

Just implement these codes before going ahead:

<pre>import java.util.*; class Lab11{     public static void main(String a[]){         ArrayList&lt;Integer&gt; marks;         marks=new ArrayList&lt;Integer&gt;();         int i,m,size;         size=(int)(Math.random()*10+1);         ?ln("Size:"+size);     } }</pre>	<pre>for(i=0;i&lt;size;i++){     m=(int)(Math.random()*50);     marks.add(m); } for(i=0;i&lt;size;i++){     ?(marks.get(i)+" ");     ?ln(); } }</pre>
---	---

Implement above code by replacing ArrayList by Vector

**Task 1:** Take an integer array of size 20. Initialize values randomly between 10 and 90. Simultaneously sum all values and calculate average. Now separate values below average and above average in ArrayLists. Finally print both lists in 2 separate rows?

```
int i,j, sum=0;
double avg;
int arr[]=new int[20];
for(i=0;i<arr.length;i++){
    arr[i]=(int)(Math.random()*80+10);
    sum=sum+arr[i];
}
avg=sum/(double)arr.length;
?ln("Average:"+avg);
ArrayList<Integer> bAvg=new
    ArrayList<Integer>();
ArrayList<Integer> aAvg=new
    ArrayList<Integer>();

for (i=0;i<arr.length;i++)
    if (arr[i]<avg)
        bAvg.add(arr[i]);
    else
        aAvg.add(arr[i]);
for (i=0;i<bAvg.size();i++)
    ?(bAvg.get(i)+" ");
?ln();
for (i=0;i<aAvg.size();i++)
    ?(aAvg.get(i)+" ");
?ln();
```

**Task 2:** Take an integer array of size 20. Initialize values randomly between 10 and 90. Generate two random values between 10 and 90 say first & second. Take two lists. fList & sList. Calculate distance (absolute difference) of all values of array with first & second, if value is near first store it in fList otherwise in sList. Finally print fList horizontally than sList?

```
int i,j, sum=0, first, second, d1, d2;
double avg;
int arr[]=new int[20];
for(i=0;i<arr.length;i++)
    arr[i]=(int)(Math.random()*80+10);
first=(int)(Math.random()*80+10);
second=(int)(Math.random()*80+10);
ArrayList<Integer> fList=new
    ArrayList<Integer>();
ArrayList<Integer> sList=new
    ArrayList<Integer>();

for (i=0;i<arr.length;i++){
    d1=Math.abs(arr[i]-first);
    d2=Math.abs(arr[i]-second);
    if (d1<d2)
        fList.add(arr[i]);
    else
        sList.add(arr[i]);
}
for (i=0;i<fList.size();i++)
    ?(fList.get(i)+" ");
?ln();
for (i=0;i<sList.size();i++)
    ?(sList.get(i)+" ");
?ln();
```

**Task 3:** Complete given code, store names starting with A in listA and names starting with B in listB and print both in single line each?

```
String names[]={"Babar","Adil","Anjum","Baqir","Basit","Bilal","Ahmad",
               "Badar","Adnan", "Anwar", "Bari"};

int i;
ArrayList<String> listA=new ArrayList<String>();
ArrayList<String> listB=new ArrayList<String>();
for (i=0;i<names.length;i++)
    if (names[i].charAt(0)=='A')
        listA.add(names[i]);
    else
        listB.add(names[i]);
for (i=0;i<listA.size();i++)
    System.out.print(listA.get(i)+" ");
System.out.println();
for (i=0;i<listB.size();i++)
    System.out.print(listB.get(i)+" ");
System.out.println();
```

### 2D ARRAY

**Task 4:** Write code to print given values in single line, in single column, in table. Do each one by one?

```
int n[][]={{2,4,7,1,3},{3,4,1,6,2},{7,3,1,4,2}};
int i,j;
for (i=0;i<n.length;i++)
    for (j=0;j<n[i].length;j++)
        System.out.print(n[i][j]+" ");
System.out.println();
for (i=0;i<n.length;i++)
    for (j=0;j<n[i].length;j++)
        System.out.println(n[i][j]+" ");
for (i=0;i<n.length;i++){
    for (j=0;j<n[i].length;j++)
        System.out.print(n[i][j]+" ");
    System.out.println();
}
```

**Task 5:** Write a program to store attendance of a month. There are 4 weeks in a month and each week has 5 working days. Declare a 2D array attendance. Populate array randomly between 40 to 50. Print attendance in tabular form. Print average of each week separately.

```
int att[][]=new int[4][5];
int i,j, sum;
for (i=0;i<att.length;i++){
    for (j=0;j<att.length;j++){
        att[i][j]=(int)(Math.random()*10+40);
        System.out.print(att[i][j]+" ");
    }
    System.out.println();
}
double avg;
for (i=0;i<att.length;i++){
    sum=0;
    for (j=0;j<att.length;j++)
        sum=sum+att[i][j];
    avg=(double)sum/att[i].length;
    System.out.println("Average of Week "+(i+1)+" is:"+avg);
}
```