**61.Duplicate Elements**

 Tim is working as a data entry staff in a college. His manager wants him to delete the duplicate student id from the entry. Help Tim in writing a program to delete the duplicate elements.

 Include a function named **eliminateDuplicate** that accepts 2 arguments and its return type is void. The first argument is the input array and the second argument is an int that corresponds to the size of the array. The output array is stored in a global variable named output1 and the number of elements in the output array is stored in the global variable named output 2.

 If the size of the array is negative or if any element in the array is negative, print “Invalid Input” and terminate the program.

**Input and Output Format:**

Input consists of n+1 integers. The first integer corresponds to n, the number of elements in the array. The next 'n' integers correspond to the elements in the array.

Output consists of an integer array.

Refer sample output for formatting specifications.

Assume that the maximum number of elements in the array is 20.

**Sample Input 1:**

8

1

6

3

5

6

8

5

9

**Sample Output 1:**

1

6

3

5

8

9

**Sample Input 2:**

-5

**Sample Output 2:**

Invalid Input

**Sample Input 3:**

5

23

2

-200

**Sample Output 3:**

Invalid Input

import java.util.Scanner;

public class Main

{

            public static void main(String[] args)

            {

                        int n, i,j, k;

// int flag=0;

                        Scanner in=new Scanner(System.in);

                        n = in.nextInt();

                        if(n < 0)

                        {

                                    System.out.print("Invalid array size");

                                    System.exit(0);

                        }

                        else

                        {

                                    int a[]=new int[n];

                                    for(i = 0; i< n; i++)

                                    {

                                                a[i] = in.nextInt();

                                                 if(a[i] < 0)

                                                {

                                                            //flag=1;

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

                                                            System.exit(0);

                                                }

                                    }

                                    //if(flag!=1)

                                    //{

                                                for(i=0;i<n;i++)

{

                                                            for(j=i+1;j<n;)

{

                                                                        if(a[i]==a[j])

{

                                                                                    for(k=j;k<n;k++)

                                                                                    a[k]=a[k+1];

                                                                                    n--;

                                                                        }

                                                                        else

                                                                        j++;

                                                            }

                                                //}

                                                for(i=0;i<n;i++)

                                                System.out.print(a[i]);

                                    }

                        }

            }

}

**62.Second Smallest**

 Write a program to find the second smallest of all divisors of the given number.

 For example, the divisors of 21 are 1,3,7 and 21. The second smallest divisor is 3.

 Include a function named **secondSmallest** that accepts an integer argument and returns an integer. The function returns the second smallest divisor or returns -1 if it is a negative number or if it is greater than 32767.

 If the function returns -1, print Invalid Input.

**Input and Output Format:**

Input consists of a single integer.

Output consists of a single integer.

Refer sample output for formatting specifications.

**Sample Input 1:**

21

**Sample Output 1:**

3

**Sample Input 2:**

-241

**Sample Output 2:**

Invalid Input

**Sample Input 3:**

50000

**Sample Output 3:**

Invalid Input

import java.util.Scanner;

public class Main

{

            public static void main(String[] args)

            {

                        int i,n;

Scanner in=new Scanner(System.in);

                        n = in.nextInt();

                        if(n<0)

                        {

                                    System.out.println ("Number too small");

System.exit(0);

                        }

                        if(n>32767)

                        {

                                    System.out.println ("Number too large");

                                   System.exit(0);

                        }

                        else

                        {

                                    for(i=2;i<=n;i++)

{

                                                if(n%i==0)

{

                                                            System.out.println(i);

                                                            System.exit(0);

                                                }

                                    }

                        }

}

}

**63.secondMaxMinDiff**

Read the question carefully and follow the input and output format.  
  
Given an input array, find the difference b/w second largest and second smallest element in the array.  
  
Hint : There is no repetition of element in the array.  
  
**Input and Output Format:**  
  
First line of input consists of n, the number of elements. Next n lines correspond to the array elements. Output consist of an integer, which is the difference b/w second largest and second smallest..  
  
1) Print Invalid array size when size of the array is negative and terminate the program.  
2) Print Invalid input when there is any negative numbers available in the input array and terminate the program.  
  
Include a function named secondMaxMinDiff(int[] array, int n) whose return type is an integer, which is the difference b/w second largest and second smallest.  
  
**Sample Input 1:**  
5  
1  
2  
3  
4  
5  
  
**Sample Output 1:**  
2  
  
**Sample Input 2:**  
4  
-3  
  
**Sample Output 2:**  
Invalid input

import java.util.Scanner;

public class Main

{

            public static void main(String[] args)

            {

                        int n, i,j, temp=0,diff=0;

// int flag=0;

                        Scanner in=new Scanner(System.in);

                        n = in.nextInt();

                        if(n < 0)

                        {

                                    System.out.print("Invalid array size");

                                    System.exit(0);

                        }

                        else

                        {

                                    int a[]=new int[n];

                                    for(i = 0; i< n; i++)

                                    {

                                                a[i] = in.nextInt();

                                                 if(a[i] < 0)

                                                {

                                                            // flag=1;

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

                                                            System.exit(0);

                                                }

                                    }

                                   // if(flag!=1)

                                   // {

                                                for(i=0;i<n;i++)

{

                                                            for(j=i+1;j<n;j++)

{

                                                                        if(a[i]<a[j])

{

                                                                                    temp = array[i];

                                                                                    array[i]=array[j];

                                                                                    array[j]=temp;

                                                                        }

                                                            }

                                                }

                                                diff=a [1]-a [n-2];

                                                System.out.print(diff);

                                    //}

                        }

            }

}

**64.newNumber**

Read the question carefully and follow the input and output format.  
  
Write a program to find the difference between consecutive digits in the given input integer and display it.  
  
**Input and Output Format:**  
Input consists of an integer and output the difference between the consecutive digits.  
  
Print "Number too small" if the number is less than 0  
Print "Number too large" if the number is greater than 32767  
  
  
**Sample Input 1:**1325  
**Sample Output 1:**  
213  
  
**Sample Input 2:**-13  
**Sample Output 2:**  
Number too small

import java.util.Scanner;

public class Main

{

            public static void main(String[] args)

            {

                        int n, rem,i=1,rem1=0,diff=0,digit=0;

                        Scanner in=new Scanner(System.in);

                        n = in.nextInt();

                        if(n<0)

                        {

                                    System.out.println ("Number too small");

                                    System.exit(0);

                        }

                        if(n>32767)

                        {

                                    System.out.println ("Number too large");

                                   System.exit(0);

                        }

                        else

                        {

                                    while(n>10)

{

                                                rem=n%10;

                                                n=n/10;

                                                rem1=n%10;

                                                if(rem>rem1)

                                                diff=rem-rem1;

                                                else

                                                diff=rem1-rem;

                                                digit=digit+(diff\*i);

                                                i=i\*10;

                                    }

                                    System.out.println(digit);

                        }

            }

}

**65.Digit Counting**

 In a game show everybody got one coupon with some code. They need to count the digits in the code and send SMS to the given number.

Write a program to find the number of digits in the given number.

 Include a function named **countDigits** that accepts an integer argument and returns an integer that corresponds to the number of digits. If the input is a negative number, the function returns -1.

 If the function returns -1, print Invalid Input.

**Input and Output Format:**

Input consists of a single integer.

Output consists of an integer that corresponds to the number of digits in the input.

**Sample Input 1:**

250

**Sample Output 1:**

3

**Sample Input 2:**

**-**2345

**Sample Output 2:**

Invalid Input

 import java.util.Scanner;

public class Main

{

            public static void main(String[] args)

            {

                        int n, count=0;

                        Scanner in=new Scanner(System.in);

                        n = in.nextInt();

                        if(n<0)

                        {

                                    System.out.println ("Number too small");

                                   System.exit(0);

                        }

                        if(n>32767)

                        {

                                    System.out.println ("Number too large");

                                   System.exit(0);

                        }

                      while(n!=0)

{

                                   count++;

                                   n=n/10;

                         }

                         System.out.println (count);

           }

}

**66.maxScoreCount**

Read the question carefully and follow the input and output format.  
  
Student1 and Student2 are of same class and have recieved their scores for different subjects. Given each subject scores of the Student1 & Student2, Find out in how many subjects student1 has scored more marks than student2.  
  
**Input and Output Format :**  
First line of input corresponds to the n, the number of subjects. The next n lines correspond to the scores of Student 1 and the next n lines correspond to the scores of student 2. Output is the number of subjects student1 scored more marks than student2.  
  
Print "Invalid size" when size of the array is a negative number and terminate the program  
Print "Invalid score"  when there is any negative score and terminate the program  
  
Include a function named maxScoreCount(int size,int student1[],int student2[]) that returns an integer, the number of subjects student1 scored more marks than student2  
  
**Sample Input 1:**  
7  
45  
23  
67  
34  
88  
13  
67  
33  
56  
89  
44  
67  
89  
55  
  
**Sample Output 1:**  
3  
  
**Sample Input 2:**  
-3

**Sample Output 2:**  
Invalid size  
  
**Sample Input 3:**  
2  
30  
-60  
**Sample Output 3:**  
Invalid score

import java.util.Scanner;

public class Main

{

            public static void main(String[] args)

            {

                        int n, i, count=0;

// int flag=0;

                        Scanner in=new Scanner(System.in);

                        n=in.nextInt();

                        if(n < 0)

                        {

                                    System.out.print("Invalid array size");

                                    System.exit(0);

                        }

                        else

                        {

                                    int a[]=new int[n];

                                    for(i = 0; i< n; i++)

                                    {

                                                a[i] = in.nextInt();

                                                if(a[i] < 0)

                                                {

                                                            //flag=1;

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

                                                            System.exit(0);

                                                }

                                    }

                                    int b[]=new int[n];

                                   for(i = 0; i< n; i++)

                                    {

                                                b[i] = in.nextInt();

                                                if(b[i] < 0)

                                                {

                                                            //flag=1;

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

                                                            System.exit(0);

                                                }

                                    }

                                   // if(flag!=1)

                                    {

                                                for(i=0;i<n;i++)

{

                                                            if(a[i]>b[i])

                                                            count++;

                                                }

                                                System.out.print(count);

                                    }

                        }

            }

}

**67.nextPrime**

Read the question carefully and follow the input and output format.  
  
Write a program to find out the Next Prime to the given number.  
  
Hint: number is always less than 100.  
  
**Input and Output Format :**  
  
First line of input consists of n, the number. Output is a single integer that displays the next prime.  
  
Print "Number too large" when the given input number is greater than 32767 .  
Print "Number too small" when given input is a negative number.  
  
Include a function named nextPrime(int num) whose return type is an integer, the next prime.  
  
**Sample Input 1:**  
9  
  
**Sample Output 1:**  
11  
  
**Sample Input 2:**  
98987  
  
**Sample Output 2:**  
Number too large

import java.util.Scanner;

public class Main

{

            public static void main(String[] args)

            {

                        int i,j,n;

                        Scanner in=new Scanner(System.in);

                        n = in.nextInt();

                        if(n<0)

                        {

                                    System.out.println ("Number too small");

                                   System.exit(0);

                        }

                        if(n>32767)

                        {

                                    System.out.println ("Number too large");

                                    System.exit(0);

                        }

                        else

                        {

                                    int next=0,count=0;

                                    for(i=n+1;i<100;i++)

{

                                                count=0;

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

{

                                                            if(i%j==0)

                                                            count++;

                                                }

                                                if(count==2)

                                                {

                                                            next=i;

System.out.println(next);

                                                }

                                    }

                                    if(next==0)

System.exit(0);

                        }

            }

}

**68.Array Average**

Write a program to find the average of the array.

 Include a function named **avgArray** that accepts 2 arguments and returns a float. The first argument is the input array and the second argument is an int that corresponds to the size of the array. The function returns a float that corresponds to the average of the array.

 If the size of the array is negative or if any element in the array is negative , print “Invalid Input” and terminate the program.

**Input and Output Format:**

Input consists of n+1 integers. The first integer corresponds to n, the number of elements in the array. The next 'n' integers correspond to the elements in the array.

Output consists of a floating point number that corresponds to the average. It is displayed correct to 2 decimal places.

Assume that the maximum size of the array is 20.

**Sample Input 1:**

7

1

9

8

4

6

4

5

**Sample Output 1:**

5.29

**Sample Input 2:**

-5

**Sample Output 2:**

Invalid Input

**Sample Input 3:**

5

23

2

-5

**Sample Output 3:**

Invalid Input

import java.util.Scanner;

public class Main

{

            public static void main(String[] args)

            {

                        int n, i, sum=0;

// int flag=0;

                        double avg;

                        Scanner in=new Scanner(System.in);

                        n = in.nextInt();

                        if(n < 0)

                        {

                                    System.out.print("Invalid array size");

                                    System.exit(0);

                        }

                        else

                        {

                                    int a[]=new int[n];

                                    for(i = 0; i< n; i++)

                                    {

                                                a[i] = in.nextInt();

                                                 if(a[i] < 0)

                                                {

                                                            //flag=1;

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

                                                            System.exit(0);

                                                }

                                    }

                                   // if(flag!=1)

                                    //{

                                                for(i=0;i<n;i++)

{

                                                            sum=sum+a[i];

                                                }

                                                avg=sum/n;

                                                System.out.printf("%.2f",avg);

                                    //}

                        }

            }

}

**69.Strong Number**

Write a program to find whether the given input number is a Strong Number

Strong Number : (In a number sum of Factorial of individual digits equals to the same number).

Include a function named **checkStrong** that accepts an integer and returns an integer. The function returns

1.       1 if the input is a Strong Number

2.       0 if the input is not a Strong Number

3.       -1 if the input is a negative number

Print Invalid Input if the function returns -1.

**Input and Output Format:**

Input consists of a single integer.

Refer sample output for formatting specifications.

**Sample Input 1:**

145

**Sample Output 1:**

yes

**Sample Input 2:**

141

**Sample Output 2:**

no

**Sample Input 3:**

**-**2345

**Sample Output 3:**

Invalid Input

import java.util.Scanner;

public class Main

{

            public static void main(String[] args)

            {

                        int n,num,sum=0,i=0,f=0,r;

// int flag=0;

                        Scanner in=new Scanner(System.in);

                        n = in.nextInt();

                        if(n<0)

                        {

                                    System.out.println ("Number too small");

System.exit(0);

                                    //flag=1;

                        }

                        if(n>32767)

                        {

                                    System.out.println ("Number too large");

System.exit(0);

                                    //flag=1;

                        }

                        //if(flag==0)

                        //{

                                    num=n;

                                    while(n!=0)

                                    {

                                                i=1;

                                                f=1;

                                                r=n%10;

                                                while(i<=r)

                                                {

                                                            f=f\*i;

                                                            i++;

                                                }

                                                sum=sum+f;

                                                n=n/10;

                                    }

                                    if(sum==num)

                                    System.out.println("yes");

                                    else

                                    System.out.println("no");

                        //}

            }

}

**70.Sum of Even Digits**

In the computer science department, HOD wants to divide students into two groups based on their roll numbers. He decided to find the sum of the even digits in the roll number of each student and decided to split them into 2 groups based on this. Write a program to find the sum of the even digits in a number.

 Include a function named **addEvenDigits** to find the sum of even digits in a number. This function accepts an integer argument and returns an integer. The function returns -1 if the roll number is less than zero or if the roll number is greater than 32767. Refer function specifications given at the end of the problem for further details.

 If the roll number is less than 0 or if it exceeds 32767, print “Invalid Input”.

**Input and Output Format:**

The input consists of an integer that corresponds to the roll number.

The output consists of an integer that corresponds to the sum of the even digits in the roll number.

**Sample Input 1:**

3487

**Sample Ouput 1:**

12

**Sample Input 2:**

-8

**Sample Output 2:**

Invalid Input

import java.util.Scanner;

public class Main

{

            public static void main(String[] args)

            {

                        int i,n,flag=0;

                        Scanner in=new Scanner(System.in);

                        n = in.nextInt();

                        if(n<0)

                        {

                                    System.out.println ("Number too small");

                                    System.exit(0);

                        }

                        if(n>32767)

                        {

                                    System.out.println ("Number too large");

                                   System.exit(0);

                        }

                        while(n!=0)

{

                                  rem=n%10;

                                  if(rem%2==0)

                                  res=res+rem;

                                  n=n/10;

                         }

                         System.out.println(res);

            }

}