Experiment Number: 4 (Inheritance, Abstract Class, Interface)

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Class	**TE IT**
Batch	**D**
Subject	**OOP Lab**

Aim: You are given an interface Arithmetic which contains a method signature int divisor_sum(int n). You need to write a class called MyCalculator which implements the interface. divisor_sum function just takes an integer as input and return the sum of all its divisors. For example divisors of 6 are 1, 2, 3 and 6, so divisor_sum should return 12. The value of n will be at most 1000.

Program:

```
//Shreya Shetty TE IT 2019140059 Batch D
//Experiment 4 OOP Lab
//Problem Statement : You are given an interface Arithmetic which contains a method signature int divisor_sum(int n).
//You need to write a class called MyCalculator which implements the interface.
// divisorSum function just takes an integer as input and return the sum of all its divisors.
//For example divisors of 6 are 1, 2, 3 and 6, so divisor_sum should return 12.
//The value of n will be at most 1000.
import java.util.*;
interface Arithmetic
{
   int divisor_sum(int n);
}

class MyCalculator implements Arithmetic
{
    //divisor_sum function just takes integer n as input and return the sum of all its divisors.
    public int divisor_sum(int n)
    {
        int sum=0;
        for(int i=1;i<=(n/2);i++)
        {
            if(n%i==0)
                sum+=i;
        }
        return sum+n;
    }
}

public class exp4 {

    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        while(true)
```

```
        {
            System.out.print("\nEnter the integer : ");
            int n=sc.nextInt();
            if(n>1000)
            {
                System.out.println("Integer should be atmost 1000");
                continue;
            }
            Arithmetic myCalculator=new MyCalculator();
            int sum=myCalculator.divisor_sum(n);
            System.out.println("Sum of Divisors of "+n+" is "+sum);
            System.out.print("Enter 0 to exit : ");
            int choice=sc.nextInt();
            if(choice==0)
            {
                System.out.println("Exit Selected");
                break;
            }
        }
    }
}
```

Output:

```
PS D:\PROJECT_AND_CODES\Java> cd "d:\PROJECT_AND_CODES\Java\" ; if ($?) { javac exp4.java } ; if ($?) { java exp4 }


Enter the integer : 6
Sum of Divisors of 6 is 12
Enter 0 to exit : 1

Enter the integer : 12
Sum of Divisors of 12 is 28
Enter 0 to exit : 1

Enter the integer : 50
Sum of Divisors of 50 is 93
Enter 0 to exit : 1

Enter the integer : 10000
Integer should be atmost 1000

Enter the integer : 24
Sum of Divisors of 24 is 60
Enter 0 to exit : 0
Exit Selected
PS D:\PROJECT_AND_CODES\Java>
```