Array

1. How to access one by one element in array using for-loop and for-each loop ? (Integer type)

   ▼ Ans

```
public static void main(String arg[])
   {
     int ar[]= {34,56,78,98,53};
  //By using for-loop
     for(int i=0; i<ar.length; i++)
     {
       System.out.println(i+" --> "+ar[i]);
     }
  //By using for-each loop
     for(int x:ar)
     {
       System.out.println(x);
     }
   }
```

40. How to access one by one element un array using for-loop and for-each loop ? (double type)

    ▼ Ans

```
public static void main(String[] args)
  {
    double ar[]= {34.2,56.02,78.8,98.25,53.36};
       //By using for-loop
       for(int i=0; i<ar.length; i++)
       {
         System.out.println(i+" --> "+ar[i]);
       }
       //By using for-each loop
       for(double x:ar)
       {
         System.out.println(x);
       }
  }
```

41. program on non-primitive types

▼ Ans

```
Answer is in Question.no=142
```

42. program on example

▼ Ans

```
//By using generalization we can create heterogeneous array
  public static void main(String[] args)
  {
    Object obj[]={345,45.67,"ramesh",'a'};

    for(int i=0; i<obj.length; i++)
    {
      System.out.println(obj[i]);
    }
  }
```

43. Creation and Initialization of an array ?

▼ Ans

```
public static void main(String[] args)
  {
    int ar[]=new int[5]; //Declaration and Allocation
    ar[0]=45;
    ar[1]=56;  //Initialization
    ar[2]=89;

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

44. WJPT initialize String type array at the time of declaration with 5names and print highest length name ?

▼ Ans

```
public static void main(String arg[])
  {
```

```
    String name[]= {"ravikumar","ravichandra","aUSk","cvulygb","ygfkuyj"};
    String hname=name[0];
    for(int i=1; i<name.length; i++)
    {
      if(hname.length()<name[i].length())
        hname=name[i];
    }
    System.out.println("Highest name is"+hname);
  }
```

45. WJPT initialize int type array with 8 integer & calculate and print sum of those integer ?

▼ Ans

```
public static void main(String arg[])
  {
    int x[]= {1,2,5,8,4,6,22,5};
    int sum=0;
    for(int i=0; i<x.length; i++)
    {
      sum=sum+x[i];
    }
    System.out.println("sum of array elements are "+sum);
  }
```

46. WJPT initialize double type array with 5 value. calculate and print average ?

▼ Ans

```
public static void main(String arg[])
  {
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter the size of an array= ");
    int n=sc.nextInt();

    double x[]=new double[n];
    System.out.println("Enter the double type elemensts ");
    for (int i=0; i<x.length; i++)
    {
      x[i]=sc.nextDouble();
    }
    double sum=0;
    for(int j=0; j<x.length; j++)
    {
      sum=sum+x[j];
    }
```

```
    System.out.println("avg is "+sum/n);

  }
```

47. WJPT initialize integer array 5value with integer find the biggest and print ?

▼ Ans

```
public static void main(String arg[])
  {
    Scanner kd = new Scanner(System.in);
    System.out.println("Enter the size of an array= ");
    int n=kd.nextInt();
    int x[] = new int [n];
    System.out.println("enter an int type elemets in an array= ");
    for (int i=0; i<x.length; i++)
    {
      x[i]=kd.nextInt();
    }
         int big=x[0];
         for (int j=1; j<x.length; j++)
         {
           if(big<x[j])
             big=x[j];
         }
        System.out.println("bigeestes vale is"+big);
  }
```

48. WJPT initialize character array with 5 character and print those character in Reverse order ?

▼ Ans

```
public static void main(String arg[])
  {
    Scanner sc=new Scanner(System.in);
    int n=sc.nextInt();
    char a[]=new char[n];
    for(int i=0; i<a.length; i++)
    {
      a[i]=sc.next().charAt(0);  //{'s','a','d','a','w'}
    }
    sc.close();
    for(int i=a.length-1; i>=0; i--)
    {
      System.out.print(a[i]+" ");
```

```
    }
  }
```

49. WJPT read n integer values from the user and print it reverse order ?

▼ Ans

```
public static void main(String arg[])
  {
    Scanner kd = new Scanner(System.in);
    System.out.println("Enter the size of an array= ");
    int n=kd.nextInt();
    int x[] = new int [n];
    System.out.println("enter an int type elemets in an array= ");
    for (int i=0; i<x.length; i++)
    {
      x[i]=kd.nextInt();
    }
    for (int i=x.length-1; i>=0; i--)
    {
      System.out.println(x[i]);
    }
  }
```

50. WJPT read n integer values from the user and print it biggest one ?

▼ Ans

```
public static void main(String arg[])
  {
    Scanner kd = new Scanner(System.in);
    System.out.println("Enter the size of an array= ");
    int n=kd.nextInt();
    int x[] = new int [n];
    System.out.println("enter an int type elemets in an array= ");
    for (int i=0; i<x.length; i++)
    {
      x[i]=kd.nextInt();
    }
    int big=x[0];
    for (int i=1; i<x.length; i++)
    {
      if(big<x[i])
        big=x[i];
    }
    System.out.println("biggest is "+big);
  }
```

51. WJPT read n double values from the user and print it smallest one ?

▼ Ans

```
public static void main(String arg[])
  {
    Scanner kd = new Scanner(System.in);
    System.out.println("Enter the size of an array= ");
    int n=kd.nextInt();
    double x[] = new double [n];
    System.out.println("enter andouble type elemets in an array= ");
    for (int i=0; i<x.length; i++)
    {
      x[i]=kd.nextDouble();
    }
    double small=x[0];
    for(int j=1; j<x.length; j++)
    {
      if(small>x[j])
        small=x[j];
    }
    System.out.println(small);
  }
```

52. WJPT read n names values from the user and print it smallest one ?

▼ Ans

```
public static void main(String arg[])
  {
    Scanner kd = new Scanner(System.in);
    System.out.println("Enter the size of an array= ");
    int n=kd.nextInt();
    String x[] = new String [n];
    System.out.println("enter an String type elemets in an array= ");
    for (int i=0; i<x.length; i++)
    {
      x[i]=kd.next();
    }
    String sname=x[0];
    for (int i=1; i<x.length; i++)
    {
      if(x[i].length()>sname.length)         //sname.length()>x[i].length()
        sname=x[i];
    }
    System.out.println("The smallest name is= "+sname);
  }
```

53. How many ways we can print an Array ?

▼ Ans

▼ Traditional way (for loop)

```
public static void main(String[] args)
  {
    int a[]= {1,2,3,4,5,6};
    for(int i=0; i<a.length; i++)
    {
      System.out.print(a[i]+" ");
    }
  }
-------------OUTPUT-------------
 1 2 3 4 5 6
```

▼ While and do-while loop

```
------------While loop--------------------
public static void main(String[] args)
  {
    int a[]= {1,2,3,4,5,6};
    int i=0;
    while(i<a.length)
    {
      System.out.print(a[i]+" ");
      i++;
    }
  }
[OUTPUT] = 1 2 3 4 5 6
----------------Do-while loop-------------
public static void main(String[] args)
  {
    int a[]= {1,2,3,4,5,6};
    int i=0;
    do
    {
      System.out.print(a[i]+" ");
      i++;
    }while(i<a.length);
  }
[OUTPUT] = 1 2 3 4 5 6
```

▼ Advanced for-loop (or) Enhanced for-loop (or) for each loop

```
public static void main(String[] args)
  {
    int a[]= {1,2,3,4,5,6};
    for(int O:a)
    {
      System.out.print(O+" ");
    }
  }
--------------OUTPUT-------------
1 2 3 4 5 6
```

▼ Convert to Collection by Arrays.asList() method

```
public static void main(String[] args)
  {
    Integer a[]= {1,2,3,4,5,6};
    System.out.println(Arrays.asList(a));
  }
--------------OUTPUT-------------
[1, 2, 3, 4, 5, 6]
```

▼ By using Arrays.toString() and Arrays.deeptoString()

▼ Arrays.toString() (for 1-d array)

```
public static void main(String[] args)
  {
    int a[]= {1,2,3,4,5,6};
    System.out.println(Arrays.toString(a));
  }
-----------------OUTPUT-----------
[1, 2, 3, 4, 5, 6]
```

▼ Arrays.deeptoString() (for 2-d array)

▼ By using Streams

```
public static void main(String[] args)
  {
    Integer a[]= {1,2,3,4,5,6};
    Arrays.asList(a).stream().forEach(s->System.out.print(s+" "));
  }
```

```
---OUTPUT----->1 2 3 4 5 6
             or
public static void main(String[] args)
  {
    int a[]= {1,2,3,4,5,6};
    Arrays.stream(a).forEach(System.out::print);
  }
------------OUTOUT-------------
123456
```

53. WJPT How many Prime number present in an array ?

▼ Ans

```
static int countprime(int x[])
  {
    int count=0;
    for(int i=0; i<x.length; i++)
    {
      boolean rs=isprime(x[i]);
      if(rs)
        count++;
    }
    return count;
  }
  static boolean isprime(int x)
  {
    for (int i=2; i<=x/2; i++)
    {
      if(x%i==0)
        return false;
    }
    return true;
  }
  public static void main(String arg[])
  {
    Scanner kd = new Scanner(System.in);
    System.out.println("Enter the size of an array= ");
    int n=kd.nextInt();
    int x[] = new int [n];
    System.out.println("enter an int type elemets in an array= ");
    for (int i=0; i<x.length; i++)
    {
      x[i]=kd.nextInt();
    }
    int cp=countprime(x);
    System.out.println("no of prime numbers are= "+cp);
  }
```

54. WJPT How many Even number and Odd number are present in an array ?

▼ Ans

```
public static void main(String arg[])
  {
    Scanner kd = new Scanner(System.in);
    System.out.println("Enter the size of an array= ");
    int n=kd.nextInt();
    int x[] = new int [n];
    System.out.println("enter an int type elemets in an array= ");
    for (int i=0; i<x.length; i++)
    {
      x[i]=kd.nextInt();
    }
    int ev=0,od=0;
    for(int i=0; i<x.length; i++)
    {
      if(x[i]%2==0)
      {
        ev++;
      }else
      {
        od++;
      }
    }
    System.out.println("even is"+ev);
    System.out.println("odd is"+od);
  }
```

55. WJPT Search specified element in given array, if it is present print that index otherwise print not present ?

▼ Ans

```
static int search(int x[],int ele)
  {
    for(int i=0; i<x.length; i++)
      {
      if(x[i]==ele)
        return i;
      }
    return -1;
  }
  public static void main(String arg[])
  {
    Scanner kd = new Scanner(System.in);
    System.out.println("Enter the size of an array= ");
```

```
    int n=kd.nextInt();
    int x[] = new int [n];
    System.out.println("enter an int type elemets in an array= ");
    for (int i=0; i<x.length; i++)
    {
      x[i]=kd.nextInt();
    }
    System.out.println("Enter the element to saerch=");
    int ele=kd.nextInt();
    int in=search(x,ele);
    if(in==-1)
      System.out.println("Element is not present");
    else
      System.out.println("Index of that elements is "+in);
  }
```

57. WJPT Merge Two array elements into Single array in a Zigzag order ?

▼ Ans

```
public static void main(String arg[])
  {
    int a[]= {1,2,3,4,5,6,7,8,9};
    int b[]= {10,20,30,40,50,60};
    a=zigzag(a,b);
    for(int O:a)
    {
      System.out.print(O+" ");
    }
  }
  static int[] zigzag(int a[],int b[])
  {
    int c[]=new int[a.length+b.length];
    int i=0,k=0;
    while(i<a.length && i<b.length)
    {
      c[k++]=a[i];
      c[k++]=b[i++];
    }
    while(i<a.length)
    {
      c[k++]=a[i++];
    }
    while(i<b.length)
    {
      c[k++]=b[i++];
    }
    return c;
  }
```

58. WJPT Merge two Sorted array elements into Single array in Sorted format ?

▼ Ans

```
static int[] presentsoted(int a[],int b[])
  {
    int c[]=new int[a.length+b.length];
    int i=0,k=0,j=0;
    while(i<a.length && j<b.length)
    {
      if(a[i]<b[j])
      {
        c[k++]=a[i++];
      }
      else
      {
        c[k++]=b[j++];
      }
    }
    while(i<a.length)
    {
      c[k++]=a[i++];
    }
    while(j<b.length)
    {
      c[k++]=b[j++];
    }
    return c;
  }
  public static void main(String arg[])
  {
    int a[]= {1,3,5,7,9,11};
    int b[]= {2,4,6,8,10};
    a=presentsoted(a,b);
    for(int O:a)
    {
      System.out.print(O+" ");
    }
  }
```

56. WJPT Merge two Unsorted array element into Single Array in Sorted format ?

▼ Ans

```
static int[] mergeArray(int a[],int b[])
  {
    int c[]=new int[a.length+b.length];
    for (int i=0; i<a.length; i++)
    {
```

```
      c[i]=a[i];
    }
    for  (int i=0; i<b.length; i++)
    {
      c[i+a.length]=b[i];
    }
    return c;
  }
  static int[] sortarray(int a[])
  {
    for(int i=0;i<a.length-1;i++)
    {
      for(int j=0;j<a.length-1-i;j++)
      {
        if(a[j]>a[j+1])
        {
          int t=a[j];
          a[j]=a[j+1];
          a[j+1]=t;
        }
      }
    }
    return a;
  }
  public static void main(String arg[])
  {
    int a[]= {1,3,5,7,9,11};
    int b[]= {2,4,6,8,10};

    a=mergeArray(a,b);
    a=sortarray(a); //We can use Inbuilt method also Arrays.sort(a);
    for(int O:a)
    {
      System.out.print(O+" ");
    }
  }
```

59. WJPT to Reverse the array elements ?

▼ Ans

```
-------------Raghu's sir Using while loop-----------------
public static void main(String[] args)
  {
    int a[]= {12,25,36,85,96};
    int i=0,j=a.length-1;
    while(i<j)
    {
      int temp=a[i];
      a[i]=a[j];
      a[j]=temp;
```

```
      i++;
      j--;
    }
   for(int O:a)
    {
      System.out.println(O+" ");
    }
  }
-------------Raghu's sir Using for loop-----------------
public static void main(String[] args)
  {
    int a[]= {12,25,36,85,96};
    for(int i=0; i<a.length/2; i++)
    {
      int temp=a[i];
      a[i]=a[a.length-1-i];
      a[a.length-1-i]=temp;
    }
    for(int O:a)
    {
      System.out.println(O+" ");
    }
  }
-------------Madakari Using for loop-----------------
public static void main(String[] args)
  {
    int a[]= {12,25,36,85,96};
    int b[]=new int[a.length];
    int  z=0;
    for(int i=a.length-1; i>=0; i--)
    {
      b[z++]=a[i];
    }
    for(int i:b)
    {
      System.out.print(i+" ");
    }
  }
```

60. WJPT Delete element from the given array from the Specified Index ? WJPT Delete element from the given array from the Specified Element ? (one element)

▼ Ans

```
------------------------Specified Index-------------------------
static int[] delete(int x[],int in)
  {
    if(in<0||in>=x.length)
    {
      System.out.println("INDEX NOT IN THE RANGE");
```

```
      return x;
    }
    int y[]=new int[x.length-1];
    for(int i=0;i<y.length;i++)
    {
      if(i<in)
        y[i]=x[i];
      else
        y[i]=x[i+1];
    }
    return y;
  }
  public static void main(String[] args)
  {
    int a[]= {12,25,36,85,96};
    int in=3;
    a=delete(a,in);
    for(int O:a)
    {
      System.out.print(O+" ");
    }
  }
------------------------Specified Element-------------------------
static int findindex(int a[],int ele)
  {
    for(int i=0; i<a.length; i++)
    {
      if(a[i]==ele)
        return i;
    }
    return (Integer) null;
  }
  static int[] deleteele(int a[],int in)
  {
    int c[]=new int[a.length-1];
    for(int i=0; i<c.length; i++)
    {
      if(i<in)
        c[i]=a[i];
      else
        c[i]=a[i+1];
    }
    return c;
  }
  public static void main(String arg[])
  {
    int a[]= {12,25,36,85,96};
    int ele=36;
    int in=findindex(a,ele);
    a=deleteele(a,in);
    for(int o:a)
    {
      System.out.print(o+" ");
```

```
    }
  }
```

61. WJPT Every elements in the array is Replaced by Sum of their Digits ?

▼ Ans

```
static int count(int x)
  {
    int sum=0;
    do
    {
      int d=x%10;
      sum=sum+d;
      x=x/10;
    }while(x!=0);
    return sum;
  }
  public static void main(String[] args)
  {
    int a[]= {12,25,36,85,96};
    for(int i=0; i<a.length; i++)
    {
      a[i]=count(a[i]);
    }
    for(int O:a)
    {
      System.out.print(O+" ");
    }
  }
```

62. DAMT Insert an element in an array from Specified Index ? DAMT Insert an element in an array from Specified Element

▼ Ans

```
------------------------Specified Index-------------------------
static int[] insertarray(int x[],int ele,int in)
  {
    if(in<0||in>x.length)
    {
      System.out.println("Index not in range");
      return x;
    }
    int y[]=new int[x.length+1];
    y[in]=ele;
    for(int i=0; i<x.length;i++)
```

```
    {
      if(i<in)
        y[i]=x[i];
      else
        y[i+1]=x[i];
    }
    return y;
  }
  public static void main(String[] args)
  {
    int a[]= {1,2,3,4,5,6,7,8};
    int in=3;
    int y=555;

    a=insertarray(a,y,in);
    for(int O:a)
    {
      System.out.print(O+" ");
    }
  }
------------------------Specified Element-------------------------
static int findindex(int a[],int ele)
    {
      for(int i=0; i<a.length; i++)
      {
        if(a[i]==ele)
          return i;
      }
      return (Integer) null;
    }
    static int[] insertarray(int x[],int ele,int in)
    {
      if(in<0||in>x.length)
      {
        System.out.println("Index not in range");
        return x;
      }
      int y[]=new int[x.length+1];
      y[in]=ele;
      for(int i=0; i<x.length;i++)
      {
        if(i<in)
          y[i]=x[i];
        else
          y[i+1]=x[i];
      }
      return y;
    }
    public static void main(String arg[])
    {
      int a[]= {1,2,3,4,5,6,7,8,9};
      int ele=5;
      int newele=555;
```

```
      int in=findindex(a,ele);
      a=insertarray(a,newele,in);
      for(int o:a)
      {
        System.out.print(o+" ");
      }
    }
```

63. DAMT Replace with the New element in an Existing old element in an given array ?

▼ Ans

```
static int findindex(int a[],int ele)
  {
    for(int i=0; i<a.length; i++)
    {
      if(a[i]==ele)
        return i;
    }
    return (Integer) null;
  }
  public static void main(String arg[])
  {
    int a[]= {1,2,3,4,5,6,7,8,9};
    int oldele=3;
    int newele=10;
    int in=findindex(a,oldele);
    a[in]=newele;
    for(int o:a)
    {
      System.out.print(o+" ");
    }
  }
```

63. DAMT Insert one array element inside another array from specified index ? DAMT Insert one an element inside another array from specified element ?

▼ Ans

```
-------------------------Specified Index--------------------------------------
static int[] insertarray(int []x,int []y, int in)
  {
    if(in<0||in>x.length)
    {
      System.out.println("INDEX IS NOT IN THE RANGE");
      return x;
    }
```

```
    int z[]=new int[x.length+y.length];
    for(int i=0; i<y.length;i++)
    {
      z[i+in]=y[i];
    }
    for(int i=0;i<x.length;i++)
    {
      if(i<in)
        z[i]=x[i];
      else
        z[i+y.length]=x[i];
    }
    return z;
  }
  public static void main(String[] args)
  {
    int ar[]= {1,2,3,4,5,6,7,8,9};    //First Array
    int br[]= {10,20,30,40,50,60};   //Second Array
    int z=3;                        //Index number to Insert

    ar=insertarray(ar,br,z);
    for(int i=0; i<ar.length;i++)
    {
      System.out.println(ar[i]+" ");
    }
  }
-------------------------Specified Element---------------------------------
static int findindex(int a[],int ele)
  {
    for(int i=0; i<a.length; i++)
    {
      if(a[i]==ele)
        return i;
    }
    return (Integer) null;
  }
  static int[] insertarray(int x[],int[] y,int in)
  {
    if(in<0||in>x.length)
    {
      System.out.println("Index not in range");
      return x;
    }
    int z[]=new int[x.length+y.length];
    for(int i=0; i<y.length; i++)
    {
      z[i+in]=y[i];
    }
    for(int i=0; i<x.length;i++)
    {
      if(i<in)
        z[i]=x[i];
      else
        z[i+y.length]=x[i];
```

```
    }
    return z;
  }
  public static void main(String arg[])
  {
    int a[]= {1,2,3,4,5,6,7,8,9};
    int b[]= {10,20,30,40};
    int ele=5;
    int in=findindex(a,ele);
    a=insertarray(a,b,in);
    for(int o:a)
    {
      System.out.print(o+" ");
    }
  }
```

64. DAMT return nth Biggest Element ?

▼ Ans

```
-------------------------nth Biggest Element
static int nthbiggest(int ar[], int n)
  {
    for(int i=0; i<ar.length; i++)
    {
      int count=0;
      for(int j=0; j<ar.length; j++)
      {
        if(ar[j]>ar[i])
          count++;
      }

      if(count==n-1)
        return ar[i];
    }
    return -1;
  }
public static void main(String[] args)
  {
    int ar[]= {1,2,3,3,3,3,4,5,6,6,8}; //Using Scanner take input from user
    int z=7;                           //Using Scanner take input from user
    Arrays.sort(ar);                   //We can also use bubble sort
    int count=CountNONDupli(ar);    //Count how many duplicates present in array
    int br[]=new int[count];           //Create new array with the size of count
    ar=removeduplicates(ar,br);        //Remove duplicate
    int by=nthbiggest(ar,z);           //Find nth biggest
    if(by==-1)
    {
      System.out.println("Element is not present in Array");
    }
    else
```

```
    {
      System.out.println(z+ "th biggest element in an given Array is:= "+by);
    }
  }
  public static int CountNONDupli(int[] a)
  {
    int temp=0,count=0;
    for(int i=0; i<a.length-1; i++)
    {
      if(a[i]!=a[i+1])
      {
        temp=a[i];
        count++;
      }
    }
    if(temp!=a[a.length-1])
      count++;
    return count;
  }
  public static int[] removeduplicates(int[] a,int b[])
  {
    int temp=0,z=0;
    for(int i=0; i<a.length-1; i++)
    {
      if(a[i]!=a[i+1])
      {
        temp=a[i];
        b[z++]=a[i];
      }
    }
    if(temp!=a[a.length-1])
      b[z++]=a[a.length-1];
    return b;
  }
-------------------------nth Smallest Element
Just make change --> if(ar[j]<ar[i])
                          count++;
```

65. WJPT print the Frequency of Each Array Element ?

▼ Ans

```
static void printfrequency(int[] ar)
  {
    boolean br[]=new boolean[ar.length];
    for(int i=0; i<br.length; i++)
    {
      if(br[i]==false)
      {
        int count=1;
        for(int j=i+1; j<br.length; j++)
```

```
        {
          if(ar[i]==ar[j])
          {
            count++;
            br[j]=true;
          }
        }
        System.out.println(ar[i]+" -> "+count);
      }
    }
  }
  public static void main(String[] args)
  {
    int a[]= {1, 1, 5,6, 7, 5, 7,1};
    printfrequency(ar);
  }
```

66. WJPT print the Frequency of Each Array Element ? by using Bit-Set Method.

▼ Ans

```
static void  printfrequency(int []a)
  {
    int big=a[0];
    for(int i=1;i<a.length;i++)
    {
     if(a[i]>big)
      big=a[i];
    }
    int count[]=new int[big+1];
    for(int i=0; i<a.length; i++)
    {
     count[a[i]]++;
    }
    for(int k=0; k<count.length; k++)
    {
     if(count[k]!=0)
      System.out.println(k+" -> "+count[k]);
    }
  }
  public static void main(String[] args)
  {
    int a[]= {1, 1, 5,6, 7, 5, 7,1};
    printfrequency(ar);
  }
-----------------Only Printing highest frequrncy----------------------------
```

75. Sort an Array by using Bubble sort ?

▼ Ans

```
public static void main(String[] args)
  {
    Scanner sc=new Scanner(System.in);
    int n=sc.nextInt();
    int a[]=new int[n];
    for(int i=0;i<n;i++)
    {
      a[i]=sc.nextInt();
    }sc.close();
    System.out.println("input");
    for(int i=0;i<n;i++)
    {
      System.out.print(a[i]+" ");

    }

    for(int i=0;i<a.length-1;i++)
    {
      for(int j=0;j<a.length-1-i;j++)
      {
        if(a[j]>a[j+1])
        {
          int t=a[j];
          a[j]=a[j+1];
          a[j+1]=t;
        }
      }
    }
    System.out.println("output");

    for(int i1=0;i1<n;i1++) {
      System.out.print(a[i1]+" ");
    }
  }
```

76. Sort the element of an array descending order ?

▼ Ans

```
public static void main(String[] args)
  {
    int a[]= {153, 370, 371,79, 82, 86, 91,85};
    for(int i=0; i<a.length-1; i++)
    {
      for(int j=0; j<a.length-1-i; j++)
      {
        if(a[j]>a[j+1])
```

```
        {
          int temp=a[j];
          a[j]=a[j+1];
          a[j+1]=a[j];
        }
      }
    }
    int i=0;
    int j=a.length-1;
    while(i<j)
    {
      int temp=a[i];
      a[i]=a[a.length-1-i];
      a[a.length-1-i]=temp;
      i++;
      j--;
    }
    System.out.println(Arrays.toString(a));
  }
-------------------------------------------------------------
public static void main(String[] args)
  {
    int a[]= {3,25,6,8,3,3,5,5};
    for (int i = 0; i < a.length-1; i++)
    {
      for (int j = 0; j < a.length-1-i; j++)
      {
        if(a[j+1]>a[j])
        {
          int temp=a[j];
          a[j]=a[j+1];
          a[j+1]=temp;
        }
      }
    }
    System.out.println(Arrays.toString(a));
    for (int i : a)
    {
    System.out.println(i);
    }
```

76. WJPT to count how many Armstrong's number and how many Happy numbers are there in an Array ?

▼ Ans

```
public static void main(String[] args)
  {
    int a[]= {153, 370, 371,79, 82, 86, 91,85};
    int arm=0,hpy=0;
```

```
  for(int i=0; i<a.length; i++)
  {
    boolean armstng=isarmstrong(a[i]);
    boolean Hypnum=ishappy(a[i]);
    if(armstng)
      arm++;
    if(Hypnum)
      hpy++;
  }
  System.out.println(arm+" Armstrong");
  System.out.println(hpy+" Happy");
}
private static boolean isarmstrong(int x)
{
  int dc=countdigit(x);
  int sum=0,temp=x;
  do
  {
    int d=x%10;
    sum=sum+(int)Math.pow(d,dc);
    x=x/10;
  }while(x!=0);
  return temp==sum;
}
private static int countdigit(int x)
{
  int count=0;
  do
  {
    x=x/10;
    count++;
  }while(x!=0);
  return count;
}
private static boolean ishappy(int x)
{
  while(x>9)
  {
    int sum=0;
    do
    {
      int d=x%10;
      sum=sum+(int)Math.pow(d, 2);
      x=x/10;
    }while(x!=0);
    x=sum;
  }
  return x==7||x==1;
}
```

67. WAJP user enter array element [0 to n]. Find the Missing element[0 to n]. ex: n=9 I/p={9,8,7,6,6,4,2,1,0} O/P=3,5

▼ Ans

```
-----------------Diamond's and Legend's-------------------
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 a[]=new int[n];
    for(int i=0; i<a.length; i++)
    {
      a[i]=sc.nextInt();
    }
    sc.close();
    int big=a[0],small=a[0];
    for(int i=0; i<a.length; i++)
    {
      if(a[i]>big)
        big=a[i];
      if(a[i]<small)
        small=a[i];
    }
    for(int i=small; i<=big; i++)
    {
      boolean tr=ispresent(i,a);
      if(tr==false)
        System.out.println(i+" ");
    }
  }
  static boolean ispresent(int x,int y[])
  {
    for(int i=0; i<y.length; i++)
    {
      if(x==y[i])
        return true;
    }
    return false;
  }
```

68. WAJP user enter array element [0 to n]. Print the Sum of Missing element[0 to n]. ex: n=9 I/p={9,8,7,6,6,4,2,1,0} O/P=3+5=8.

▼ Ans

```
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 a[]=new int[n];
    for(int i=0; i<a.length; i++)
    {
      a[i]=sc.nextInt();
    }
    sc.close();
    int big=a[0],small=a[0];
    for(int i=0; i<a.length; i++)
    {
      if(a[i]>big)
        big=a[i];
      if(a[i]<small)
        small=a[i];
    }
    int sum=0;
    for(int i=small; i<big; i++)
    {
      boolean tr=ispresent(i,a);
      if(tr==false)
        sum=sum+i;
    }
    System.out.println(sum);
  }
  static boolean ispresent(int x,int y[])
  {
    for(int i=0; i<y.length; i++)
    {
      if(x==y[i])
        return true;
    }
    return false;
  }
```

69. WJPT to Remove Duplicate elements in an arrays ? I/p=[1, 1, 2, 4, 5, 3, 5, 4, 3, 1] O/p=[1, 2, 4, 5, 3] or O/p=[1, 2, 3, 4, 5]

▼ Ans

```
---------------Order is Maintained--------------------------------------
        int a[] = {1,1,2,4,5,3,5,4,3,1};
        for (int i = 0; i < a.length; i++)
        {
          int count = 0;
          for (int j = i + 1; j < a.length; j++)
```

```
          {
            if (a[i] == a[j])
            {
              count++;
              a[j] = 0;
            }
          }
          if (a[i] != 0)
          {
            System.out.println(a[i] + " ");
          }
        }

---------------Order is not Maintained (Sorted order)-------------------
static void removeduplicates(int a[])
  {                             //a[]={1,1,1,2,3,3,4,4,5,5};
    int temp=0;                 //Sorted
    for(int i=0; i<a.length-1; i++)
    {
      if(a[i]!=a[i+1])
      {
        temp=a[i];
        System.out.print(a[i]+" ");
      }
    }
    if(temp!=a[a.length-1])
      System.out.print(a[a.length-1]);
  }
  public static void main(String[] args)
  {
    int a[]= {1,1,2,4,5,3,5,4,3,1};
    Arrays.sort(a);  //We can use bubble sort also
    removeduplicates(a);
  }

---------Order is not Maintained (Sorted order) and Storing in Array----------
public static void main(String[] args)
  {
    int a[]= {1,1,2,4,5,3,5,4,3,1};
    Arrays.sort(a);  //We can use bubble sort also
    int cp=countoriginal(a);
    int b[]=new int[cp];
    b=removeduplicates(a,b);
    for(int o:b)
    {
      System.out.print(o+" ");
    }
  }
  static int countoriginal(int a[])
  {
    int temp=0,count=0;
    for(int i=0; i<a.length-1; i++)
    {
      if(a[i]!=a[i+1])
```

```
      {
        temp=a[i];
        count++;
      }
    }
    if(temp!=a[a.length-1])
    {
      count++;
    }
    return count;
  }
  static int[] removeduplicates(int a[],int b[])
  {
    int temp=0,ac=0;
    for(int i=0; i<a.length-1; i++)
    {
      if(a[i]!=a[i+1])
      {
        temp=a[i];
        b[ac++]=a[i];
      }
    }
    if(temp!=a[a.length-1])
    {
      b[ac++]=a[a.length-1];
    }
    return b;
  }
```

70. WJPT to Find Duplicate elements in an Array ?

▼ Ans

```
I/P= {1,1,2,4,5,3,5,4,3,1}       I/P= -9,-9,-9,-5}
O/P= 1 3 4 5                     O/P= -9
-------------Order is Maintained (Single Duplicates)----------------------------
int a[] = { 1,1,2,4,5,3,5,4,3,1 };
        for (int i = 0; i < a.length; i++)
        {
          int count = 0;
          for (int j = i + 1; j < a.length; j++)
          {
            if (a[i] == a[j])
            {
              count++;
              a[j] = 0;
            }
          }
          if (a[i] != 0 && count > 0)
          {
            System.out.println(a[i] + " ");
```

```
          }
        }
---------Order is not Maintained and sorted order (Single Duplicates)--------
public static void main(String[] args)
  {
    int a[]= {1,1,2,4,5,3,5,4,3,1};
    Arrays.sort(a);  //We can use bubble sort also
    for(int i=0; i<a.length-1; i++)
    {
      if(i==0)
      {
        if(a[i]==a[i+1])
          System.out.print(a[i]+" ");
      }
      else
      {
        if(a[i]==a[i+1] && a[i]!=a[i-1])
          System.out.print(a[i]+" ");
      }
    }
  }
-----------------------------------------------------
I/P= {-9,-9,-9,-5}
O/P= -9 -9
public static void main(String[] args)
  {
    int a[]= {-9,-9,-9,-5};
    Arrays.sort(a);  //We can use bubble sort also
    for(int i=0; i<a.length-1; i++)
    {
      if(a[i]==a[i+1])
        System.out.print(a[i]+" ");
    }
  }
```

71. WJPT to Sum the Duplicate elements in an arrays ? I/p=[1,1,2,4,5,3,5,4,3,1] O/p=1+3+4+5=13

▼ Ans

```
-----------(Sum of duplicate Elements) (indiviual duplicate)------------------
(test case 1)
INPUT = {-9,-9,-9,-3,-5,0,2,3,4,-3,5,10,-9,-0}
OUTPT = -9-3 = -12
(test case 2)
INPUT = {-9,-9,-9,-3,-5,0,2,3,4,5,10,-9,-0}
OUTPT = -9 = -9
(test case 3)
INPUT = {1,1,2,4,5,3,5,4,3,1}
OUTPT = 1+3+4+5 = 13
```

```
public static void main(String[] args)
  {
    int a[]= {1,1,2,4,5,3,5,4,3,1};
    Arrays.sort(a);  //We can use bubble sort also
    int sum=0;
    for(int i=0; i<a.length-1; i++)
    {
      if(i==0)
      {
        if(a[i]==a[i+1])
          sum=sum+a[i];
      }
      else
      {
        if(a[i]==a[i+1] && a[i]!=a[i-1])
          sum=sum+a[i];
      }
    }
    System.out.println(sum);
  }
-----------Sum of duplicate Elements (All duplicate)------------------
INPUT = {-9,-9,-9,-3,-5,0,2,3,4,5,10,-9,0,-5}
output = -9-9-9-5= -32
INPUT = {-9,-9,-9,-3,-5,0,2,3,4,5,10,-9,0,-5,10,10}
output = -9-9-9-5+10+10= -12

public static void main(String[] args)
  {
    int a[]= {-9,-9,-9,-3,-5,0,2,3,4,5,10,-9,0,-5};
    Arrays.sort(a);  //We can use Bubble sort also
    int sum=0;
    for(int i=0; i<a.length-1; i++)
    {
      if(a[i]==a[i+1])
      {
        sum=sum+a[i];
      }
    }
    System.out.println(sum);
  }
```

72. WJPT to Sum the Non-Duplicate elements in an arrays ? Input= {-9,-9,-9,-3,-5,0,2,3,4,5,10,-9,-0} Output= -3-5+0+2+3+4+5+10-0 = 16 , Input= {1,2,3,4,5,5,5} Output= 1+2+3+4 = 10

▼ Ans

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

```
    int a[]= {-9,-9,-9,-3,-5,0,2,3,4,5,10,-9,-0};
    Arrays.sort(a);  ///we can use Bubble sort Method
    int sum=0;
    for(int i=0; i<a.length-1; i++)
    {
      if(i==0)
      {
        if(a[i]!=a[i+1])
          sum=sum+a[i];
      }
      if(i>0)
      {
        if(a[i]!=a[i+1] && a[i]!=a[i-1])
          sum=sum+a[i];
      }
    }
    if(a[a.length-1]!=a[a.length-2])
      sum=sum+a[a.length-1];
    System.out.println(sum);
  }
```

73. WJPT Find all Pairs of element in an integer array whose Sum is Equal to a Given Number ? Input1:- a[ ]={1,2,3,4,5,6,7,8,9}; Input2=10 Output=(1,9)(2,8)(3,7)(4,6)(5,5)(6,4)(7,3)(8,2)(9,1) —> (all combination)

    ▼ Ans

```
public static void main(String[] args)
  {
    int ar[]= {1,2,3,4,5,6,7,8,9,10};

    for(int i=0; i<ar.length; i++)
    {
      for(int j=0; j<ar.length; j++)
      {
        if(ar[j]+ar[i]==10)
          System.out.print("("+ar[i]+","+ar[j]+")");
      }
    }
  }
```

74. Input1:- a[ ]={1,2,3,4,5,6,7,8,9}; Input2=10 Output=(1,9)(2,8)(3,7)(4,6) —> (one side combination)

    ▼ Ans

```
public static void main(String[] args)
  {
    int ar[]= {1,2,3,4,5,6,7,8,9,10};

    for(int i=0; i<ar.length; i++)
    {
      for(int j=i+1; j<ar.length; j++)
      {
        if(ar[j]+ar[i]==10)
          System.out.print("("+ar[i]+","+ar[j]+")");
      }
    }
  }
```

75. Mr. Samson is provided with an integer array. He has been provided the task to find the largest difference between 2 adjacent elements (n1, n2) in the array.
Condition: The smaller element appears before the larger element. (which means n2 should be greater than n1)
Method: int findMaximumDifference(int[] arr)
Input: {2,7,9,5,1,3,5}
Output: 5
Explanation: Adjacent pairs satisfying condition are (2,7) (7,9) (1,3) & (3,5). The pair with maximum difference is (2, 7), so output would be 7-2=5

▼ Ans

```
public static void main(String[] args)
  {
    Scanner sc=new Scanner(System.in);
    int n=sc.nextInt();
    int a[]=new int[n];
    for(int i=0; i<a.length; i++)
    {
      a[i]=sc.nextInt();
    }sc.close();
    int max=0,diff=0;
    for(int i=0; i<a.length-1; i++)
    {
      if(a[i+1]>a[i])
      {
        diff=a[i+1]-a[i];
        if(diff>max)
          max=diff;
      }
    }
```

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

76. You are given an array consisting of 'N' elements and you need to perform 'Q' queries on the given array. Each query consists of an integer which tells the number of elements by which you need to left rotate the given array. The return is the final array formed after Q operations Given an array [1, 2, 3, 4, 5, 6] and the queries (2, 4, 1). For every query, we'll perform the required number of left rotations on the array. Explanation:
    For the first query, rotate the given array to the left by 2 elements, so the resultant array is [3, 4, 5, 6, 1, 2].
    For the second query, rotate the result array obtained by first query to the left by 4 elements, so the resultant array is: [1, 2, 3, 4, 5, 6].
    For the third query, rotate the result array obtained by second query to the left by 1 element, so the resultant array is: [2, 3, 4, 5, 6, 1].
    Method: rotateArray(int[] arr, int[] queries)
    Input: arr={1,2,3,4,5} queries b={2,4,1}
    Output: (3,4,5,1,2)
    Input: arr={4, 8, 7, 6) queries (1)
    Output:(8, 7, 6, 4}

    ▼ Ans (Left Rotate)

```
static int[] calculateqry(int a[],int b[])
  {
    int c[]=new int[a.length];
    for(int i=0; i<b.length; i++)
    {
      int z=0,y=b[i];
      for(int j=y; j<a.length; j++)
      {
        c[z++]=a[j];
      }
      for(int k=0; k<y; k++)
      {
        c[z++]=a[k];
      }
      for(int k=0; k<c.length; k++)
      {
        a[k]=c[k];
      }
    }
    return c;
```

```
  }
  public static void main(String[] args)
  {
    int a[]= {4,8,7,6};
    int b[]= {1};
    a=calculateqry(a,b);
    for(int o:a)
    {
      System.out.print(o+" ");
    }
  }
```

▼ Ans (Right Rotate)

```
import java.util.*;
class Test
{
  static int[] display(int a[], int b[])
  {
    int c[]=new int[a.length];
    for(int i=0; i<b.length; i++)
    {
      int z=0,y=a.length-b[i];
      for(int j=y; j<a.length; j++)
      {
        c[z++]=a[j];
      }
      for(int k=0; k<y; k++)
      {
        c[z++]=a[k];
      }
      for(int m=0; m<c.length; m++)
      {
        a[m]=c[m];
      }

    }
    return c;
  }
  public static void main(String... args)
  {
    int a[]= {1,4,5,2,3};
    int b[]= {2,4,1};
    a=display(a,b);
    System.out.println(Arrays.toString(a));
  }
}
```

77. First half elements in Descending Order and Second half elements in Ascending Order. Input= {1 2 3 4 5 40 30 20 10} Output= 5 4 3 2 1 10 20 30 40

▼ Ans

```
------Using Collection and Inbuild method--------------
public static void main(String[] args)
  {
    Scanner sc=new Scanner(System.in);
    int size=sc.nextInt();
    if(size<1)
    {
      System.out.println("Array size should be greater then 0");
      System.exit(0);
    }
    int n1=(size%2==0)?(size/2):(size/2+1);
    int n2=size-n1;

    ArrayList<Integer> a1=new ArrayList<Integer>();
    ArrayList<Integer> a2=new ArrayList<Integer>();

    for (int i = 0; i < n1; i++)
      a1.add(sc.nextInt());

    for (int i = 0; i < n2; i++)
      a2.add(sc.nextInt());
    sc.close();
    Collections.sort(a1, Collections.reverseOrder());
    Collections.sort(a2);

    for (int i = 0; i <n1; i++)
      System.out.print(a1.get(i)+" ");

    for (int i = 0; i <n2; i++)
      System.out.print(a2.get(i)+" ");
  }
------Without Using Collection and Any Inbuilt Method--------------
public static void main(String[] args)
  {
    Scanner sc=new Scanner(System.in);
    int size=sc.nextInt();
    if(size<1)
    {
      System.out.println("Array size should be greater then 0");
      System.exit(0);
    }

    int a[]=new int[size];         //1,2,3,4,5,40,30,20,10
    for (int i = 0; i < a.length; i++)
      a[i]=sc.nextInt();
    sc.close();
```

```
    int n1=(size==0)?(size/2):(size/2+1);
    int n2=a.length-n1;
    int a1[]=new int[n1];
    int a2[]=new int[n2];
    int z=0,y=0;
    for (int i = 0; i < a.length; i++)
    {
      if(i<n1)
        a1[z++]=a[i];
      else
        a2[y++]=a[i];
    }
    for (int i = 0; i < a1.length-1; i++) //Descending Bubble Sort
      for (int j = 0; j < a1.length-i-1; j++)
        if(a1[j]<a1[j+1])
        {
          int temp =a1[j];
          a1[j]=a1[j+1];
          a1[j+1]=temp;
        }
    for (int i = 0; i < a2.length-1; i++) //Ascending Bubble Sort
      for (int j = 0; j < a2.length-i-1; j++)
        if(a2[j]>a2[j+1])
        {
          int temp =a2[j];
          a2[j]=a2[j+1];
          a2[j+1]=temp;
        }
    for (int i = 0; i < a1.length; i++)
      System.out.println(a1[i]);
    for (int i = 0; i < a2.length; i++)
      System.out.println(a2[i]);
  }
```

78. WJPT move all the zero's at the start (Note: don't use inbuilt) I/P = 1,2,0,4,3,0,5,0 and O/P = 00012435

▼ Ans

```
------------------O(m+n) complexity code-----------------
static int[] sortingarray(int a[])
  {
    int[] b=new int[a.length];
    int k=0;
    for(int i=0;i<a.length;i++)
    {
      if(a[i]==0)
      {
        b[k++]=a[i];
```

```
      }
    }
    for(int i=0;i<a.length;i++)
    {
      if(a[i]!=0)
      {
        b[k++]=a[i];
      }
    }
    return b;
  }
public static void main(String[] args)
  {
    Scanner sc=new Scanner(System.in);
    int n=sc.nextInt();
    int a[]=new int[n];
    for(int i=0; i<a.length; i++)
    {
      a[i]=sc.nextInt();
    }sc.close();
    a=sortingarray(a);
    System.out.println(Arrays.toString(a));
  }
```

79. Take the strarr parameter being passed which will only contain a single element, and return the string true if it is a valid number that contains only digits with properly placed decimals and commas, otherwise return the string false. For example: if strarr is ["1,093,222.04″] then your program should return the string true, but if the input were ["1,093,22.04"] then your program should return the string false. The input may contain characters other than digits. Input= {”0.232567”} Output= true , Input= {”2,567.00.2”} Output= false , Input= {”1,093,222.04”} Output= true , Input= {”1,093,22.04”} Output= false ?

    ▼ Ans

```

```