public class Main {

      void merge(int[] array,int l,int r,int mid)

     {

             int n1=mid+l-1;

             int n2=r-mid;

             int[] a = new int[n1];

             int[] b = new int [n2];

             for(int i=0;i<n1;i++)

             {

                 a[i]=array[l+i];

             }

             for(int i=0;i<n2;i++)

             {

                 b[i]=array[mid+1+i];

             }

             int i=0,j=0;

             int k=1;

             while(i<n1 && j<n2)

             {

                 if(a[i]<b[j])

                 {

                     array[k]=a[i];

                     i++;

                     k++;

                 }

                 else

                 {

                       array[k]=b[j];

                       j++;

                       k++;

                 }

             }

             while(i<n1)

             {

                 array[k]=a[i];

                 i++;

                 k++;

             }

             while(j<n2)

             {

                 array[k]=b[j];

                 j++;

                 k++;

             }

            static void prin(int[] array)

            {

                System.out.println("Sorted array");

                int n = array.length;

                for(int i=0;i<n;i++)

                {

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

                }

            }

     }

    void mergesort(int[] array,int l,int r)

    {

        if(l<r)

        {

        int mid=(l+r)/2;

        mergesort(array,l,mid);

        mergesort(array,mid+1,r);

        merge(array,l,r,mid);

        }

    }

    public static void main(String[] args){

    int[] array ={2,4,1,5,6,7,13,3};

    System.out.println("Given Array");

    prin(array);

    Main obj= new Main();

    obj.mergesort(array,0,arr.length-1);

    System.out.println("\nSorted array");

    prin(array);

}

}