Programming Notes

No System

Write the program to count the no of bits

```
import java.util.Scanner;
public class SetedNo {

    static int countbits(int n){
        int count=0;
        while(n>0){
            if(n%2==1){
                count++;
            }
            n=n/2;

        }
        return count;
```

```
	}
	public static void main(String[] args) {
		Scanner sc=new Scanner(System.in);
		System.out.println("enter the no");
		int n=sc.nextInt();
		int s=countbits(n);
		System.out.println("the no of bits "+s);
	}
}
```

Output

```
enter the no
7
the no of bits 3
```

Write a program to check no is happy no or not and perform operations

```
import java.util.Scanner;

public class HappyNos {
```

```
static boolean ishappy(int n)
{
	while(n>9){
		int sum=0;
		 while(n!=0){
			int r=n%10;
			sum=sum+r*r;
			n=n/10;

		 }
		 n=sum;

	}
	return n==1||n==7;
}
static void happyno(int n){
	System.out.println("Happy nos are");
	for(int i=1;i<=n;i++){
		if(ishappy(i)){
			System.out.print(i+  " ");
		}
```

```
        }
}
static int counthappy(int n){
        int count=0;
        for(int i=1;i<=n;i++){
                if(ishappy(i)){
                        count++;
                }
        }
        return count;
}
static int  sumhappy(int n){
        int sum=0;
        for(int i=1;i<=n;i++){
                if(ishappy(i)){
                        sum=sum+i;
                }
        }
        return sum;
}
public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
```

```
            System.out.println("Enter the no");
            int n=sc.nextInt();
            boolean b=ishappy(n);
            if(b)
                System.out.println("Happy no");
            else
                System.out.println("Not happy no");
            happyno(n);
            int cnt=counthappy(n);
            System.out.println("\ntotal happy are "+cnt);
            int sm=sumhappy(n);
            System.out.println("total happy are "+sm);
        }
}
```

output

```
Enter the no
21
Not happy no
Happy nos are
1 7 10 13 19
total happy are 5
```

total happy are 50

number conversion

Write a program to Convert binary to decimal

```
import java.util.Scanner;


public class BinarytoDecimal {
static int bintodec(int n){
	int dec=0;
	int c=0;
	while(n!=0){
		int r=n%10;


		dec=dec+r*pow(2,c);
		c++;
		n=n/10;
	}
	return dec;
}
```

```
    static int pow(int n, int c) {
        int pw=1;
        while(c>0)
        {
            pw=pw*n;
            c--;
        }
        return pw;
    }

    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the no ");
        int n=sc.nextInt();
        int bd=bintodec(n);
        System.out.println("The no is = "+bd);
    }
}
```

output:-

Enter the no

111

The no is = 7

as(2+4+1)

Write a program to convert Decimal to binary

```
import java.util.Scanner;


public class Decimaltobinary {


	static String dectobin(int n){
		String bin="";
		while(n>0){
			int r=n%2;
			bin=r+bin;
			n=n/2;


		}
		return bin;
	}
	public static void main(String[] args) {
```

```
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the no");
        int n=sc.nextInt();
        String bin=dectobin(n);
        System.out.println("the binary of "+n+" is "+bin);

    }
}
```

output

```
Enter the no
13
the binary of 13 is 1101
```

Write a program to convert binary to Hexadecimal

```
import java.util.Scanner;

public class DecimaltoHexa {
static String dectohex(int n){
    String hx="";
```

```
        while(n>0){
                int r=n%16;
                if(r<10){
                        hx=r+hx;
                }
                else
                        hx=(char)(r+55)+hx;
                        //hx=(char)(r+87)+hx;
                n=n/16;
        }
        return hx;

}
public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the no");
        int n=sc.nextInt();
        String octa=dectohex(n);
        System.out.println("the hexadecimal is = "+octa);

}
}
```

output

Enter the no

12

the hexadecimal is = C

write a program to convert decimal to octal

```
import java.util.Scanner;


public class DecimaltoOctal {
static String dectooct(int n){
        String oct="";


        while(n>0){
                int r=n%8;
                oct=r+oct;
                n=n/8;



        }
```

```
        return oct;


}
public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the no");
        int n=sc.nextInt();
        String oct=dectooct(n);
        System.out.println("the binary of "+n+" is "+oct);


}
}
```

o/p:-

```
Enter the no
12
the binary of 12 is 14
```

==========

write a program to check no is even or odd without using loop

```
import java.util.Scanner;
//using String Array
public class Evenodd {
	public static void main(String[] args) {
		Scanner key=new Scanner(System.in);
		System.out.println("Enter the integer : ");
		int no=key.nextInt();
		String str[]={"Even","Odd"};
		System.out.println(no+" is "+str[no%2]+" Number ");
	}

}
```

o/p:-

```
Enter the integer :
4
4 is Even Number
```

Array Class

1d array

****

write a program to perform sum of array and average of elements of array

```
package onedimensionarry;

import java.util.Scanner;


public class ArraysumandAverage {

	public static void main(String[] args) {

		Scanner sc=new Scanner(System.in);

		System.out.println("Enter the size of array");

		int n=sc.nextInt();

		int arr[]=new int[n];

		System.out.println("enter "+n+" Elements of Array ");

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

			arr[i]=sc.nextInt();

		}

		double sum=0.0;
```

```
            for(int i=0;i<arr.length;i++){
                sum=sum+arr[i];
            }
            double avg =sum/arr.length;
            System.out.println("sum of "+n+" arrays are = "+sum);
            System.out.println("Avrage of "+n+" arrays are = "+avg);

        }
}
```

o/p:-

```
Enter the size of array
5
enter 5 Elements of Array
1 2 4 7 8
sum of 5 arrays are = 22.0
Avrage of 5 arrays are = 4.4
```

write a program to show entered elements of array ,find biggest elements and sum of the array and average of array

```
package onedimensionarry;


import java.util.Scanner;


public class ArrayOperation
{
	//Sum of n elements of Array//
	double sumOfArray(int a[])
	{
		double sum=0.0;
		for(int i=0;i<a.length;i++){
			sum=sum+a[i];
		}
		return sum;
	}
	//Read the Array Elements//
	int[]readArr(){
		Scanner sc=new Scanner(System.in);
```

```
        System.out.println("Enter the size of array");
        int n=sc.nextInt();
        int ar[]=new int[n];
        System.out.println("enter "+n+" Elements of Array");
        for(int i=0;i<ar.length;i++){
                ar[i]=sc.nextInt();
        }
        return ar;

}
//Display entered Array elements //

void dispArr(int ele[]){
        for(int i=0;i<ele.length;i++){
                System.out.print(ele[i]);
                if(i<ele.length-1){
                        System.out.print(",");
                }
        }
        System.out.println();
}
```

```
//Get the Biggest Array elements//

public int getBiggest(int[]ar){
        int big=ar[0];
        for(int i=1;i<ar.length;i++){
                if(ar[i]>big)
                        big=ar[i];

        }
        return big;
}

public static void main(String[] args) {

        ArrayOperation ao=new ArrayOperation();
        int ar[]=ao.readArr();
        System.out.print("Entered elemnts are\n");
        ao.dispArr(ar);
        int k=ao.getBiggest(ar);
        System.out.println("Biggest element is = "+k);
        double sum=ao.sumOfArray(ar);
        double avg =sum/ar.length;
```

```
            System.out.println("sum of "+ar.length+" arrays are = "+sum);
            System.out.println("Avrage of "+ar.length+" arrays are = "+avg);

        }

}
```

o/p:-Enter the size of array

5

enter 5 Elements of Array

1 3 5 6 7

Entered elemnts are

1,3,5,6,7

Biggest element is = 7

sum of 5 arrays are = 22.0

Avrage of 5 arrays are = 4.4

write a program to find no of occurence of elements in an array

```
package onedimensionarry;

import java.util.Scanner;
```

```
public class CountEleArray {
		static void countEle(int[]ar){

			int n=ar.length;
			for (int i = 0; i < n; i++) {
				int count=1;
				for (int j = i+1; j < n; j++) {
					if(ar[i]==ar[j]){
						count++;
						ar[j]=ar[n-1];
						n--;
						j--;
					}

				}
				System.out.println("no of occurence of "+ar[i]+"-
>"+count);
			}

		}
		public static void main(String[] args) {
```

```
                Scanner sc=new Scanner(System.in);
                System.out.println("Enter the size of array");
                int n=sc.nextInt();
                System.out.println("enter the elemts");
                int arr[]=new int[n];
                for (int i = 0; i < arr.length; i++) {
                        arr[i]=sc.nextInt();



                }
                countEle(arr);
        }
}
```

o/p:-

```
Enter the size of array
4
enter the elemts
1 3 5 6
no of occurence of 1->1
no of occurence of 3->1
no of occurence of 5->1
```

no of occurence of 6->1

write a program to count no of prime elements in array

```
package onedimensionarry;

import java.util.Scanner;


public class CountPrime {
	int countPrime(int a[]){
		int pc=0;
		for (int i = 0; i < a.length; i++) {
			if(isprime(a[i]))
				pc++;


		}
		return pc;
	}


	static boolean isprime(int n)	{
		int i=2;
		while(i<=n/2){
			if(n%i==0)
```

```
                    return false;
                i++;
            }
            return  true;
        }
        public static void main(String[] args) {
            CountPrime pc=new CountPrime();
            Scanner sc=new Scanner(System.in);
            System.out.println("Enter the no of array");
            int n=sc.nextInt();
            System.out.println("Enter the elements");
            int ar[]=new int [n];
            for (int i = 0; i < ar.length; i++) {
                ar[i]=sc.nextInt();

            }

            int count=pc.countPrime(ar);
            System.out.println("no of prime element is "+count);
        }
}
```

o/p:-

Enter the no of array

4

Enter the elements

1 4 6 7

no of prime element is 2

Write a program to count no of even and odd

```
package onedimensionarry;

import java.util.Scanner;


public class EvenOddCount1 {


	int[] readArr()

	{


		Scanner sc=new Scanner(System.in);

		System.out.println("Enter How many integer value you want");

		int n=sc.nextInt();

		int arr[]=new int[n];

		System.out.println("enter the values");

		for(int i=0;i<arr.length;i++)
```

```
        {
                arr[i]=sc.nextInt();
        }

        return arr;
}

void dispArr(int ele[])
{
        for(int i=0;i<ele.length;i++)
        {
                System.out.print(ele[i]);
                if(i<ele.length-1)
                        System.out.print(",");
        }
}

int[] countEvOd(int a[])
{
        int count[]=new int[2];
        System.out.println("even and odd values are ");
        for(int i=0;i<a.length;i++)
```

```
            {
                count[a[i]%2]++;
            }
            return count;
        }

        public static void main(String[] args) {
            EvenOddCount1 eo=new EvenOddCount1();
            int arr[]=eo.readArr();
            int[] evod=eo.countEvOd(arr);
            eo.dispArr(evod);
        }
}
```

o/p:-

Enter How many integer value you want

3

enter the values

2 7 8

even and odd values are

2,1

write a program to find smallest elements in array

```
package onedimensionarry;
import java.util.Scanner;

public class SmallArray {
	//Read the Array Elements//
	int[]readArr(){
		Scanner sc=new Scanner(System.in);
		System.out.println("Enter the size of array");
		int n=sc.nextInt();
		int ar[]=new int[n];
		System.out.println("enter "+n+" Elements of Array ");
		for(int i=0;i<ar.length;i++){
			ar[i]=sc.nextInt();
		}
		return ar;

	}
	//Display entered Array elements //

	void dispArr(int ele[]){
		for(int i=0;i<ele.length;i++){
```

```
                System.out.print(ele[i]);
                if(i<ele.length-1){
                        System.out.print(",");
                }
        }
        System.out.println();
    }
    public int getsmallest(int[]ar){
        int small=ar[0];
        for(int i=1;i<ar.length;i++){
                if(ar[i]<small)
                        small=ar[i];

        }
        return small;
    }
public static void main(String[] args) {
      SmallArray ao=new SmallArray();
      int ar[]=ao.readArr();
        System.out.print("Entered elemnts are ");
        ao.dispArr(ar);
        int k=ao.getsmallest(ar);
```

```
                System.out.println("Smallest element is "+k);
}
}
```

o/p:-

Enter the size of array

4

enter 4 Elements of Array

1 4 6 7

Entered elemnts are 1,4,6,7

Smallest element is 1

write a program to reverse array element

```
package onedimensionarry;
import java.util.Scanner;

public class ReverseArray {
        void reversearray(int ar[]){
                for(int i=0;i<=ar.length/2;i++){
                        int t=ar[i];
                        ar[i]=ar[ar.length-1-i];
```

```
            ar[ar.length-1-i]=t;
        }
        System.out.println("reverse elements");
        for (int i = 0; i < ar.length; i++) {
            System.out.print(ar[i]+" ");

        }

}
public static void main(String[] args) {
        ReverseArray rc=new ReverseArray();
        Scanner sc=new Scanner(System.in);
        System.out.print("Entered elemnts are ");
        int n=sc.nextInt();
        System.out.println("Enter the elements");
        int ar[]=new int [n];
        for (int i = 0; i < ar.length; i++) {
            ar[i]=sc.nextInt();

        }
        rc.reversearray(ar);
}
```

```
}
```

o/p:-

```
Entered elemnts are 4
Enter the elements
2 4 6 7
reverse elements
7 4 6 2
```

Write a program to count no of positive and negative elements of array

```
package onedimensionarry;
import java.util.Scanner;

public class NoOfpositive {

        public int getpositive(int[]ar){
                int count=0;
                for(int i=0;i<ar.length;i++){
                        if(ar[i]>0)
                                count++;
```

```
        }
        return count;
}
public int getnegative(int[]arr){
        int count1=0;
        for(int i=0;i<arr.length;i++){
                if(arr[i]<0)
                        count1++;

        }
        return count1;
}
public static void main(String[] args) {
        NoOfpositive ao=new NoOfpositive();
        Scanner sc=new Scanner(System.in);
        System.out.print("enter the no of elements of array");
        int n=sc.nextInt();
        System.out.println("Enter the elements");
        int ar[]=new int [n];
        for (int i = 0; i < ar.length; i++) {
                ar[i]=sc.nextInt();
```

```
                }

                int count=ao.getpositive(ar);
                System.out.println("Positive element is "+count);
                int count1=ao.getnegative(ar);
                System.out.println("Negative element is  "+count1);
        }
}
```

o/p:-

enter the no of elements of array6

Enter the elements

2 4 6 8 -3 -5

Positive element is 4

Negative element is 2

Write a program to insert element at certain position

```
package onedimensionarry;
import java.util.Scanner;
```

```
public class InsertEle {
	static int[] insert(int arr[],int ele,int index){
		if(index<0||index>arr.length){
			System.out.println("index not in range");
			return arr;
		}
		int na[]=new int[arr.length+1];
		na[index]=ele;
		for(int i=0;i<arr.length;i++){
			if(i<index)
				na[i]=arr[i];
			else
				na[i+1]=arr[i];
		}
		return na;
	}
	public static void main(String[] args) {
		InsertEle ins=new InsertEle();
		Scanner sc=new Scanner(System.in);
		System.out.println("Enter the array size");
		int n=sc.nextInt();
		System.out.println("Enter the element");
```

```
		int arr[]=new int[n];
		for (int i = 0; i < arr.length; i++) {
			arr[i]=sc.nextInt();
		}
		System.out.println("enter element");
		int ele=sc.nextInt();
		System.out.println("enter position");
		int index=sc.nextInt();
		arr=insert(arr,ele,index);
		sc.close();
		System.out.println("The new elemnts");
		for (int i = 0; i < arr.length; i++) {
			System.out.print(arr[i]+" ");

		}
	}

}
```

o/p:-

Enter the array size

4

Enter the element

1 5 7 9

enter element

6

enter position

3

The new elemnts

1 5 7 6 9

Write a program to delete an element at certain posn

```
package onedimensionarry;

import java.util.Scanner;

public class Delete {
	static int[] delete(int arr[],int index){
		if(index<0||index>arr.length){
			System.out.println("index not in range");
			return arr;
		}
		int na[]=new int[arr.length-1];

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

```
                if(i<index)
                        na[i]=arr[i];
                else
                        na[i]=arr[i+1];
        }
        return na;
}
public static void main(String[] args) {

        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the array size");
        int n=sc.nextInt();
        System.out.println("Enter the element");
        int arr[]=new int[n];
        for (int i = 0; i < arr.length; i++) {
                arr[i]=sc.nextInt();
        }

    System.out.println("Enter the position");
        int index=sc.nextInt();
        arr=delete(arr,index);
        sc.close();
```

```
                System.out.println("The new elemnts");
                for (int i = 0; i < arr.length; i++) {
                 System.out.print(arr[i]+" ");

                }
        }
}
```

o/p:-

Enter the array size

3

Enter the element

2 5 7

Enter the position

1

The new elemnts

2 7

Write a program to find first two biggest element

```
package onedimensionarry;
```

```
import java.util.Scanner;

public class FirsttwoBiggest {

	public static void main(String[] args) {

		Scanner sc=new Scanner(System.in);
		System.out.println("Enter the array size");
		int n=sc.nextInt();
		System.out.println("Enter the element");
		int arr[]=new int[n];
		for (int i = 0; i < arr.length; i++) {
			arr[i]=sc.nextInt();
		}

		int h1=arr[0];
		int h2=arr[1];
		for (int i = 0; i < arr.length; i++) {
		 if(h1<arr[i]){
			h2=h1;
			h1=arr[i];
			}
```

```
                else if(arr[i]>h2&&h1!=arr[i]){
                        h2=arr[i];
                        }
                }
   System.out.println("1st biggest = "+h1);
   System.out.println("2nd biggest = "+h2);
        }
        }
```

o/p:-

```
Enter the array size
5
Enter the element
1 4 6 8 9
1st biggest = 9
2nd biggest = 8
```

Write a program to find two least elements of array

```
package onedimensionarry;
import java.util.Scanner;
```

```
public class FirsttwoLeast {
	public static void main(String[] args) {

		Scanner sc=new Scanner(System.in);
		System.out.println("Enter the array size");
		int n=sc.nextInt();
		System.out.println("Enter the element");
		int arr[]=new int[n];
		for (int i = 0; i < arr.length; i++) {
			arr[i]=sc.nextInt();
		}

		int l1=arr[0];
		int l2=arr[1];
		for (int i = 0; i < arr.length; i++) {
		 if(l1>arr[i]){
			l2=l1;
			l1=arr[i];
			}
		 else if(arr[i]<l2&&l1!=arr[i]){
			l2=arr[i];
```

```
                    }
                }

    System.out.println("1st least = "+l1);
    System.out.println("2nd least = "+l2);
        }
}
```

o/p:-

```
Enter the array size
4
Enter the element
2 7 1 9
1st least = 1
2nd least = 2
```

Write a program to count no of element in array without array

```
package onedimensionarry;
import java.util.Scanner;
```

```
public class WithoutCompareCountEle {
	public static void main(String[] args) {

		Scanner sc=new Scanner(System.in);
		System.out.println("Enter the size of array");
		int n=sc.nextInt();
		System.out.println("enter the elemts");
		int arr[]=new int[n];
		for (int i = 0; i < arr.length; i++) {
			arr[i]=sc.nextInt();



		}
		countElement(arr);




	}
	static void countElement(int arr[]){
		int big=arr[0];
		for(int i=0;i<arr.length;i++){
			if(big<arr[i])
```

```
                        big=arr[i];
                }
                int c[]=new int [big+1];
                for (int i = 0; i < arr.length; i++) {
                        c[arr[i]]++;
                }
                for(int i =0;i<c.length;i++){
                        if(c[i]>0)
                                System.out.println(i+"-->"+c[i]);
                }
        }
}
```

o/p:-

```
4
enter the elemts
1 5 86
7
1-->1
5-->1
7-->1
86-->1
```

Write a program to perform union operation with two two array

```
package onedimensionarry;

import java.util.LinkedHashSet;

import java.util.Scanner;

import java.util.Set;


public class UnionOperation {


	static int[] union(int a[],int b[]){

		Set<Integer> us=new LinkedHashSet<Integer>();

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

			us.add(a[i]);

		}

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

			us.add(b[i]);

		}

		int ar[]=new int[us.size()];

		int i=0;

		for(Integer ele:us){
```

```
            ar[i]=ele;
            i++;
        }
        return ar;

}

public static void main(String[] args) {
        UnionOperation un=new UnionOperation();
        Scanner sc=new Scanner(System.in);
        System.out.println("enter the no of value for 1st array");
        int n1=sc.nextInt();
        int a[]=new int[n1];
        System.out.println("enter the value");
        for (int i = 0; i < a.length; i++) {
            a[i]=sc.nextInt();

        }
```

```
		System.out.println("enter the no of value for 2nd array");
		int n2=sc.nextInt();
		int b[]=new int[n2];
		System.out.println("enter the value");
		for (int i = 0; i < b.length; i++) {
			b[i]=sc.nextInt();

		}

		//int ar[]=new int[a.length+b.length];
		int [] ar=union(a,b);
		System.out.println("the result array is");
		for (int i = 0; i < ar.length; i++) {
			System.out.print(ar[i]+" ");

		}
	}

}
```

o/p:-

```
enter the no of value for 1st array
4
```

enter the value

1 3 5 6

enter the no of value for 2nd array

3

enter the value

4 6 8

the result array is

1 3 5 6 4 8

Write a program to perform minus operation

```
package onedimensionarry;

import java.util.LinkedHashSet;

import java.util.Scanner;

import java.util.Set;


public class Minus {


	static int[] Minus(int a[],int b[]){

		Set<Integer> ms=new LinkedHashSet<Integer>();

		int[] ar=new int[a.length+b.length];

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

```
                int f=1;
                for(int j=0;j<b.length;j++)
                {
                        if(a[i]==b[j]){
                                f=0;
                                break;
                        }
                }
                if(f==1)
                        ms.add(a[i]);
        }
        int c[]=new int [ms.size()];
        int i=0;
        for(Integer in:ms){
                c[i]=in;
                i++;
        }
        return c;

}
public static void main(String[] args) {
        InterSection un=new InterSection();
```

```
Scanner sc=new Scanner(System.in);
System.out.println("enter the no of value for 1st array");
int n1=sc.nextInt();
int a[]=new int[n1];
System.out.println("enter the value");
for (int i = 0; i < a.length; i++) {
        a[i]=sc.nextInt();

}
System.out.println("enter the no of value for 2nd array");
int n2=sc.nextInt();
int b[]=new int[n2];
System.out.println("enter the value");
for (int i = 0; i < b.length; i++) {
        b[i]=sc.nextInt();

}
int [] ar1=Minus(a,b);
System.out.println("the result array (a-b) is");
for (int i = 0; i < ar1.length; i++) {
        if(ar1[i]!=0)
                System.out.println(ar1[i]+" ");
```

```
                }
                System.out.println("====================");
                int [] ar2=Minus(b,a);
                System.out.println("the result array (b-a) is");
                for (int i = 0; i < ar2.length; i++) {
                        if(ar2[i]!=0)
                                System.out.print(ar2[i]+" ");

                }
                sc.close();
        }
}
```

o/p:-

```
enter the no of value for 1st array
3
enter the value
 1 5 7
enter the no of value for 2nd array
5
enter the value
```

1 4 8 4 5

the result array (a-b) is

7

==========

the result array (b-a) is

4 8

Write a program to perform intersection operation

```
package onedimensionarry;
import java.util.LinkedHashSet;
import java.util.Scanner;
import java.util.Set;

public class InterSection {
	static int[] interSection(int a[],int b[]){
		int[] ar=new int[a.length+b.length];
		for (int i = 0; i < a.length; i++) {
			for(int j=0;j<b.length;j++){

				if(a[i]==b[j])
					ar[i]=a[i];
```

```
                }
        }
        return ar;

}
static int[] interSection2(int a[],int b[]){
        Set<Integer> is=new LinkedHashSet<Integer>();
        int[] ar=new int[a.length+b.length];
        for (int i = 0; i < a.length; i++) {
                for(int j=0;j<b.length;j++){

                        if(a[i]==b[j])
                                is.add(a[i]);
                }
        }
        int c[]=new int [is.size()];
        int i=0;
        for(Integer in:is){
                c[i]=in;
                i++;
        }
        return c;
```

```
}
public static void main(String[] args) {
        InterSection un=new InterSection();
        Scanner sc=new Scanner(System.in);
        System.out.println("enter the no of value for 1st array");
        int n1=sc.nextInt();
        int a[]=new int[n1];
        System.out.println("enter the value");
        for (int i = 0; i < a.length; i++) {
                a[i]=sc.nextInt();

        }
        System.out.println("enter the no of value for 2nd array");
        int n2=sc.nextInt();
        int b[]=new int[n2];
        System.out.println("enter the value");
        for (int i = 0; i < b.length; i++) {
                b[i]=sc.nextInt();

        }
        int [] ar1=interSection2(a,b);
```

```
                System.out.println("the result array is");
                for (int i = 0; i < ar1.length; i++) {
                        if(ar1[i]!=0)
                                System.out.print(ar1[i]+" ");

                }
                sc.close();
        }
}
```

o/p:-

```
enter the no of value for 1st array
4
enter the value
3 5 7 8
enter the no of value for 2nd array
4
enter the value
4 2 5 3
the result array is
3 5
```

Write a program to merge two array

```
package onedimensionarry;

import java.util.Scanner;


public class MergeArray {


	public static int[]merge(int[]x,int[]y){
		int rs[]=new int[x.length+y.length];
		for(int i=0;i<x.length;i++){
			rs[i]=x[i];


		}
		for(int i=0;i<y.length;i++){
			rs[x.length+i]=y[i];
		}
		return rs;
	}


	int[]readArr(){
		Scanner sc=new Scanner(System.in);
		System.out.println("Enter the size of array");
```

```
        int n=sc.nextInt();
        int ar[]=new int[n];
        System.out.println("enter  Elements of  Array ");
        for(int i=0;i<ar.length;i++){
                ar[i]=sc.nextInt();
        }
        return ar;

}
//Display entered Array elements //

void dispArr(int ele[]){
        for(int i=0;i<ele.length;i++){
                System.out.print(ele[i]);
                if(i<ele.length-1){
                        System.out.print(",");
                }
        }
        System.out.println();
}
```

```
	public static void main(String[] args) {
		MergeArray ma=new MergeArray();

		int a[]=ma.readArr();
		System.out.print("Entered elements are :");
		ma.dispArr(a);
		int b[]=ma.readArr();
		System.out.print("Entered elements are :");
		ma.dispArr(b);
		System.out.println("Merged values are :");
		int c[]=ma.merge(a, b);
		ma.dispArr(c);

	}
}
```

o/p:-

```
Enter the size of array
3
enter  Elements of  Array
1 2 4
```

Entered elements are :1,2,4

Enter the size of array

3

enter Elements of Array

4 5

6

Entered elements are :4,5,6

Merged values are :

1,2,4,4,5,6

write a program for zigzag merge of two array

```
package onedimensionarry;
import java.util.Scanner;


public class MergeArray {


	public static int[]merge(int[]x,int[]y){
		int rs[]=new int[x.length+y.length];
		for(int i=0;i<x.length;i++){
			rs[i]=x[i];
```

```
        }
        for(int i=0;i<y.length;i++){
                rs[x.length+i]=y[i];
        }
        return rs;
}

int[]readArr(){
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the size of array");
        int n=sc.nextInt();
        int ar[]=new int[n];
        System.out.println("enter  Elements of  Array ");
        for(int i=0;i<ar.length;i++){
                ar[i]=sc.nextInt();
        }
        return ar;

}
//Display entered Array elements //

void dispArr(int ele[]){
```

```
        for(int i=0;i<ele.length;i++){
                System.out.print(ele[i]);
                if(i<ele.length-1){
                        System.out.print(",");
                }
        }
        System.out.println();
}



public static void main(String[] args) {
        MergeArray ma=new MergeArray();

        int a[]=ma.readArr();
        System.out.print("Entered elements are :");
        ma.dispArr(a);
        int b[]=ma.readArr();
        System.out.print("Entered elements are :");
        ma.dispArr(b);
        System.out.println("Merged values are :");
        int c[]=ma.merge(a, b);
```

```
                ma.dispArr(c);


        }
}
```

o/p:-

Enter the size of array

4

enter Elements of Array

2 3 4 5

Entered elements are :

2,3,4,5

Enter the size of array

3

enter Elements of Array

1 2 3

Entered elements are :

1,2,3

merged values are

2,3,4,5,1,2,3

Write the program to find biggest elements from array

```
package onedimensionarry;

import java.util.Scanner;



public class NBiggest {
	static int nthBiggest(int a[]){
		int big=a[0];
		for (int i = 1; i < a.length; i++) {
			if( a[i]>big){
				return big=a[i];
			}
		}
		return big;

	}
	public static void main(String[] args) {
		Scanner sc=new Scanner(System.in);
		System.out.println("Enter the no of array");
		int n=sc.nextInt();
```

```
                System.out.println("Enter the elements");
                int ar[]=new int [n];
                for (int i = 0; i <ar.length; i++) {
                        ar[i]=sc.nextInt();
                }
                int value=nthBiggest(ar);
                System.out.println("biggest   "+value);
        }
}
```

o/p:-

```
Enter the no of array
5
Enter the elements
98 1 77 888 8
biggest   888
```

2d-array

****

Write a program to reverse elements of matrix

```
package twodimensional;


import java.util.Scanner;


public class Rowreverse {
	//rowwise reverse
static void rowreverse(int ar[][]){
	for(int i=0;i<ar.length;i++){
		for (int j = 0; j < ar[i].length/2; j++) {
			int t=ar[i][j];
			ar[i][j]=ar[i][ar[i].length-1-j];
			ar[i][ar[i].length-1-j]=t;


		}
	}
	for (int i = 0; i < ar.length; i++) {
		for (int j = 0; j < ar.length; j++) {
			System.out.print(ar[i][j]+" ");


		}
		System.out.println();
	}
```

```
}

//column reverse

static void columnreverse(int arr[][]){
for(int i=0;i<arr.length/2;i++){
for (int j = 0; j < arr[i].length; j++) {

        int t=arr[i][j];
        arr[i][j]=arr[arr.length-1-i][j];
        arr[arr.length-1-i][j]= t;

}
}
for (int i = 0; i < arr.length; i++) {
        for (int j = 0; j < arr.length; j++) {
                System.out.print(arr[i][j]+" ");

        }
        System.out.println();
}
}
```

```
public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("enter the array");
        int row=sc.nextInt();
        int column=sc.nextInt();
        System.out.println("enter the elements");
        int arr[][]=new int[row][column];
        for (int i = 0; i < arr.length; i++) {
                for (int j = 0; j < arr[i].length; j++) {
                        arr[i][j]=sc.nextInt();


                }


        }
        System.out.println("Row Reverse");
        rowreverse(arr);
        System.out.println("column Reverse");
        columnreverse(arr);
}
}
```

o/p:-enter the array

2

2

enter the elements

22 33

44 55

Row Reverse

33 22

55 44

column Reverse

55 44

33 22

Write a program to find sum of Matrix

```
package twodimensional;


import java.util.Scanner;


public class Summatrix {
	static int[][]readmat(){
		Scanner sc=new Scanner(System.in);
```

```
        System.out.println("enter row and column");
        int r=sc.nextInt();
        int c=sc.nextInt();
        int mat[][]=new int[r][c];
        for (int i = 0; i < mat.length; i++) {
                //System.out.println("enter"+i+1+"row elements");
                for (int j = 0; j < mat[i].length; j++) {

                        mat[i][j]=sc.nextInt();
                }

        }
        return mat;

}
//display 2-d from user
static void disMat(int[][]x)
{
        for (int i = 0; i < x.length; i++) {
                for (int j = 0; j < x[i].length; j++) {

                        System.out.print(x[i][j]+" ");
```

```
            }
            System.out.println();
        }
}
static int[][] summat(int a[][],int b[][] ){
        if(a.length!=b[0].length || a[0].length!=b.length){
            System.out.println("next elements");
            return null;

        }
        int p[][]=new int[a.length][b[0].length];
        for (int i = 0; i < a.length; i++) {
            for (int j = 0; j < b[i].length; j++) {
                for (int k= 0; k < b.length; k++) {
                    p[i][j]=a[i][j]+b[i][j];

                }

            }

        }
        return p;
```

```
	}
	public static void main(String[] args) {
		Summatrix p=new Summatrix();
		System.out.println("enter 1st matrix");
		int[][] m1=p.readmat();
		System.out.println("1st matrix is ");
		p.disMat(m1);
		System.out.println("enter 2nd matrix");
		int[][] m2=p.readmat();
		System.out.println("2nd matrix is : ");
		p.disMat(m2);
		System.out.println("Sum of matrix is :");
		int res[][]=p.summat(m1, m2);
		p.disMat(res);

	}

}
```

o/p:-enter 1st matrix

enter row and column

2 2

2 4

3 5

1st matrix is

2 4

3 5

enter 2nd matrix

enter row and column

2 2

3 6

7 5

2nd matrix is :

3 6

7 5

Sum of matrix is :

5 10

10 10

Write a program to find product of matrix

package twodimensional;

```
import java.util.Scanner;


public class ProductTwomatrix {
	static int[][]readmat(){
		Scanner sc=new Scanner(System.in);
		System.out.println("enter row and column");
		int r=sc.nextInt();
		int c=sc.nextInt();
		int mat[][]=new int[r][c];
		for (int i = 0; i < mat.length; i++) {
			//System.out.println("enter"+i+1+"row elements");
			for (int j = 0; j < mat[i].length; j++) {

				mat[i][j]=sc.nextInt();
			}

		}
		return mat;

	}
	//display 2-d from user
	static void disMat(int[][]x)
```

```
{
        for (int i = 0; i < x.length; i++) {
                for (int j = 0; j < x[i].length; j++) {


                        System.out.print(x[i][j]+" ");
                }
                System.out.println();
        }
}
static int[][] productmat(int a[][],int b[][] ){
        if(a.length!=b[0].length || a[0].length!=b.length){
                System.out.println("next elements");
                return null;


        }
        int p[][]=new int[a.length][b[0].length];
        for (int i = 0; i < a.length; i++) {
                for (int j = 0; j < b[i].length; j++) {
                        for (int k= 0; k < b.length; k++) {
                                p[i][j]=p[i][j]+a[i][j]*b[k][j];


                        }
```

```
                }

            }
            return p;
        }
        public static void main(String[] args) {
            ProductTwomatrix p=new ProductTwomatrix();
            System.out.println("enter 1st matrix");
            int[][] m1=p.readmat();
            p.disMat(m1);
            System.out.println("enter 2nd matrix");
            int[][] m2=p.readmat();
            p.disMat(m2);
            System.out.println("Display multiplication");
            int res[][]=p.productmat(m1, m2);
            p.disMat(res);

        }

}
```

o/p:-enter 1st matrix

enter row and column

2 2

3 4

4 5

3 4

4 5

enter 2nd matrix

enter row and column

2 2

3 5

6 7

3 5

6 7

Display multiplication

27 48

36 60

write a program to rotate and transpose a matrix

package twodimensional;

```
import java.util.Scanner;


public class RotateandTranspose {
	static void transpose(int arr[][]){
		for (int i = 0; i < arr.length; i++) {
			for (int j = 0; j < arr[i].length; j++) {


				int t=arr[i][j];
				arr[i][j]=arr[j][i];
				arr[j][i]=t;
			}


		}
		for (int i = 0; i < arr.length; i++) {
			for (int j = 0; j < arr.length; j++) {
				System.out.print(arr[i][j]+" ");


			}
			System.out.println();
		}
	}
```

```
static void columnreverse(int arr[][]){
	for(int i=0;i<arr.length/2;i++){
		for (int j = 0; j < arr[i].length; j++) {

			int t=arr[i][j];
			arr[i][j]=arr[arr.length-1-i][j];
			arr[arr.length-1-i][j]= t;

		}
	}
	for (int i = 0; i < arr.length; i++) {
		for (int j = 0; j < arr.length; j++) {
			System.out.print(arr[i][j]+" ");

		}
		System.out.println();
	}
}

static void rowreverse(int ar[][]){
	for(int i=0;i<ar.length;i++){
		for (int j = 0; j < ar[i].length/2; j++) {
```

```
                int t=ar[i][j];
                ar[i][j]=ar[i][ar[i].length-1-j];
                ar[i][ar[i].length-1-j]=t;
            }
        }
        for (int i = 0; i < ar.length; i++) {
            for (int j = 0; j < ar.length; j++) {
                System.out.print(ar[i][j]+" ");

            }
            System.out.println();
        }
}
static void rotate90left(int arr[][]){
        transpose(arr);
        System.out.println("rotate  90 left Matrix");
        columnreverse(arr);
        System.out.println("====================");
}

static void rotate90right(int arr[][]){
        transpose(arr);
```

```
        System.out.println("rotate 90 right Matrix");
        rowreverse(arr);
}



public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("enter the array");
        int row=sc.nextInt();
        int column=sc.nextInt();
        System.out.println("enter the elements");
        int arr[][]=new int[row][column];
        for (int i = 0; i < arr.length; i++) {
                for (int j = 0; j < arr[i].length; j++) {
                        arr[i][j]=sc.nextInt();


                }


        }
        rotate90left(arr);
        rotate90right(arr);
```

```
        }
}
```

o/p:-

```
enter the array
2 2
enter the elements
3 65
7 9
3 65
7 9
rotate  90 left Matrix
7 9
3 65
====================
7 9
3 65
rotate 90 right Matrix
9 7
65 3
```

Write a program to rotate diagonal of matrix

```
package twodimensional;


import java.util.Scanner;


public class Rotatedigonal {
static void reverseDigonal(int arr[][]){
	for (int i = 0; i < arr.length/2; i++) {
		for (int j = 0; j < arr[i].length; j++) {



	if(i==j){
		int t=arr[i][j];
		arr[i][j]=arr[arr.length-1-i][arr.length-1-j];
		arr[arr.length-1-i][arr.length-1-j]=t;
	}
	if(i+j==arr.length-1){
		int t=arr[i][j];
		arr[i][j]=arr[j][i];
		arr[i][j]=t;
	}
```

```
}
}
        for (int i = 0; i < arr.length; i++) {
                for (int j = 0; j < arr.length; j++) {
                        System.out.print(arr[i][j]+" ");

                }
                System.out.println();
        }

}
public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("enter the array");
        int row=sc.nextInt();
        int column=sc.nextInt();
        System.out.println("enter the elements");
        int arr[][]=new int[row][column];
        for (int i = 0; i < arr.length; i++) {
                for (int j = 0; j < arr[i].length; j++) {
                        arr[i][j]=sc.nextInt();
```

```
                }


        }
        System.out.println("Rotate diagonal value");
        reverseDigonal(arr);
}
}
```

o/p:-

enter the array

2 2

enter the elements

4 8

8 9

Rotate diagonal value

9 8

8 4

Write a program to find spiral of matrix

```
//java program to matrix element into spiral elements//
```

```
package twodimensional;

import java.util.Scanner;

public class SpiralMatrix {
	static void spiralmat(int [][] ar){
		//int n=5;
		for (int i = 0,j=ar.length-1; i < j; i++,j--) {
			for (int k = i; k < j; k++) {
				System.out.print(ar[i][k]+" ");
			}
			System.out.println();
			for (int k = i; k < j; k++) {
				System.out.print(ar[k][j]+" ");
			}
			System.out.println();
			for (int k = j; k >i; k--) {
				System.out.print(ar[j][k]+" ");

			}
			System.out.println();
			for(int k=j;k>i;k--){
```

```
                System.out.print(ar[k][i]+" ");
            }
            System.out.println();
            if(ar.length%2==1)
                System.out.print(ar[ar.length/2][ar.length/2]);
        }
}


public static void main(String[] args) {
        SpiralMatrix s=new SpiralMatrix();
        Scanner sc=new Scanner(System.in);
        System.out.println("enter the array");
        int row=sc.nextInt();
        int column=sc.nextInt();
        System.out.println("enter the elements");
        int ar[][]=new int[row][column];
        for (int i = 0; i < ar.length; i++) {
            for (int j = 0; j < ar[i].length; j++) {
                ar[i][j]=sc.nextInt();


            }
```

```
                }
                System.out.println("Spiral matrix");
                s.spiralmat(ar);
        }

}
```

o/p:-

```
enter the array
2 2
enter the elements
7 8
5 9
Spiral matrix
7
8
9
5
```

Write a program to find biggest shape

==========

Shape interface

==========

```
package twodimensional;


public interface Shape {

double getArea();

}
```

==========

Circle class

==========

```
package twodimensional;


public class Circle implements Shape

{

        double r;



        public Circle(double r) {


                this.r = r;
```

```
	}

	@Override
	public double getArea() {
		return 3.14*r*r;
	}
	@Override
	public String toString() {
		return "Circle [radius=" + r+" Area=  "+getArea() + "]";
	}

}
```

==========

Reactangle class

==========

```
package twodimensional;

public class Reactangle implements Shape {
	double l;
	double b;
```

```
	public Reactangle(double l, double b) {


		this.l = l;

		this.b = b;

	}


	@Override

	public double getArea() {

		return 2*l*b;


	}

	@Override

	public String toString() {

		return "Reactangle [length =" + l + ", breath =" + b +" Area =
"+getArea() + "]";

	}


}
```

Square class

==========

```
package twodimensional;

public class Square implements Shape {
	double side;

	public Square(double side) {

		this.side = side;
	}

	@Override
	public double getArea() {
		return side*side;

	}
	@Override
	public String toString() {
		return "Square [ side = " + side+" Area = "+getArea()  + "]";
	}

}
```

mainrunner class

==========

```
package twodimensional;

//java program to read store shape info and display biggest area shapeinfo.//


import java.util.ArrayList;

import java.util.Iterator;

import java.util.List;

import java.util.Scanner;


public class MainRunner  {

	static ArrayList<Shape> getShapes(){

		ArrayList<Shape> shapes=new ArrayList<Shape> ();

		Scanner sc=new Scanner(System.in);


		while(true){

			Shape sh=null;

			System.out.println("1.Circle\n2.Square\n3.Reactangle");

			System.out.println("Enter shape no");

			int ch=sc.nextInt();

			switch(ch){
```

```
case 1: System.out.println("Enter Radius :");
double r=sc.nextDouble();
sh=new Circle(r);
break;
case 2: System.out.println("Enter side :");
double side=sc.nextDouble();
sh=new Square(side);
break;
case 3: System.out.println("Enter side :");
double l=sc.nextDouble();
double b=sc.nextDouble();
sh=new Reactangle(l,b);
break;
default:
        System.out.println("No shape matched");
        sh=null;
        break;
}

if(sh!=null)
        shapes.add(sh);
System.out.println("do u have more shapes");
```

```
                String s=sc.next();
                if(s.equalsIgnoreCase("no")){
                        break;
                }
        }
        return shapes;
}
private static Shape BiggestAreashape(List<Shape> ls){
        Shape b=ls.get(0);
        Iterator<Shape> it=ls.iterator();

        while(it.hasNext()){
                Shape s=it.next();
                if(b.getArea()<s.getArea())
                        b=s;
        }
        return b;

}

static void displayshape(List<Shape> ls){
```

```
            for(Shape shape:ls){
                System.out.println(shape);
            }

    }


    public static void main(String[] args) {
            List<Shape> ls =getShapes();
            Shape big=BiggestAreashape(ls);
            System.out.println("Shapes info :");
            displayshape(ls);
            System.out.println("biggest Area shape is:");
            System.out.println(big);

    }
}
```

o/p:-

1.Circle

2.Square

3.Reactangle

Enter shape no

1

Enter Radius :

5

do u have more shapes

yes

1.Circle

2.Square

3.Reactangle

Enter shape no

2

Enter side :

6

do u have more shapes

no

Shapes info :

Circle [radius=5.0 Area= 78.5]

Square [side = 6.0 Area = 36.0]

biggest Area shape is:

Circle [radius=5.0 Area= 78.5]

String Programs

Write a program to find weather a string is ANAGRAM or not?

Def: a word, phrase, or name formed by rearranging the letters of another, such as silent

formed from

listen

```
import java.util.Scanner;


public class Anagram {
	static boolean isanagram(String st1,String st2){
		int count1[]=noofOccurence(st1);
		int count2[]=noofOccurence(st2);
		for (int i = 0; i < count1.length; i++) {
			if(count1[i]!=count2[i])
				return false;

		}
		return true;
	}
```

```
static int[] noofOccurence(String st){
	int[]count=new int[26];

	for (int i = 0; i < st.length(); i++) {
		char ch=st.charAt(i);
		if(ch>='A'&&ch<='Z'){
			count[ch-65]++;
		}
		if(ch>='a'&&ch<='z'){
			count[ch-97]++;
		}

	}
	return count;
}
public static void main(String[] args) {
	Anagram an=new Anagram();
	Scanner sc=new Scanner(System.in);
	System.out.println("Enter first String");
	String st1=sc.nextLine();
	System.out.println("Enter second String");
	String st2=sc.nextLine();
```

```
            boolean bb=an.isanagram(st2, st1);
            if(bb)
                System.out.println(st1+" and "+st2+" are anagram");
            else
                System.out.println("not ");

        }

}
```

o/p:-

```
Enter first String
reverse
Enter second String
serever
reverse and serever are anagram
```

==========

Write program weather the string is PANAGRAM or not?

Def: a sentence containing every letter of the alphabet

```
import java.util.Scanner;


public class Panagram {
	static boolean ispanagram(String st){
		int[]count=new int[26];


		for (int i = 0; i < st.length(); i++) {
			char ch=st.charAt(i);
			if(ch>='A'&&ch<='Z'){
				count[ch-65]++;
			}
			if(ch>='a'&&ch<='z'){
				count[ch-97]++;
			}


		}
		for(int i=0;i<count.length;i++){
			System.out.println((char)(i+65)+"--> "+count[i]);
```

```
                if(count[i]==0)
                        return false;
            }
            return true;
        }
        public static void main(String args[])
        {
            Scanner sc=new Scanner(System.in);
            System.out.println("Enter the sentence.");
            String s=sc.nextLine();
            System.out.println(ispanagram(s));

        }
}
```

Write a program check the given string is PALINDROME or not?

```
import java.util.Scanner;

public class Palindrom {
    static boolean ispalindrom(String st){
```

```
        int i=0;
        while(i<st.length()/2){
            if(st.charAt(i)!=st.charAt(st.length()-1-i))
                return false;
            i++;
        }
        return true;
    }
    public static void main(String args[])
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the sentence.");
        String s=sc.nextLine();
        boolean str=ispalindrom(s);
        if(str)
            System.out.println(s+" is palindrom");
        else
            System.out.println(s+ " not palindrom");

    }
}
```

o.p:-

Enter the sentence.

qwerty ytrewq

qwerty ytrewq is palindrom

Write a program to display REVERSE of a STRING/SENTENCE?

```
import java.util.Scanner;


public class ReverseString {
public static void main(String args[])
        {
                Scanner sc=new Scanner(System.in);
                System.out.println("Enter the sentence.");
                String s=sc.nextLine();
                System.out.println("Aftr conversion");
                String str=reverseSentence(s);
                System.out.println(str);
```

```
    }

    public static String reverseSentence(String st) {
        char ch[]=st.toCharArray();
        st=" ";
        for (int i = ch.length-1; i >=0; i--){
            int k=i;
            while(i>=0&&ch[i]!=' '){
                i--;
            }
            int j=i+1;
            while(j<=k){
                st=st+ch[j];
                j++;
            }
            if(i>0)
                st=st+ch[i];
        }
        return st;
    }
}
```

o/p:

Enter the sentence.

qwerty id

Aftr conversion

id qwerty

Write a program to display REVERSE of a Word?

```
import java.util.Scanner;


public class ReverseWord {
	public static void main(String args[])
	{
		Scanner sc=new Scanner(System.in);
		System.out.println("Enter the sentence.");
		String s=sc.nextLine();
		System.out.println("Aftr conversion");
		String str=reversewordSentence(s);
		System.out.println(str);

	}
	public static String reversewordSentence(String st) {
```

```
            char ch[]=st.toCharArray();
            st=" ";
            for (int i =0; i <=ch.length; i++){
                int k=i;
                while(i<ch.length&&ch[i]!=' '){
                    i++;
                }
                int j=i-1;
                while(j>=k){
                    st=st+ch[j];
                    j--;
                }
                if(i<ch.length)
                    st=st+ch[i];
            }
            return st;
        }
}
```

o/p:-

Enter the sentence.

qwertty

Aftr conversion

yttrewq

Write a program to COUNT number of CHARACTERS in a String?

```
import java.util.Scanner;


public class CountCharacter {
	static int countchar(String st){
		int count=0;
		char ch[]=st.toCharArray();
		for (int i = 0; i < ch.length; i++) {
			if(ch[i]>=65&&ch[i]<=90 ||ch[i]>=97 &&
ch[i]<=122||ch[i]>=48&&ch[i]<=57 && ch[i]!=32 && ch[i]!=',' &&ch[i]!='.')
				count++;


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

```
            System.out.println("Enter the word");
            String st=sc.nextLine();
            int chr=countchar(st);
            System.out.println("total no charcters = "+chr);

        }
}
```

o/p:-

```
Enter the word
qwerty
total no charcters = 6
```

Write a program to COUNT number of WORDS in a String?

```
import java.util.Scanner;

public class CountWord {
        static int countWords(String st){
            int wc=0;
            char ch[]=st.toCharArray();
```

```
		for (int i = 0; i < ch.length; i++) {
			if(i==0&&ch[i]!=' '||ch[i]!=' '&&ch[i-1]==' ')
				wc++;

		}
		return wc;
	}
	public static void main(String[] args) {
		Scanner sc=new Scanner(System.in);
		System.out.println("Enter the word");
		String st=sc.nextLine();
		int chr=countWords(st);
		System.out.println("total no word = "+chr);

	}
}
```

O/P:-Enter the word

QWERTY ID IS NON

total no word = 4

Write a program to find the sum of numbers in an ALPHA NUMERIC STRING?

```
import java.util.Scanner;


public class Sumofdigit {
	static int sumOfDigit(String st){
		int sum=0;
		for (int i = 0; i < st.length(); i++) {
			char ch=st.charAt(i);
			if(ch>=48 &&ch<=57){
				sum=sum+(ch-48);
			}
		}
		return sum;
	}

	public static void main(String[] args) {
		Scanner sc=new Scanner(System.in);
		System.out.println("Enter the word");
		String st=sc.nextLine();
		int sm=sumOfDigit(st);
```

```
            System.out.println("Total sum is "+sm);

        }

}
```

O/P:-

Enter the word

Q1W2E3R45T

Total sum is 15

Write a program to display number of LOWERCASE, UPPERCASE, SPECIAL SYMBOLS, SPACES and DIGITS in a STRING?

```
import java.util.Scanner;

public class CountingString {
        public static void main(String[] args) {
            Scanner scn=new Scanner(System.in);
            System.out.println("Enter the Sentence");
            String st=scn.nextLine();
```

```
//ac=alphabets;
//vc=vowels;
//cc=consonents
//dc=degits
//uc=upper case
//lc=lower case
//sc=special character
int ac=0,vc=0,cc=0,dc=0,uc=0,lc=0,sc=0;
for(int i=0;i<st.length();i++){
        char ch=st.charAt(i);
        if(ch>=65&&ch<=90){
                ac++;
                uc++;
                if(ch=='A'||ch=='E'||ch=='I'||ch=='O'||ch=='U')

                        vc++;
                else
                        cc++;
        }
        else if(ch>='a'&&ch<='z'){
                ac++;
                lc++;
```

```
                    if(ch=='a'||ch=='e'||ch=='i'||ch=='o'||ch=='u')
                        vc++;
                    else
                        cc++;
                }
                else if(ch>=48&&ch<=57)
                    dc++;

                else
                    sc++;
            }
            System.out.println("no of alphabets ="+ac);
            System.out.println("no of degits ="+dc);
            System.out.println("Total upper case="+uc);
            System.out.println("total lower case="+lc);
            System.out.println("total vowels ="+vc);
            System.out.println("total consonents"+cc);
            System.out.println("total special characters = "+sc);
        }

}
```

O/P:-

Enter the Sentence

QWERTT Y KM

no of alphabets = 9

no of degits = 0

Total upper case= 9

total lower case = 0

total vowels = 1

total consonents = 8

total special characters = 2

Write a program to convert NUMBER into WORDS?

```
import java.util.Scanner;


import twodimensional.MainRunner;


public class NointoWords {


	String one[]={"
","one","two","three","four","five","Six","Seven","Eight","Nine","Ten","Eleven","T
```

```
welve","thirteen","fourteen","fifteen","Sixteen","Seventeen","Eightteen","Ninete
en"};
        String two[]={" ","
","Twenty","thirty","fouty","fifty","Sixty","Sevety","Eighty","ninty"};



    void ntow(int n,String st){
        if(n<20)
            System.out.print(one[n]);


        else
            System.out.print(two[n/10]+one[n%10]);


        if(n!=0)
            System.out.print(st+" ");


    }
    public static void main(String[] args) {
        NointoWords nw=new NointoWords();


        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the no");
```

```
                int n=sc.nextInt();


                nw.ntow(n/10000000,"crore");
                nw.ntow(n/100000%100,"lakh");
                nw.ntow(n/1000%100,"Thousand");
                nw.ntow(n/100%10,"hundred");
                nw.ntow(n%100," ");
        }
}
```

O/P:-

Enter the no

145

onehundred foutyfive

Write a program to display STRING INITCAP of Words?

```
import java.util.Scanner;


public class ConvertFirstCapital {
```

```
static String initcap(String st){
        char ch[]=st.toCharArray();
        for (int i = 0; i < ch.length; i++) {
                if(i==0&&ch[i]!=' '||ch[i]!=' '&&ch[i-1]==' '){

                        if(ch[i]>='a'&&ch[i]<='z'){
                                ch[i]=(char)(ch[i]-32);
                        }
                }
                else{
                        if(ch[i]>='A'&&ch[i]<='Z'){
                                ch[i]=(char)(ch[i]+32);
                        }
                }
        }
        st=new String(ch);
        return st;
}
public static void main(String args[])
{
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the sentence.");
```

```
            String s=sc.nextLine();


            System.out.println("Aftr conversion");
            String str=initcap(s);
            System.out.println(str);


        }

}
```

O/P:-

```
Enter the sentence.
RANMDND
Aftr conversion
Ranmdnd
```

Write a program to convert UPPER CASE TO LOWER CASE?

```
import java.util.Scanner;
```

```
public class ConvertLowercase {




    String toLowerCase(String str)
    {
        char ch[]=str.toCharArray();
        for (int i = 0; i < ch.length; i++) {
            if(ch[i]>=65&&ch[i]<=90){
                ch[i]=(char) (ch[i]+32);
            }

        }
        String st=new String(ch);//Character array to String
        return st;

    }

    String tolowercase(String str){
        String ls="";
        for (int i = 0; i < str.length(); i++) {
```

```
            char ch=str.charAt(i);
            if(ch>=65&&ch<=90){
                ch=(char) (ch+32);
            }
            ls=ls+ch;
        }
        return ls;
}

public static void main(String[] args) {
        ConvertLowercase lc=new ConvertLowercase();
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the Word");
        String sd=sc.nextLine();
        String s=lc.tolowercase(sd) ;
        System.out.println("Enter the Word");
        String sd1=sc.nextLine();
        String st=lc.toLowerCase(sd1) ;
        System.out.println(s);
        System.out.println(st);
}
```

```
}
```

O/P:-

```
Enter the Word
QWERT
Enter the Word
REWQ
qwert
rewq
```

Write a program to convert LOWER CASE TO UPPER CASE ?

```
import java.util.Scanner;

public class ConvertUppercase {

	String touppercase(String str){
		String ls="";
		for (int i = 0; i < str.length(); i++) {
			char ch=str.charAt(i);
```

```
                if(ch>=97&&ch<=122){
                        ch=(char) (ch-32);
                }
                ls=ls+ch;
        }
        return ls;
    }

    public static void main(String[] args) {
        ConvertUppercase uc=new ConvertUppercase();
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the word");
        String st=sc.nextLine();
        String s=uc.touppercase(st) ;
        System.out.println("the uppercase of "+st+" is "+s);

    }
}
```

O/P:-

Enter the word

qwerty

the uppercase of qwerty is QWERTY

write a program to search the word

```
import java.util.Scanner;
public class WordSearch
{
public static void main(String[] args)
{
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter the sentence ");
        String st=sc.nextLine();
        System.out.println("Enter the word to search: ");
        String w=sc.next();
        boolean rs= checkWord(st,w);
        if(rs)
                System.out.println("yes  word is there ");
        else
                System.out.println("no  word is not there ");
}
```

```
private static boolean subStr(String st, String w)
{
	char c1[]=st.toCharArray();
	char c2[]=w.toCharArray();

	for(int i=0;i<c1.length;i++)
	{
		int j=0;
		int k=i;
		while(k<c1.length&&j<c2.length&&c1[k]==c2[j])
		{
			k++;
			j++;
		}
		if(j==c2.length)
			return true;
	}
	return false;
}
private static int countsubStr(String st, String w)
{
```

```
        char c1[]=st.toCharArray();
        char c2[]=w.toCharArray();
        int count=0;
        for(int i=0;i<c1.length;i++)
        {
                int j=0;
                int k=i;
                while(k<c1.length&&j<c2.length&&c1[k]==c2[j])
                {
                        k++;
                        j++;
                }
                if(j==c2.length)
                        count++;
        }
        return count;
}

private static int indexsubStr(String st, String w)
{
        char c1[]=st.toCharArray();
        char c2[]=w.toCharArray();
```

```
        int count=0;
        for(int i=0;i<c1.length;i++)
        {
                int j=0;
                int k=i;
                while(k<c1.length&&j<c2.length&&c1[k]==c2[j])
                {
                        k++;
                        j++;
                }
                if(j==c2.length)
                        return i;
        }
        return -1;
}

private static int indexsubStr(String st, String w,int oc)
{
        char c1[]=st.toCharArray();
        char c2[]=w.toCharArray();
        int count=0;
        for(int i=0;i<c1.length;i++)
```

```
        {
            int j=0;
            int k=i;
            while(k<c1.length&&j<c2.length&&c1[k]==c2[j])
            {
                k++;
                j++;
            }
            if(j==c2.length)
            {
                count++;
                if(count==oc)
                    return i;
            }

        }
        return -1;
}
```

```
private static boolean checkWord(String st, String w)
{
	char c1[]=st.toCharArray();
	char c2[]=w.toCharArray();

	for(int i=0;i<c1.length;i++)
	{
		int j=0;
		int k=i;
		while(k<c1.length&&j<c2.length&&c1[k]==c2[j])
		{
			k++;
			j++;
		}
		if(j==c2.length&&(i==0||c1[i-1]==' ')&&(k==c1.length||c1[k]==' '))
			return true;
	}
	return false;
}

}
```

o/p:-

Enter the sentence

qwerty u tyu

Enter the word to search:

tyu

yes word is there

Write a program to count nodays ,years ,month bw given dates

```
import java.nio.charset.MalformedInputException;
import java.util.Scanner;


public class Date {
	int dd,mm,yy;
	int month[]={0,31,28,31,30,31,30,31,31,30,31,30,31};
	public Date(int dd, int mm, int yy) {

		this.dd = dd;
		this.mm = mm;
		this.yy = yy;
		if(yy%4==0&&yy%100!=0||yy%400==0)
```

```
                month[2]=29;
}

int countnodays(){
        int y=yy-1;
        int days=0;
        days=y*365;
        days=days+(y/4-y/100+y/400);
        for(int i=1;i<mm;i++){
                days=days+month[i];
        }
        days=days+dd;
        return days;



}
static Date readdate(){
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter dd mm yyyy");
        int dd=sc.nextInt();
        int mm=sc.nextInt();
        int yy=sc.nextInt();
```

```
        Date d=new Date(dd,mm,yy);
        return d;

    }

    @Override
    public String toString() {
        return "Date [" + dd + "/" + mm + "/" + yy + "]";
    }
    public static void main(String[] args) {
        System.out.println("enter first date :");
        Date d1=Date.readdate();
        System.out.println("Enter 2nd date :");
        Date d2=Date.readdate();

        int days=d2.countnodays()-d1.countnodays();

        System.out.println("no of days between"+d1+" and "+d2+" is
"+days);
        System.out.println("total year,months till  dates "+days/365+"
"+days%365/30);
        System.out.println("no of years between"+d1+" and "+d2+" is
"+days/365);
```

```
        }
}
```

output

```
enter first date :
Enter dd mm yyyy
03 02 1997
Enter 2nd date :
Enter dd mm yyyy
02 03 1998
no of days betweenDate [3/2/1997] and Date [2/3/1998] is 392
total year,months till  dates 1 0
no of years betweenDate [3/2/1997] and Date [2/3/1998] is 1
```