1. **Record 10 integer values from the user and store them in an array.**
   After recording the 10 values, calculate and display:
   - **The average**
   - **The highest value**
   - **The lowest value**

```
import java.util.*;
class Avg
{
      public static void main (String[] args)
      {
            Scanner sc=new Scanner(System.in);
            System.out.print("Enter size of array :");
            int n=sc.nextInt();

            int a[]= new int[n];
            int i;
            System.out.print("Enter values of array :");
            for(i=0;i<n;i++)
            {
                  a[i]=sc.nextInt();

            }

            System.out.println("Values of array are :");
            for(i = 0;i<n;i++){
                  System.out.print(a[i]+" ");
            }
           //for(int u:a)
            //System.out.println(u+" ");
         System.out.println();
            int sum=0;
            for(i=0;i<n;i++)
            {
                  sum=sum+a[i];

            }
            float avg=(float)sum/n;
            System.out.println("Avg: "+avg);

      System.out.println("Highest and lowest number :");

         int max=a[0];
         int min=a[0];
         for(i=0;i<n;i++)
```

```
        {
           if (a[i]>max)
                 max=a[i];
           if (a[i]<min)
                 min=a[i];
        }
        System.out.println("Highest number: " +max+ " "
+"lowest number: "+ min);

}
}
```

```
D:\Java>java Avg
Enter size of array :10
Enter values of array :80 85 88 89 90 91 86 88 90 88
Values of array are :
80 85 88 89 90 91 86 88 90 88
Avg: 87.5
Highest number
max value: 91 min value: 80

D:\Java>
```

2. **Find out how often the numbers from 1 to 10 are generated randomly. Declare an array to hold 10 integer elements. Generate 100 random numbers from 1 to 10 inclusive, and use the array to keep track of how many times each number occurs. For example, if the first number generated is 9, add 1 to the 9th element of the array. If the second number generated is 3, add 1 to the 3rd element of the array. If the third number generated is 9, add another 1 to the 9th element of the array. After 100 numbers have been generated, each element of the array will hold the number of times that value was generated. Display the array. In this example, we're using the array as a frequency table to keep track of the frequency of each of the 10 numbers.**

```
class KeepTrack
{
public static void main(String[] args)
{
      int[] arr={0,0,0,0,0,0,0,0,0,0};
      for(int i=0;i<100;i++)
      {
            int random = 1+(int)(Math.random()*10);
```

```
                    System.out.println(random);
                    arr[random] = arr[random]+1;
                }

                for(int i=0;i<=10;i++)
                {
                    System.out.println(i+ ": "+arr[i]);
            }
        }
}
```

```
D:\Java>java KeepTrack
0: 0
1: 11
2: 10
3: 5
4: 7
5: 8
6: 10
7: 9
8: 11
9: 10
10: 19
```

3. **A small school is keeping track of the number of cans recycled for it's grade 1, 2, and 3 classes. Each time students bring in cans, the number of cans are counted and added to the total for that student's class or grade. Use an array to keep track of the totals for each of the three grades (therefore, the array should have 3 elements). The user will be repeatedly prompted to enter the grade number, and the number of cans brought by a student, until they decide to quit. For each number of cans entered, add that number to the total for that grade (e.g. the proper array element). After the user is finished entering data, display the totals for the three grades.**

```
import java.util.*;
class Can
{
    public static void main(String[] args)
    {
        int[] gradeTotal=new int[3];
        int totalCans=0;
        char choice='Y';
        Scanner sc=new Scanner (System.in);
```

```
            while(choice=='Y')
            {
                  System.out.println("Enter Grade 1 OR 2 OR 3");
                  int grade = sc.nextInt();


                  if(grade>3 || grade < 1){

                        System.out.println("You have not entered
right grade");

                  }else{
                        System.out.println("Enter Number of
cans");
                        int cans = sc.nextInt();



                        if(grade == 1){
                              gradeTotal[0] = gradeTotal[0]+cans;
                        }
                        if(grade == 2){
                              gradeTotal[1] = gradeTotal[1]+cans;
                        }
                        if(grade  == 3){
                              gradeTotal[2] = gradeTotal[2]+cans;
                        }

                        totalCans = totalCans +cans;
                  }

                  System.out.println("Do you want to
continue:Y/N");
                  choice = sc.next().charAt(0);
            }
            System.out.println("Total Cans: "+totalCans);
            for(int i=0;i<3;i++){
                  System.out.println("Garde "+(i+1)+" : "+
gradeTotal[i]);
            }

      }
}
```

```
D:\Java>javac Can.java

D:\Java>java Can
Enter Grade 1 OR 2 OR 3
1
Enter Number of cans
4
Do you want to continue:Y/N
y
Enter Grade 1 OR 2 OR 3
2
Enter Number of cans
2
Do you want to continue:Y/N
y
Enter Grade 1 OR 2 OR 3
2
Enter Number of cans
6
Do you want to continue:Y/N
N
Total Cans: 12
Garde 1 : 4
Garde 2 : 8
Garde 3 : 0

D:\Java>
```

4. **Ask the user to enter five integer values. Store the values in an array and then determine if the values were entered in ascending order. Display a message indicating whether they are sorted or not.**

```
import java.util.*;
class Ascending
{
	public static void main(String[] args)
	{
		int arr[]=new int[5];
		Scanner sc= new Scanner(System.in);
		System.out.println("Enter five numbers");

		boolean flag = true;

		for(int i=0;i<5;i++)
		{
			arr[i] = sc.nextInt();
			if(i!=0){
				if(arr[i-1]<=arr[i] )
				{
```

```
                              flag= flag && true;
                        }
                        if(arr[i-1]>arr[i]){

                              flag = flag && false;
                        }
                  }

            }

            if(flag)
                  System.out.println("numbers are in ascending
order");
            else
                  System.out.println("numbers are not in
ascending order");
      }
}
```

```
D:\Java>javac Ascending.java

D:\Java>java Ascending
Enter five numbers
1 2 3 4 5
numbers are in ascending order

D:\Java>java Ascending
Enter five numbers
1 3 2 5 3
numbers are not in ascending order
```