**Assignment-Recursion**

Q1 : Given an integer, find out the sum of its digits using recursion.

Input: n= 1234

Output: 10

Explanation: 1+2+3+4=10

Ans:

import java.util.Scanner;

public class assignment {

public static int find(int num) {

if(num<10) {

return num;

}

int num2=num%10;

num=num/10;

int ans=num2+find(num);

return ans;

}

public static void main(String[] args) {

// TODO Auto-generated method stub

Scanner sc=new Scanner(System.in);

System.out.println("Enter the number:");

int num=sc.nextInt();

int ans=find(num);

System.out.println("Answer is: "+ans);

}

}

Q2: Given a number n. Find the sum of natural numbers till n but with alternate signs.

That means if n = 5 then you have to return 1-2+3-4+5 = 3 as your answer.

Constraints : 0<=n<=1e6

Input1 : n = 10

Output 1 : -5

Explanation : 1-2+3-4+5-6+7-8+9-10 = -5

Input 2 : n = 5

Output 2 : 3

Ans:

import java.util.Scanner;

public class assign2 {

public static int solve(int num) {

if(num<=1) {

return num;

}

if(num%2==0) {

return -num+solve(--num);

}

else {

return num+solve(--num);

}

}

public static void main(String[] args) {

System.out.println("Enter the number:");

Scanner sc=new Scanner(System.in);

int num=sc.nextInt();

int ans=solve(num);

System.out.println("Answer is: "+ans);

}

}

Q3: Print the max value of the array [ 13, 1, -3, 22, 5].

Ans:

public class assign3 {

public static int solve(int []arr,int n,int maxval) {

if(n==arr.length)

return maxval;

if(arr[n]>maxval) {

maxval=arr[n];

}

return solve(arr,n+1,maxval);

}

public static void main(String[] args) {

int [] arr= {13,1,-3,22,5};

int max=Integer.MIN\_VALUE;

int ans=solve(arr,0,max);

System.out.println("Maximum value:"+ans);

}

}

Q4 : Find the sum of the values of the array [92, 23, 15, -20, 10].

Ans:

public class assign4 {

public static int sum(int []arr,int i) {

if(i==arr.length)

return 0;

return arr[i]+sum(arr,++i);

}

public static void main(String[] args) {

int []arr= {92,23,15,-20,10};

int ans=sum(arr,0);

System.out.println("Sum of array is:"+ans);

}

}

Q5. Given a number n. Print if it is an armstrong number or not. An armstrong number is a number if the sum

of every digit in that number raised to the power of total digits in that number is equal to the number.

Example : 153 = 1^3 + 5^3 + 3^3 = 1 + 125 + 27 = 153 hence 153 is an armstrong number. (Easy)

Input1 : 153

Output1 : Yes

Input 2 : 134

Output2 : No

Ans:

import java.util.\*;

public class assign5 {

public static int solve(int num) {

if(num<10) {

return 1;

}

return 1+solve(num/10);

}

public static int solve2(int num ,int length) {

if(num<=0) {

return 0;

}

int n=num%10;

num=num/10;

int ans=1;

for(int i=0;i<length;i++) {

ans \*=n;

}

return ans+solve2(num,length);

}

public static void main(String[] args) {

System.out.println("Enter the number:");

Scanner sc=new Scanner(System.in);

int num=sc.nextInt();

int length=solve(num);

int ans=solve2(num,length);

if(num==ans) {

System.out.println("YES");

}

else {

System.out.println("NO");

}

}

}