1 //Q1 Array  
 2 import java.util.\*;   
 3 public class diff\_array{  
 4 public static void main(String[] args){  
 5 Scanner sc = new Scanner(System.in);  
 6 System.out.print("Enter the size of array : ");  
 7 int size = sc.nextInt();  
 8 int a[] = new int[size];  
 9 for (int i=0;i<size;i++){  
10 System.out.print("\nEnter element "+(i+1)+" :");  
11 a[i] = sc.nextInt();  
12 }  
13 System.out.print("\nOriginal Array: "+Arrays.toString(a));   
14 int max = a[0];  
15 int min = a[0];  
16 for(int i = 1; i < a.length; i++){  
17 if(a[i] > max){  
18 max = a[i];  
19 }   
20 else if(a[i] < min){  
21 min = a[i];  
22 }   
23 }  
24 System.out.print("\nThe largest element is : "+max+"\nThe smallest element is : "+min);  
25 System.out.print("\nDifference between the largest and smallest values of the said array: "+(max-min));   
26 }  
27 }

1 //Q2 Array  
 2 import java.util.\*;  
 3 class Arrayp{  
 4 public static void main(String args[]){  
 5 Scanner sc=new Scanner(System.in);  
 6 int a[]=new int[10];  
 7 System.out.println("Enter the elements of array");  
 8 for (int i=0; i<10;i++){  
 9 System.out.print("Enter "+(i+1)+" element: ");  
10 a[i]= sc.nextInt();  
11 }  
12 System.out.println("Elements at even places.");  
13 for (int i=0; i<10;i++){  
14 if(i%2!=0) System.out.print(a[i]+" ");  
15 }  
16 System.out.println("");  
17 System.out.println("All odd elements.");  
18 for (int i=0; i<10;i++){  
19 if(a[i]%2!=0) System.out.print(a[i]+" ");  
20 }  
21 System.out.println("");  
22 System.out.println("Array in reverse order.");  
23 for (int i=9; i>=0;i--){  
24 System.out.print(a[i]+" ");  
25 }  
26 System.out.println("");  
27 System.out.println("Last Element : "+a[9]);  
28 System.out.println("First Element : "+a[0]);  
29 }  
30 }  
31

1 //Q3 Array  
 2 import java.util.\*;  
 3 public class sum\_arr{  
 4 public static void main(String args[]){  
 5 Scanner sc = new Scanner(System.in);  
 6 System.out.print("\nEnter the 5 elemts of array :");  
 7 int a[] = new int[5];  
 8 int sum = 0;  
 9 for(int i = 0 ; i<5 ; i++){  
10 System.out.print("\nEnter element "+(i+1)+" :");  
11 a[i] = sc.nextInt();  
12 }  
13 System.out.print("\nPress 1 for Sum of all elements \nPress 2 for alternate number sum \nPress 3 for highest element in array \n");  
14 int choice = sc.nextInt();  
15 if(choice == 1 ){  
16 System.out.print("\nThe sum of all the elements is :");  
17 for(int i = 0 ; i<5 ; i++){  
18 sum = sum +a[i];  
19 }  
20 System.out.print(" "+sum);  
21 }  
22 else if(choice == 2){  
23 System.out.print("\nThe sum of all alternate elements is :"+(a[0]+a[2]+a[4]));  
24 for(int i = 0 ; i<5 ; i++){  
25   
26 }  
27   
28 }  
29 else if(choice == 3){  
30 int highest = a[0];  
31 for(int i = 0; i<5 ; i++){  
32 if(a[i]>highest){  
33 highest = a[i];  
34 }  
35 }  
36 System.out.print("\nThe highest element is :"+highest);  
37 }  
38 else{  
39 System.out.print("\nInvalid input");  
40 }  
41 }  
42 }

1 //Q4 Array  
 2 import java.util.\*;  
 3 public class freq\_array{  
 4 public static void main(String args[]){  
 5 Scanner sc = new Scanner(System.in);  
 6 System.out.print("Enter the size of array :");  
 7 int s = sc.nextInt();  
 8 int a[] = new int[s];  
 9 System.out.print("\nEnter the elements :");  
10 for(int i = 0 ; i<s ; i++){  
11 System.out.print("\nEnter element "+ (i+1)+ " ");  
12 a[i] = sc.nextInt();  
13 }  
14   
15 System.out.print("\nEnter the number to be searched ");  
16 int n = sc.nextInt();  
17 int ctr = 0;  
18   
19 for(int i =0 ; i<s ; i++){  
20 if(a[i] == n ){  
21 ctr = ctr+1;  
22 }  
23 }  
24 System.out.print("\nThe frequency of "+n+" is :"+ctr);  
25 }  
26 }

1 //Q5 Array  
 2 import java.util.\*;  
 3 class Array2D{  
 4 public static void main(String args[]){  
 5 int r[][]=new int[3][3];  
 6 Scanner sc=new Scanner(System.in);  
 7 System.out.println("Enter the elements of array.");  
 8 for(int i=0;i<3;i++){  
 9 for(int j=0;j<3;j++){  
10 System.out.print("r["+(i+1)+"]["+(j+1)+"] = ");  
11 do{  
12 r[i][j]=sc.nextInt();  
13 if(r[i][j]<-99 || r[i][j]>99){  
14 System.out.println("Entered number is not two or one digit number.\nAgain enter the number.");  
15 }  
16 }while(r[i][j]<-99 || r[i][j]>99);  
17 }  
18 }  
19 for(int i=0;i<3;i++){  
20 for(int j=0;j<3;j++){  
21 System.out.print(r[i][j]+" ");  
22 if(j==2){  
23 System.out.print("\n");  
24 }  
25 }  
26 }  
27 System.out.print("Array after odd number multiplied by 2.\n");  
28 for(int i=0;i<3;i++){  
29 for(int j=0;j<3;j++){  
30 if(r[i][j]%2!=0){  
31 r[i][j]=r[i][j]\*2;  
32 }  
33 else   
34 continue;  
35 }  
36 }  
37 for(int i=0;i<3;i++){  
38 for(int j=0;j<3;j++){  
39 System.out.print(r[i][j]+" ");  
40 if(j==2){  
41 System.out.print("\n");  
42 }  
43 }  
44 }  
45 }  
46 }

1 //Q6 Array  
 2 import java.util.\*;  
 3 public class check\_six{  
 4 public static void main(String args[]){  
 5 Scanner sc = new Scanner(System.in);  
 6 int [] arr1 = {6,7,2,6};  
 7 int ctr = 0;  
 8 for(int i=0; i<arr1.length-1; i++){  
 9 if(arr1[i] == 6 && (arr1[i+1] == 6 || arr1[i+1] == 7)){  
10 ctr= ctr+1;  
11 }  
12 }  
13 System.out.print("\nThe number of times that two 6's or 6 and 7 are next to each other is: " + ctr);  
14 }  
15 }  
16

1 //Q7 Array  
 2 import java.util.\*;  
 3 public class swap{  
 4 public static void main(String args[]){  
 5 swap s = new swap();  
 6 Scanner sc = new Scanner(System.in);  
 7 System.out.print("Enter the size of array : ");  
 8 int size = sc.nextInt();  
 9 int a[] = new int[size];  
10 System.out.print("\nEnter the elements of array :");  
11 for(int i = 0 ; i<size ; i++){  
12 System.out.print("\nEnter element "+(i+1)+" ");  
13 a[i] = sc.nextInt();  
14 }  
15 s.swap\_pairs(a);  
16   
17 }  
18   
19 public static void swap\_pairs(int [] a){  
20 int x = a.length;  
21 int y =0;  
22 String st = "";  
23 if(a.length%2!=0){  
24 for(int i = 0 ; i<a.length-1 ; i=i+2){  
25 y= a[i];  
26 a[i] = a[i+1];  
27 a[i+1] = y;  
28 System.out.print(""+a[i]+","+a[i+1]+",");  
29 }  
30 System.out.print(a[a.length-1]);  
31 }  
32 if(a.length%2==0){  
33 for(int i = 0 ; i<a.length-1 ; i=i+2){  
34 y= a[i];  
35 a[i] = a[i+1];  
36 a[i+1] = y;  
37 System.out.print(""+a[i]+","+a[i+1]);  
38 if(i+2<a.length){  
39 System.out.print(",");  
40 }  
41 }  
42 }  
43 }  
44 }

1 //Q8 Array  
 2 import java.util.\*;  
 3 class median{  
 4 public static void main(String args[]){  
 5 Scanner sc=new Scanner(System.in);  
 6 System.out.print("Enter the size of array: ");  
 7 int n = sc.nextInt();  
 8 int a[]=new int[n];  
 9 System.out.println("Enter the elements of array");  
10 for (int i=0; i<n;i++){  
11 System.out.print("Enter "+(i+1)+" element: ");  
12 a[i]= sc.nextInt();  
13 }  
14 double med =0;  
15 Arrays.sort(a);  
16 if(n%2==0){  
17 med = (a[n/2]+a[(n/2)-1])/2.0;  
18 }  
19 else med = a[(n-1)/2];  
20 System.out.println("Median of inserted array: "+med);  
21 }  
22 }

//Q9 – Already done in 7th question of swapping

1 //Q10 Array  
 2 import java.util.\*;  
 3 class arraypalindrome{  
 4 public static void main(String args[]){  
 5 Scanner sc=new Scanner(System.in);  
 6 System.out.print("Enter the size of array: ");  
 7 int n = sc.nextInt();  
 8 String a[]=new String[n];  
 9 System.out.println("Enter the string elements of array");  
10 for (int i=0; i<n;i++){  
11 System.out.print("Enter "+(i+1)+" element: ");  
12 a[i]= sc.next();  
13 }  
14 int ctr = 0;  
15 for (int i=0; i<n/2;i++){  
16 if(a[i].equals(a[n-1-i])) ctr++;  
17 else continue;  
18 }  
19 if(ctr==n/2) System.out.println("Entered array is palindrome.");  
20 else System.out.println("Entered array is not palindrome.");  
21 }  
22 }

1 //Q11 Array  
 2 import java.util.\*;  
 3 class pascal2d{  
 4 public static void main(String args[]){  
 5 Scanner sc=new Scanner(System.in);  
 6 System.out.print("Enter the size of pascal triangle: ");  
 7 int n = sc.nextInt();  
 8 int a[][] = new int[n][n];  
 9 for(int i=0;i<n;i++){  
10 for(int j=0;j<=i;j++){  
11 if(j==0 || j==i) a[i][j] = 1;  
12 else a[i][j]=a[i-1][j-1]+a[i-1][j];  
13 }  
14 }  
15 for(int i=0;i<n;i++){  
16 for(int j=0;j<=i;j++){  
17 System.out.print(a[i][j]+"\t");  
18 }  
19 System.out.println("");  
20 }  
21 }  
22 }

1 //Q12 Array  
 2 import java.util.\*;  
 3 class Sales{  
 4 public static void main(String args[]){  
 5 int n=0,s,d;  
 6 Scanner sc=new Scanner(System.in);  
 7 int sales[][]=new int[5][6];  
 8 int no[][]=new int[5][6];  
 9 int num[]=new int[30];  
10 for(int i=0;i<4;i++){  
11 System.out.println("Enter the last week sale of salesperson number "+(i+1)+" :");  
12 for(int j=0;j<5;j++){  
13 System.out.print("Enter last week sale of product "+(j+1)+" :");  
14 sales[i][j]=sc.nextInt();  
15 }  
16 }  
17 for(int i=0;i<4;i++){  
18 int sum=0;  
19 for(int j=0;j<5;j++){  
20 sum=sum+(sales[i][j]);  
21 }  
22 sales[i][5]=sum;  
23 }  
24 for(int i=0;i<5;i++){  
25 int sum=0;  
26 for(int j=0;j<4;j++){  
27 sum=sum+(sales[j][i]);  
28 }  
29 sales[4][i]=sum;  
30 }  
31 for( int i=0;i<5;i++){  
32 for( int j=0;j<6;j++){  
33 no[i][j]=sales[i][j];  
34 }  
35 }  
36 int p=0;  
37 for( int j=0;j<6;j++){  
38 for( int i=0;i<5;i++){  
39 int ctr=0;  
40 while(no[i][j]>0){  
41 no[i][j]=no[i][j]/10;  
42 ctr++;  
43 }  
44 num[p]=ctr;  
45 p++;  
46 }  
47 }  
48 System.out.println("Product\\Salesperson Person 1 Person 2 Person 3 Person 4 Total Product's ");  
49 System.out.println("number number sale");  
50 for(int j=0;j<6;j++){  
51 if(j<5){  
52 System.out.print(" "+(j+1)+" ");  
53 }  
54 else{  
55 System.out.print("Total salesPerson sale ");  
56 }  
57 for(int i=0;i<5;i++){  
58 if(i==4 && j==5){  
59 System.out.print(" ");  
60 }  
61 else{  
62 System.out.print(sales[i][j]+" ");  
63 int h=9-num[n];  
64 while(h>0){  
65 System.out.print(" ");  
66 h--;  
67 }  
68 }  
69 if(i==4){  
70 System.out.print("\n");  
71 }  
72 n++;  
73 }  
74 }  
75 }  
76 }

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**IOT-A**