**Numbers-3**

Question 1:

Report

Marks: +10-0

Description:

Write a program to find Sum of first 'n' Natural Numbers Without Using formula?

Constraints:

Input          :- First Line of Input Consists of One Integer Value.

Output        :- Print Sum of first 'N' Natural Numbers.

Constraints  :- Given Input is Zero then Print "InvaLid Input.".

                      If Given Input is Negative then Print "Sorry! you have Entered Negative Values.".

Example:

Input 1  :    10

Output 1:    Sum of 'N' Natural Numbers is 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = 55.

Input 2  :   5

Output 2:   Sum of 'N' Natural Numbers is 1 + 2 + 3 + 4 + 5 = 15.

Input 3  :    8

Output 3:    Sum of 'N' Natural Numbers is 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 = 36.

Explanation:

Input 1  :    10

Output 1:    Sum of 'N' Natural Numbers is 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = 55.

Explanation:

First 'N' Numbers is 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Sum of First 'N' Numbers is 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = 55

Input 2  :   5

Output 2:   Sum of 'N' Natural Numbers is 1 + 2 + 3 + 4 + 5 = 15.

Explanation:

First 'N' Numbers is 1, 2, 3, 4, 5

Sum of 'N' Natural Numbers is 1 + 2 + 3 + 4 + 5 = 15.

Input 3  :    8

Output 3:    Sum of 'N' Natural Numbers is 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 = 36.

Explanation:

First 'N' Numbers is 1, 2, 3, 4, 5, 6, 7, 8

Sum of 'N' Natural Numbers is 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 = 36.

Your Code: java

import java.util.Scanner;

class Main

{

public static void main(String []args)

{

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

int sum=0;

String result="";

if(n==0){

System.out.print("InvaLid Input.");

}

else if(n<0){

System.out.print("Sorry! you have Entered Negative Values.");

}

else{

for(int i=1;i<=n;i++){

sum+=i;

result+=i;

if(i<n){

result+=" + ";

}

}

System.out.print("Sum of 'N' Natural Numbers is "+result+ " = " +sum+".");

}

}

}

**Question 2:**

Report

**Marks: +10-0**

**Description:**

Write a Program to check the Given Number is Perfect Square or Not a perfect Square?

**Constraints:**

Input          :- First Line of Input Consists of One Integer Value.

Output        :- Print Given Number is Perfect Square or Not.

Constraints  :- Given Input is Zero or Negative Value then Print **InvaliD Input.**

**Example:**

Input 1  :    10

Output 1:    Given Number is Not a Perfect Square.

Input 2  :   5

Output 2:   Given Number is Not a Perfect Square.

Input 3  :    16

Output 3:    Given Number is a Perfect Square.

**Explanation:**

Input 1  :    10

Output 1:    Given Number is Not a Perfect Square.

Explanation :

Resultant of the **Product of some integer with itself** is nothing but **Perfect Square**.

Given Number is 10 so it is in between the **3\*3=9**and **4\*4=16**, So it is **Not a Perfect Square.**

Input 2  :   5

Output 2:   Given Number is Not a Perfect Square.

Explanation :

Resultant of the **Product of some integer with itself** is nothing but **Perfect Square**.

Given Number is 5 so it is in between the **2\*2=4** and **3\*3=9**, So it is **Not a Perfect Square**.

Input 3  :    16

Output 3:    Given Number is a Perfect Square.

Explanation :

Resultant of the **Product of some integer with itself** is nothing but **Perfect Square.**

Given Number is 16 so it is in between the **4\*4=16**, So it is **Perfect Square.**

**Your Code: java**

import java.util.Scanner;

class Main

{

public static void main(String[] args)

{

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

if(n <= 0){

System.out.print("InvaliD Input");

}else{

double sqrt=Math.sqrt(n);

if(sqrt==(int)sqrt){

System.out.print("Given Number is a Perfect Square.");

}else{

System.out.print("Given Number is Not a Perfect Square.");

}

}

}

}

**Question 3:**

Report

**Marks: +10-0**

**Description:**

Write a Program to print the smallest digit in a Given Number?

**Constraints:**

Input          :- First Line of Input Consists of One Integer Value.

Output        :- Print Smallest Digit in a Given Number.

Constraints  :- Given Input is Must be Greater than Zero or else Print **"Invalid Input."**.

**Example:**

Input 1  :    25696

Output 1:    Smallest Digit in a Given Number is 2.

Input 2  :   -81

Output 2:    Invalid Input.

Input 3  :    2683651

Output 3:    Smallest Digit in a Given Number is 1.

**Explanation:**

Print the Lowest Digit in a Given Number as shown in Example.

**Your Code: java**

import java.util.Scanner;

class Prog3

{

public static void main(String[] args)

{

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

int h=9;

if(n<=0){

System.out.print("Invalid Input.");

}

else{

while(n!=0)

{

int r=n % 10;

if(r<h)

h=r;

n=n/10;

}

System.out.print("Smallest Digit in a Given Number is "+h+".");

}

}

}

**Question 4:**

Report

**Marks: +10-0**

**Description:**

Write a program to Find Sum of Digits of a Given Number?

**Constraints:**

Input          :- First Line of Input Consists of One Integer Value.

Output        :- Print Sum of Digits as Given in Examples.

Constraints  :- Given Input is Must be Greater than Zero or else Print **"Invalid Input**.**"**.

**Example:**

Input 1  :    25696

Output 1:    2 + 5 + 6 + 9 + 6.

Input 2  :   -81

Output 2:    Invalid Input.

Input 3  :    2683651

Output 3:    2 + 6 + 8 + 3 + 6 + 5 + 1.

**Explanation:**

If Given Number is Positive then print the following pattern.

**Your Code: java**

import java.util.Scanner;

class Main

{

public static void main(String []args)

{

Scanner sc=new Scanner(System.in);

int num=sc.nextInt();

int sum=0;

if(num<=0){

System.out.print("Invalid Input.");

}

else{

int rev=0;

int temp=num;

while(temp>0)

{

rev=rev\*10+temp%10;

temp/=10;

}

while(rev>0)

{

int digit=rev%10;

rev/=10;System.out.print(digit);

if(rev>0)

{

System.out.print(" + ");

}

else{

System.out.print(".");

}

}

}

}

}

**Question 4:**

Report

**Marks: +10-0**

**Description:**

Write a program to Find Sum of Digits of a Given Number?

**Constraints:**

Input          :- First Line of Input Consists of One Integer Value.

Output        :- Print Sum of Digits as Given in Examples.

Constraints  :- Given Input is Must be Greater than Zero or else Print **"Invalid Input**.**"**.

**Example:**

Input 1  :    25696

Output 1:    2 + 5 + 6 + 9 + 6.

Input 2  :   -81

Output 2:    Invalid Input.

Input 3  :    2683651

Output 3:    2 + 6 + 8 + 3 + 6 + 5 + 1.

**Explanation:**

If Given Number is Positive then print the following pattern.

**Your Code: java**

import java.util.Scanner;

class Main

{

public static void main(String []args)

{

Scanner sc=new Scanner(System.in);

int num=sc.nextInt();

int sum=0;

if(num<=0){

System.out.print("Invalid Input.");

}

else{

int rev=0;

int temp=num;

while(temp>0)

{

rev=rev\*10+temp%10;

temp/=10;

}

while(rev>0)

{

int digit=rev%10;

rev/=10;System.out.print(digit);

if(rev>0)

{

System.out.print(" + ");

}

else{

System.out.print(".");

}

}

}

}

}

**Question 6:**

Report

**Marks: +10-0**

**Description:**

Write A Program to check the Given Number is Perfect Square or not?

**Constraints:**

Input          :- First Line of Input Consists of One Integer Value.

Output        :- Print the Given Number is **Perfect Square** or **not Perfect Square**.

Constraints  :- Given Input is equal to Zero then Print **"Invalid Input"**.

**Example:**

Input 1  :    9

Output 1:    Given Number is Perfect Square.

Input 2  :   -11

Output 2:   Given Number is Not a Perfect Square.

Input 3  :    5

Output 3:    Given Number is Not a Perfect Square.

**Explanation:**

NA

**Your Code: java**

import java.util.Scanner;

class Perfect{

public static void main(String[] args)

{

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

if(n==0){

System.out.println("Invalid Input");

}

else{

int k=(int)Math.sqrt(n);

if(k\*k==n){

System.out.println("Given Number is Perfect Square.");

}

else{

System.out.println("Given Number is Not a Perfect Square.");

}

}

}

}

**Question 7:**

Report

**Marks: +10-0**

**Description:**

Find the Highest span of a digit?

For more Understanding Once glance the below Examples.

**Constraints:**

Input          :- First Line of Input Consists of One Integer Value.

Output        :- Print Highes Span of Digit in a Given Number.

Constraints  :- Given Input is Must be Greater than Zero or else Print **"Invalid Input."**.

**Example:**

Input 1  :    25696

Output 1:    Lowest Digit in a Given Number is 2.

                  Highest Digit in a Given Number is 9.

                  Highest Span in a Given Number is 7.

Input 2  :   -81

Output 2:    Invalid Input.

Input 3  :    2683651

Output 3:   Lowest Digit in a Given Number is 1.

                  Highest Digit in a Given Number is 8.

                  Highest Span in a Given Number is 7.

**Explanation:**

Input 1  :    25696

Output 1:    Lowest Digit in a Given Number is 2.

                  Highest Digit in a Given Number is 9.

                  Highest Span in a Given Number is 7.

Explanation:

                  Lowest Digit in a Given Number is 2.

                  Highest Digit in a Given Number is 9.

                  Highest Span in a Given Number is 7 ( 9 - 2 = 7 ).

Input 2  :   -81

Output 2:    Invalid Input.

Explanation:

                 Given Number is Less than 0 so print the Invalid Input.

Input 3  :    2683651

Output 3:

                  Lowest Digit in a Given Number is 1.

                  Highest Digit in a Given Number is 8.

                  Highest Span in a Given Number is 7 ( 8 - 1 = 7 ).

**Your Code: java**

import java.util.Scanner;

class Span{

public static void main(String[] args)

{

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

int h=0,l=9;

if(n>0)

{

while(n!=0)

{

int r=n%10;

if(r>h)

{

h=r;

}

if(r<l)

{

l=r;

}

n=n/10;

}

int span=h-l;

System.out.println("Lowest Digit in a Given Number is "+l+".");

System.out.println("Highest Digit in a Given Number is "+h+".");

System.out.println("Highest Span in a Given Number is "+span+".");

}

else{

System.out.print("Invalid Input.");

}

}

}

**Question 8:**

Report

**Marks: +10-0**

**Description:**

Write a Program to print the Highest digit in a Given Number?

**Constraints:**

Input          :- First Line of Input Consists of One Integer Value.

Output        :- Print Highest Digit in a Given Number.

Constraints  :- Given Input is Must be Greater than Zero or else Print **"Invalid Input."**.

**Example:**

Input 1  :    25696

Output 1:    Highest Digit in a Given Number is 9.

Input 2  :   -81

Output 2:    Invalid Input.

Input 3  :    2683651

Output 3:    Highest Digit in a Given Number is 8.

**Explanation:**

Print the Highest Digit in a Given Number as shown in Example.

**Your Code: java**

import java.util.Scanner;

class Main

{

public static void main(String []args)

{

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

int max=0;

if(n<=0){

System.out.print("Invalid Input.");

}else{

while(n!=0){

int digit=n%10;

if(digit>max){

max=digit;

}

n=n/10;

}

System.out.print("Highest Digit in a Given Number is "+max+".");

}

}

}

**Question 9:**

Report

**Marks: +10-0**

**Description:**

Write a Program to print the Nearest Prime Number of a Given Number?

**Constraints:**

Input          :- First Line of Input Consists of One Integer Value.

Output        :- Print the Nearest Prime Number of a Given Number.

Constraints  :- Given Input Must be Greater than Zero or else Print **InValid Input**.

**Example:**

Input 1  :    83

Output 1:    79

Input 2  :    182

Output 2:    181

Input 3  :    228

Output 3:    227

                  229

**Explanation:**

Input 1  :    83

Output 1:    79

Explanation:

Prime Number After the Given Number ( 83 ) is 89.

Prime Number Before the Given Number ( 83 ) is 79.

Before Number( 79 ) is Nearest Number to the Given Number so print this Number

Input 2  :    182

Output 2:    181

Explanation:

Prime Number After the Given Number ( 182 ) is 191.

Prime Number Before the Given Number ( 182 ) is 181.

Before Number( 181 ) is Nearest Number to the Given Number so print this Number

Input 3  :    228

Output 3:    227

                  229

Explanation:

Prime Number After the Given Number ( 228 ) is 229.

Prime Number Before the Given Number ( 228 ) is 227.

Above 2 numbers are of same Difference with respective to the Given Number so Print Both the Number.

**Your Code: java**

import java.util.Scanner;

class NearestPrime{

public static void main(String[] args){

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

int a=0,b=0;

if(n<=0){

System.out.print("InValid Input");

}

else{

for(int i=n+1; ;i++){

int fc=0;

for(int j=1;j<=i;j++){

if(i%j==0){

fc++;

}

}

if(fc==2){

a=i;

break;

}

}

for(int i=n-1;i>=2;i--)

{

int fc=0;

for(int j=1;j<=i;j++){

if(i%j==0){

fc++;

}

}

if(fc==2){

b=i;

break;

}

}

int diffA=a-n;

int diffB=n-b;

if(diffA<diffB){

System.out.println(a);

}

else if(diffB<diffA){

System.out.println(b);

}

else{

System.out.println(b+"\n"+a);

}

}

}

}

**Question 10:**

Report

**Marks: +10-0**

**Description:**

Write a program to find Sum of first 'n' Natural Numbers by Using formula?

**Constraints:**

Input          :- First Line of Input Consists of One Integer Value.

Output        :- Print Sum of first 'N' Natural Numbers.

Constraints  :- Given Input is Zero then Print **"InvaLid Input.".**

                      If Given Input is Negative then Print "**Sorry! you have Entered Negative Values."**.

**Example:**

Input 1  :    10

Output 1:    Sum of 'N' Natural Numbers is 55.

Input 2  :   5

Output 2:   Sum of 'N' Natural Numbers is 15.

Input 3  :    8

Output 3:    Sum of 'N' Natural Numbers is 36.

**Explanation:**

Input 1  :    10

Output 1:    Sum of 'N' Natural Numbers is 55.

Explanation:

n \* ( n  + 1 ) / 2

= 10 \* 11 / 2

= 55

Input 2  :   5

Output 2:   Sum of 'N' Natural Numbers is 15.

Explanation:

n \* ( n + 1 ) / 2

= 5 \* 6 / 2

= 15

Input 3  :    8

Output 3:    Sum of 'N' Natural Numbers is 36.

Explanation:

n \* ( n + 1 ) / 2

= 8 \* 9 / 2

= 36

**Your Code: java**

import java.util.Scanner;

class Main

{

public static void main(String []args)

{

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

if(n==0){

System.out.println("InvaLid Input.");

}else if(n<0){

System.out.println("Sorry! you have Entered Negative Values.");

}

else{

int s=n\*(n+1)/2;

System.out.print("Sum of 'N' Natural Numbers is "+s+".");

}

}

}