000; i++)
        {
            if (isPalindromes(i.ToString()))
            {
                result = result + i;
            }
        }

        Console.WriteLine(result); //545040
    }

    private static bool isPalindromes(string s)
    {
        for (int i = 0; i < s.Length; i++)
        {
            if (s[i] != s[s.Length - i - 1])
            {
                return false;
            }
        }

        return true;
    }
}
```

Your Answer: 545040
Answer correct? Yes

Fibonacci

The Fibonnoci sequence begins like this:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34

(each number is the sum of the previous two)

What is the sum of all odd numbers in the Fibonnoci sequence that are less than 10,000?

Code

```
class Program
{
    static void Main(string[] args)
    {
        Task2();

        Console.ReadKey();
    }

    private static void Task2()
    {
        var fibonacciNumbersList = new List<int> { 0, 1 };

        var fibonacciResult = FibonacciSeries(21,
fibonacciNumbersList);

        var result = fibonacciNumbersList.Where(_ => _ < 10000 &&
IsOdd(_)).Sum();

        Console.WriteLine(result); //14328
    }

    static int FibonacciSeries(int n, List<int>
fibonacciNumbersList)
    {
        int firstnumber = 0, secondnumber = 1, result = 0;

        if (n == 0) return 0; //To return the first Fibonacci number
        if (n == 1) return 1; //To return the second Fibonacci
number

        for (int i = 2; i <= n; i++)
        {
            result = firstnumber + secondnumber;

            fibonacciNumbersList.Add(result);

            firstnumber = secondnumber;
            secondnumber = result;
        }

        return result;
    }

    public static bool IsOdd(int value)
    {
        return value % 2 != 0;
    }
}
```

Your Answer: 14328

Answer correct? Yes

Counting Legionaries

In the range 1 - 13 (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13) the digit 1 occurs 6 times.

In the range 1 - 2,660 (half the number of Romans in a legion), expressed in Roman numerals, how many times does the numeral "X" occur?

Code

```
class Program
{
    static void Main(string[] args)
    {
        Task3();

        Console.ReadKey();
    }

    private static void Task3()
    {
        var result = 0;
        for (int i = 1; i <= 2660; i++)
        {
            var romanNumber = ToRoman(i);

            result =
                result + romanNumber.Where(_ => _ == 'X').Count();
        }

        Console.WriteLine(result); //3977
    }

    public static string ToRoman(int number)
    {
        if ((number < 0) || (number > 3999)) throw new
ArgumentOutOfRangeException("insert value between 1 and 3999");
        if (number < 1) return string.Empty;
        if (number >= 1000) return "M" + ToRoman(number - 1000);
        if (number >= 900) return "CM" + ToRoman(number - 900);
        if (number >= 500) return "D" + ToRoman(number - 500);
        if (number >= 400) return "CD" + ToRoman(number - 400);
        if (number >= 100) return "C" + ToRoman(number - 100);
        if (number >= 90) return "XC" + ToRoman(number - 90);
        if (number >= 50) return "L" + ToRoman(number - 50);
        if (number >= 40) return "XL" + ToRoman(number - 40);
        if (number >= 10) return "X" + ToRoman(number - 10);
        if (number >= 9) return "IX" + ToRoman(number - 9);
        if (number >= 5) return "V" + ToRoman(number - 5);
        if (number >= 4) return "IV" + ToRoman(number - 4);
        if (number >= 1) return "I" + ToRoman(number - 1);
        throw new ArgumentOutOfRangeException("something bad
happened");
    }
}
```

Your Answer: 3977

Answer correct? Yes

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