Java, October 4, Mid-term, L3+L4, Fall 2021

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Set-A

General Notes:

Don't use any inbuilt functions of array except length property.

SET-A: Write a Java program to get n numbers using command line arguments to store it in an array. Based on length of the array perform the following.

(i) If the length of the array length is odd. Calculate the sum of array numbers, if you encounter prime number in the given array. Otherwise check the elements are Armstrong number or not.

(ii) If the array length is even, display the factorials of array elements. If the factorial value is exceed 32767 then throw the appropriate exception.

Note: Make sure that you perform above operations using single inheritance and any three unique advantages of this keyword must be implement.

SET-A: If your register number is not exactly divisible by 2.

Solution:

I'm combining both (i) and (ii) into a single code.

```
import java.util.*;

public class test
{

    static boolean isPrime(int n)
    {

        if (n <= 1)
            return false;

        else if (n == 2)
            return true;

        else if (n % 2 == 0)
            return false;

        for (int i = 3; i <= Math.sqrt(n); i += 2)
```

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```
        {
            if (n % i == 0)
                return false;
        }
        return true;
    }
static int primeSum(int arr[], int n)
{
    int sum = 0,c=0;
    for (int i = 0; i < n; i++)
    {
        if(isPrime(arr[i]))
        {
            c+=1;
        }
        if(c==1)
        {
            sum += arr[i];
        }
        else
        {
          sum=0;
        }
    }


    return sum;
}
static int MOD = 1000000007 ;
static int SIZE = 10000;


static Vector<Long> fact = new Vector<Long>();


static void factorial()
{
    int i;
    fact.add((long)1);
    for (i = 1; i <= SIZE; i++)
    {

        fact.add((fact.get(i - 1) * i) % MOD);
    }
}

static void PrintFactorial(int arr[],int n)
{
    for(int i=0; i<n; i++)
    {
```

```
        if(fact.get(arr[i])<=32767)
        System.out.print(fact.get(arr[i])+" ");
        else
        System.out.print("Factorial Exceeded 32767!!!! Please Try Again");

    }
}



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

    System.out.println("Enter the limit");
    int n = sc.nextInt();
    int arr[]=new int [n];
    if(n%2!=0)
    {
    for(int i=0;i<arr.length;i++)
    {
        arr[i]=sc.nextInt();
    }
    if(primeSum(arr, n)==0)
    {
        int x,a=0,num;
        for(int j=0;j<arr.length;j++)
        {
            num=arr[j];
            a=0;
            while(num!=0)
            {
                x=num%10;
                a=a+(x*x*x);
                num/=10;
            }
            if(a==arr[j])
            {
                System.out.println(a+" is a armstrong number");
            }

        }
    }
    else
    {
    System.out.print(primeSum(arr, n));
    }
    }
    else
    {
        int a[]=new int[n];
```

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```
        for(int i=0;i<a.length;i++)
        {
        a[i]=sc.nextInt();
        }
        factorial();
        PrintFactorial(a, a.length);
    }



}
}
```