Assignment
Topic: Recursion

Q.1) Given an integer, find out Sum of its digits using Recursion.

→

```
class solution{
  Public static int SumofDigits (int n){
     //Base case: if n is 0, the sum is 0
    if (n==0){
        return 0;
    }
   else{
     return (n%10) +SumofDigits(n/10);
     }
 { Public static Void main (String[] args)
     int n= 1234
  System.out.println("Sumof digits of "+n+
                           SumofDigits(n));
    }
 };
```

Q.2. Given a number n, find Sum of natural number till n but with alternate sign.
That mean if n=5. then you have to return 1-2+3-4+5=3 as your answer.

input n=10

```
→ class Solution{
    Public static intSumofAlternate (int n){
      //Base Case:
      if (n==0) {
        return 0;
      }
      ~~if~~ else{ if
  if . ~~int Sign=~~ (n%2=0) ~~? -1:~~ {
         SumofAlternate (n-1)-n;
       }
      else{
   return ~~alter~~SumofAlternate(n-1)+n;
      }
  public static void main {
(~~Q.3~~)      int n=10;
   System.out.println("Sum is "+Sumof
                              Alternate(n));
  }

Q.3) Print max value of array [13,1,-3,2,5]
→ class Solution{
     Public static int findmax(int[]arr, int n)
  {  if (n==0){
        }return arr[0];
//Recursive case:
 int maxInRest = findMax(arr, n-1);
 retur Math.max(arr[n-1], maxInRest);
}

Public static void main(String[] args){
   int[] arr = {13, 1, -3, 22, 5};
   int max = findMax(arr, arr.length);
 System.out.Println("The max value of
              array is " +max);
   }
}
```

Q-4) Find Sum of Values of array [92, 23, 15, -20, 10]

```
→ class Solution {
    Public static ~~void~~ int findSum(int[]arr,
                                        int n){
       //Base case:
       if(n==0){
          return 0;
       }

       return arr[n-1]+findsum(arr,(n-1))
    }
  { Publicstatic void main (String[]args)
     int[] arr = {92, 23, 15, -20, 10};
     int Sum = findSum(arr, arr.length);
    System.out.Println("Sumof valuesis"+ Sum);
  }
}
```

Q.5) Given a number n. Print if it is an armstrong number or not. An armstrong num is number it the sum of every digit in that number is raised to the power of total digits in that number, is equal to the number.

→

```
class Solution {
  // function to count number of digit in number
  public static int CountDigits (int n) {
       return (int) Math.log10(n)+1;
  }
  public static int SumofPowers (int n, int Power)
  {  if (n==0) {
            return 0;
         }
       int digit = n%10;
       return (int) Math.pow (digit, Power) +
                         Sumofpower (n/10, Power)
  }
  public static boolean isArmstrong (int n) {
       int numDigits = CountDigits (n)
       int Sum = Sumofpowers (n, numDigi
  }    return Sum==n;
  Public Static void main (String [] args) {
       int n1= 153;
       int n2 = 1034;
       System.out.println ((isArmstring (n1) ? "
  }    System.out.println (isArmstrung (n2
```