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# ARRAYS

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**1) Write a C program to input 10 numbers through the keyboard into an array and display the results of addition of even numbers and product of odd numbers.**

```
#include<stdio.h>

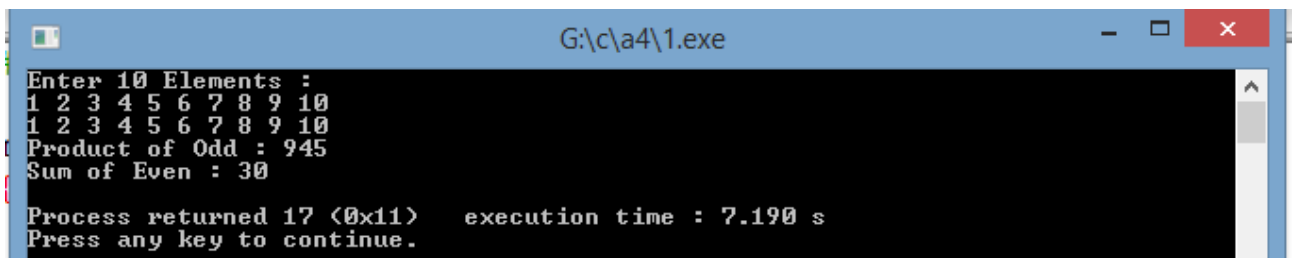
main()
{
    int a[10],i,ele,o=1,e=0;
    ele=sizeof(a)/sizeof(a[0]);

    printf("Enter %d Elements : \n",ele);

    for(i=0;i<ele;i++)
    {
        scanf("%d",&a[i]);
    }

    for(i=0;i<ele;i++)
    {
        printf("%d ",a[i]);
    }
    printf("\n");
```

```
for(i=0;i<ele;i++)  
{  
    if(a[i]%2)  
        o=a[i]*o;  
    else  
        e=a[i]+e;  
}  
printf("Product of Odd : %d\n",o);  
printf("Sum of Even : %d\n",e);  
}
```



```
G:\c\a4\1.exe  
Enter 10 Elements :  
1 2 3 4 5 6 7 8 9 10  
1 2 3 4 5 6 7 8 9 10  
Product of Odd : 945  
Sum of Even : 30  
Process returned 17 (0x11)   execution time : 7.190 s  
Press any key to continue.
```

**2) Write a C program to input 10 numbers through the keyboard into an array and find the biggest and smallest number in an Unsorted array without using any Sorting Technique.**

```
#include<stdio.h>

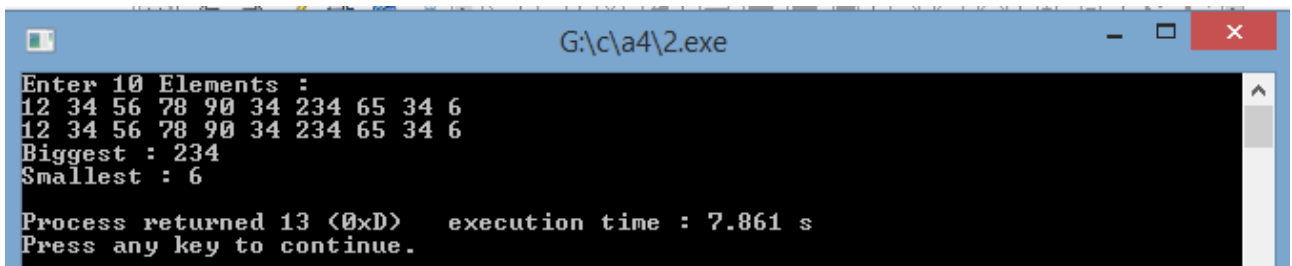
main()
{
    int a[10],i,ele,max=0,min=2147483646;
    ele=sizeof(a)/sizeof(a[0]);
    printf("Enter %d Elements : \n",ele);

    for(i=0;i<ele;i++)
    {
        scanf("%d",&a[i]);
    }

    for(i=0;i<ele;i++)
    {
        printf("%d ",a[i]);
    }
    printf("\n");

    for(i=0;i<ele;i++)
    {
        if(a[i] > max)
```

```
max=a[i];  
if(a[i] < min)  
min=a[i];  
}  
printf("Biggest : %d\n",max);  
printf("Smallest : %d\n",min);  
}
```



```
Enter 10 Elements :  
12 34 56 78 90 34 234 65 34 6  
12 34 56 78 90 34 234 65 34 6  
Biggest : 234  
Smallest : 6  
Process returned 13 (0xD) execution time : 7.861 s  
Press any key to continue.
```

**3) Write a C program to input 10 numbers through the keyboard and find the number of prime numbers count, store them into a separate array and display it.**

```
#include<stdio.h>
```

```
main()
```

```
{
```

```
    int a[10],b[10],i,ele,p=0,k=0,j;
```

```
    ele=sizeof(a)/sizeof(a[0]);
```

```
    printf("Enter %d Elements : \n",ele);
```

```
    for(i=0;i<ele;i++)
```

```
    {
```

```
        scanf("%d",&a[i]);
```

```
    }
```

```
    for(i=0;i<ele;i++)
```

```
    {
```

```
        printf("%d ",a[i]);
```

```
    }
```

```
    printf("\n");
```

```
    for(i=0;i<ele;i++)
```

```
    {
```

```

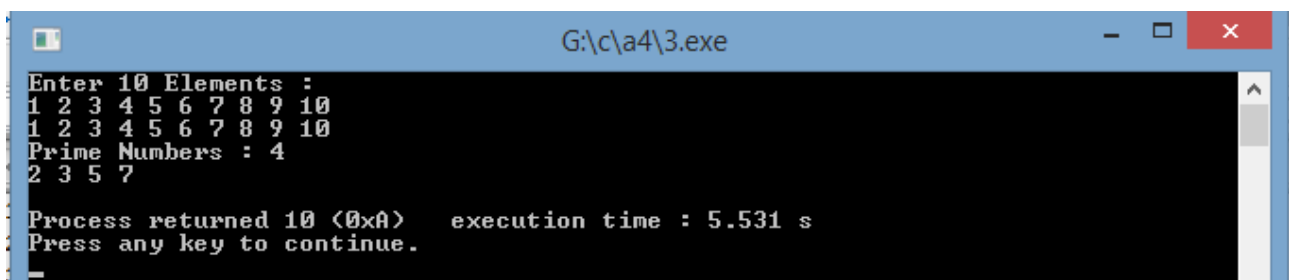
    for(j=2;j<a[i];j++)
    {
        if(a[i]%j==0)
            break;
    }
    if(j==a[i])
    {
        p++;
        b[k++]=a[i];
    }
}

printf("Prime Numbers : %d\n",p);

for(k=0;k<p;k++)
{
    printf("%d ",b[k]);
}

printf("\n");
}

```



```

G:\c\a4\3.exe
Enter 10 Elements :
1 2 3 4 5 6 7 8 9 10
1 2 3 4 5 6 7 8 9 10
Prime Numbers : 4
2 3 5 7

Process returned 10 (0xA)   execution time : 5.531 s
Press any key to continue.

```

**4) Write a C program to findout second largest and second smallest elements of an unsorted array without using any Sorting Technique.**

```
#include<stdio.h>
```

```
main()
```

```
{
```

```
int a[10],i,ele,smax=0,smin=2147483640,min=2147483640,max=0;
```

```
ele=sizeof(a)/sizeof(a[0]);
```

```
printf("Enter %d Elements : \n",ele);
```

```
for(i=0;i<ele;i++)
```

```
{
```

```
scanf("%d",&a[i]);
```

```
}
```

```
for(i=0;i<ele;i++)
```

```
{
```

```
printf("%d ",a[i]);
```

```
}
```

```
printf("\n");
```

```
for(i=0;i<ele;i++)
```

```
{
```

```
if(a[i] > max)
```



```
max=a[i];

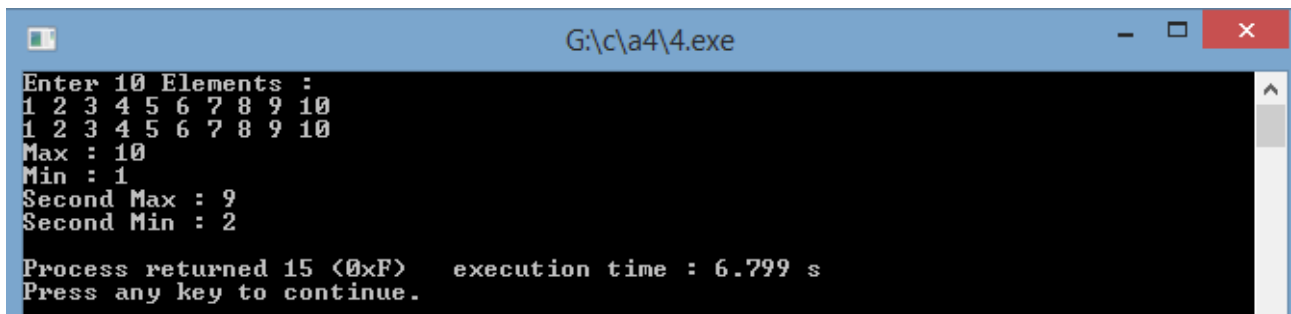
if(a[i] < min)
min=a[i];
}

printf("Max : %d\nMin : %d\n",max,min);


for(i=0;i<ele;i++)
{
if(a[i] > smax)
{
    if(a[i] == max)
        continue;
    smax=a[i];
}

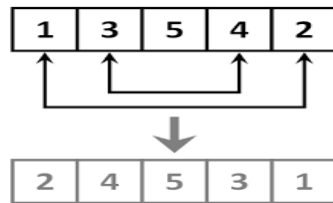
if(a[i] < smin)
{
    if(a[i] == min)
        continue;
    smin=a[i];
}
}
```

```
printf("Second Max : %d\n",smax);  
  
printf("Second Min : %d\n",smin);  
  
}
```



```
Enter 10 Elements :  
1 2 3 4 5 6 7 8 9 10  
1 2 3 4 5 6 7 8 9 10  
Max : 10  
Min : 1  
Second Max : 9  
Second Min : 2  
  
Process returned 15 (0xF)   execution time : 6.799 s  
Press any key to continue.
```

5) Write a C program to reverse the elements of a given array.



```
#include<stdio.h>
```

```
main()
```

```
{
```

```
    int a[5],ele,i,j,k;
```

```
    ele=sizeof(a)/sizeof(a[0]);
```

```
    printf("Enter %d Number : \n",ele);
```

```
    for(i=0;i<ele;i++)
```

```
    {
```

```
        scanf("%d",&a[i]);
```

```
    }
```

```
    for(i=0;i<ele;i++)
```

```
    {
```

```
        printf("%d ",a[i]);
```

```
    }
```

```
    printf("\n");
```

```
for(i=0,j = ele-1; i < j;i++,j--)
```

```
{
```

```
k=a[i];
```

```
a[i]=a[j];
```

```
a[j]=k;
```

```
}
```

```
for(i=0;i<ele;i++)
```

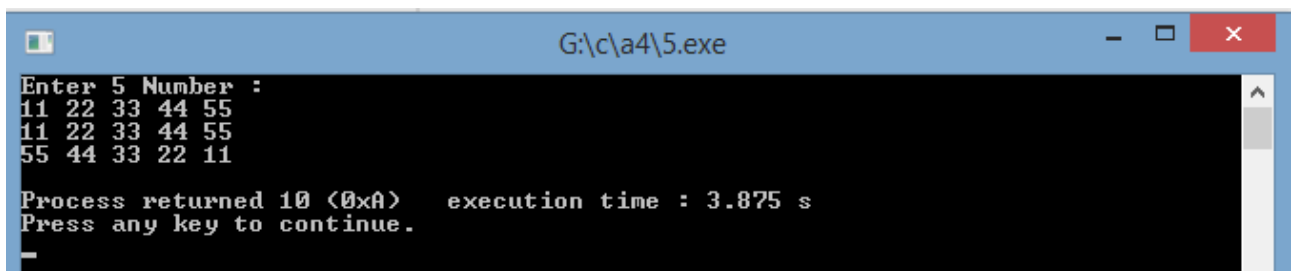
```
{
```

```
printf("%d ",a[i]);
```

```
}
```

```
printf("\n");
```

```
}
```



```
G:\c\a4\5.exe
Enter 5 Number :
11 22 33 44 55
11 22 33 44 55
55 44 33 22 11

Process returned 10 (0xA)   execution time : 3.875 s
Press any key to continue.
-
```

6) Write a C program to delete an element at desired position from an array.

1	14
2	50
3	73
4	9
5	24
6	3
7	92
8	-3

Original Array

1	14
2	50
3	73
4	9
5	
6	3
7	92
8	-3

5<sup>th</sup> Element deleted – leaving an empty location

1	14
2	50
3	73
4	9
5	3
6	92
7	-3
8	

Array after Deletion

```
#include<stdio.h>
```

```
main()
```

```
{
```

```
    int a[5],ele,i,j,k,pos;
```

```
    ele=sizeof(a)/sizeof(a[0]);
```

```
    printf("Enter %d Number : \n",ele);
```

```
    for(i=0;i<ele;i++)
```

```
    {
```

```
        scanf("%d",&a[i]);
```

```
    }
```

```
    printf("Enter Position to delete : ");
```

```
    scanf("%d",&pos);
```

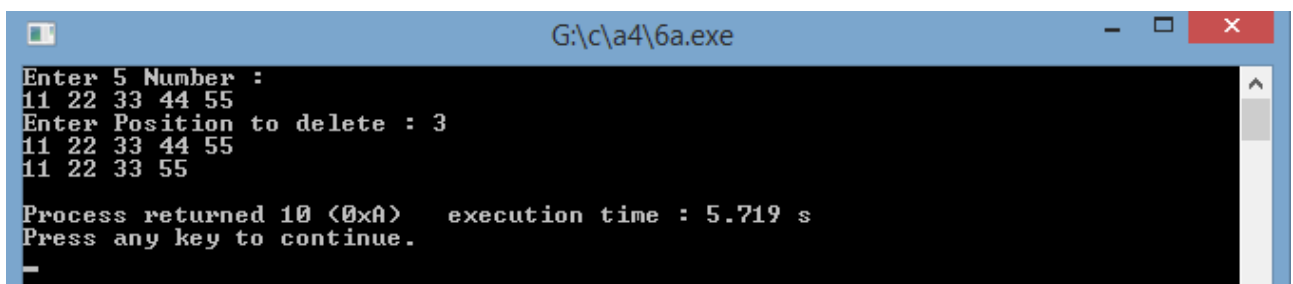
```

for(i=0;i<ele;i++)
{
printf("%d ",a[i]);
}
printf("\n");

for(j=pos;j<ele;j++)
{
a[j]=a[j+1];
}
ele--;

for(j=0;j<ele;j++)
{
printf("%d ",a[j]);
}
printf("\n");
}

```



```

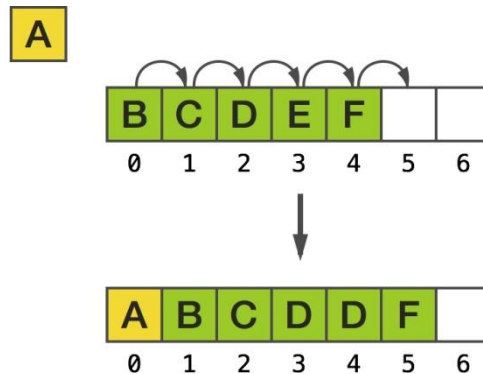
G:\c\a4\6a.exe
Enter 5 Number :
11 22 33 44 55
Enter Position to delete : 3
11 22 33 44 55
11 22 33 55

Process returned 10 (0xA)   execution time : 5.719 s
Press any key to continue.
-

```

## 7) Write a C program to insert an element at desired position in an array.

For Example if 'A' is to be stored at '0' position then,



```
#include<stdio.h>
```

```
main()
```

```
{
```

```
    int a[10],ele,i,j,k,pos,add;
```

```
    scanf("%d",&k);
```

```
    printf("Enter %d Number : \n",k);
```

```
    for(i=0;i<k;i++)
```

```
    {
```

```
        scanf("%d",&a[i]);
```

```
    }
```

```
    printf("Enter Position and Data : ");
```

```
    scanf("%d %d",&pos,&add);
```

```
    for(i=0;i<k;i++)
```

```
    {
```

```
        printf("%d ",a[i]);
```

```

    }

    printf("\n");

    j=0;

    for(j=k-1;j>=pos;j--)
    {
        a[j+1]=a[j];
    }

    a[pos]=add;

    for(i=0;i<=k;i++)
    {
        printf("%d ",a[i]);
    }

    printf("\n");
}

```

```

G:\c\a4\7.exe
5
Enter 5 Number :
11
22
33
55
66
Enter Position and Data : 3
44
11 22 33 55 66
11 22 33 44 55 66
Process returned 10 (0xA)   execution time : 13.487 s
Press any key to continue.

```



### 8) Write a C program which deletes the duplicate elements of an array.

Original: [A, C, B, D, A, B, E, D, B, C]  
Remove duplicate result: D, E, A, B, C,

java2s.com

```
#include<stdio.h>
```

```
main()
```

```
{
```

```
    int a[5],ele,i,j,k,t=0;
```

```
    ele=sizeof(a)/sizeof(a[0]);
```

```
    printf("Enter %d Elements : ",ele);
```

```
    for(i=0;i<ele;i++)
```

```
    {
```

```
        scanf("%d",&a[i]);
```

```
    }
```

```
    for(i=0;i<ele;i++)
```

```
    {
```

```
        printf("%d ",a[i]);
```

```
    }
```

```
    printf("\n");
```

```
    for(i=0;i<ele;i++)
```

```
    {
```

```
        for(j=i+1;j<ele;j++)
```

```
        {
```

```
            if(a[i] == a[j])
```

```

        {
            for(k=j;k<ele;k++)
                a[k]=a[k+1];
            j--;
            ele--;
        }
    }

    for(i=0;i<ele;i++)
    {
        printf("%d ",a[i]);
    }
    printf("\n");
}

```

```

G:\c\a4\8a.exe
Enter 5 Elements : 11 44 44 11 33
11 44 44 11 33
11 44 33
Process returned 10 (0xA)   execution time : 7.328 s
Press any key to continue.

```

**9) Write a C program to find the duplicate elements of a given array and find the count of duplicated elements.**

Ex: if `int a[] = {0,3,1,0,5,1,2,0,4,5}`

output : -

The duplicate elements are existed in an array

0 -- 3 times

1 -- 2 times

5 -- 2 times

```
#include<stdio.h>
```

```
main()
```

```
{
```

```
    int a[10],ele,i,j,k,m,n,count;
```

```
    ele=sizeof(a)/sizeof(a[0]);
```

```
    printf("Enter %d elements : \n",ele);
```

```
    for(i=0;i<ele;i++)
```

```
    {
```

```
        scanf("%d",&a[i]);
```

```
    }
```

```
    for(i=0;i<ele;i++)
```

```
    {
```

```
        printf("%d ",a[i]);
```

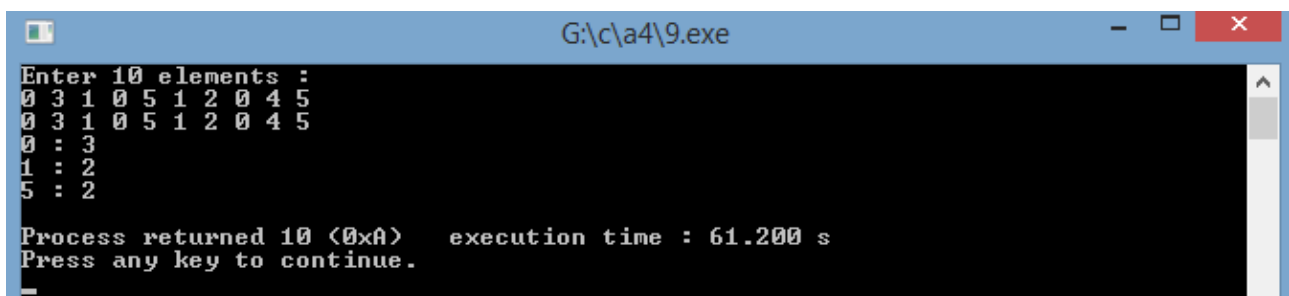
```
    }
```

```

printf("\n");

for(i=0;i<ele;i++)
{
    count=1;
    for(j=i+1;j<ele;j++)
    {
        if(a[i] == a[j])
        {
            count++;
            a[j] = -99;
        }
    }
    if(a[i] != -99)
    {
        if(count > 1)
            printf("%d : %d\n",a[i],count);
    }
}
}

```



```

G:\c\a4\9.exe
Enter 10 elements :
0 3 1 0 5 1 2 0 4 5
0 3 1 0 5 1 2 0 4 5
0 : 3
1 : 2
5 : 2
Process returned 10 (0xA)   execution time : 61.200 s
Press any key to continue.

```

**10) Write a program to print the non repeated numbers of a given array.**

Ex : if int a[] = {0,3,1,0,5,1,2,0,4,5}

Output : 3, 2, 4

```
#include<stdio.h>
```

```
main()
```

```
{
```

```
    int a[10],ele,i,j,k,m,n,count;
```

```
    ele=sizeof(a)/sizeof(a[0]);
```

```
    printf("Enter %d elements : \n",ele);
```

```
    for(i=0;i<ele;i++)
```

```
    {
```

```
        scanf("%d",&a[i]);
```

```
    }
```

```
    printf("Array Elements are : \n");
```

```
    for(i=0;i<ele;i++)
```

```
    {
```

```
        printf("%d ",a[i]);
```

```
    }
```

```
    printf("\n");
```

```

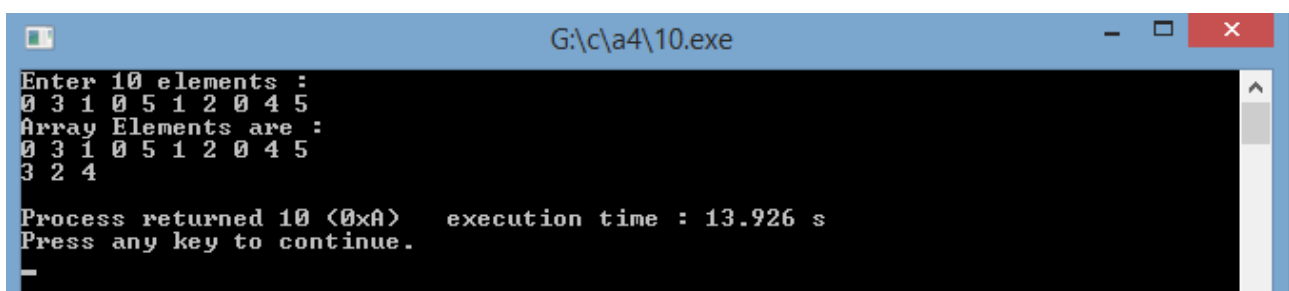
for(i=0;i<ele;i++)
{
count=1;
for(j=i+1;j<ele;j++)
{
    if(a[i] == a[j])
    {
        count++;
        a[j] = -99;
    }

}

if(a[i] != -99)
{
    if(count == 1)
        printf("%d ",a[i]);
}

printf("\n");
}

```



```

G:\c\a4\10.exe
Enter 10 elements :
0 3 1 0 5 1 2 0 4 5
Array Elements are :
0 3 1 0 5 1 2 0 4 5
3 2 4

Process returned 10 (0xA)   execution time : 13.926 s
Press any key to continue.
_

```

**11) Write a program to copy the elements of one array into another array without duplicate items as a first slot, and store duplicate elements as a second slot.**

Ex: source array { 10,2,4,5,2,1,3,4,6,5,8,9,2}

```
#include<stdio.h>
```

```
main()
```

```
{
```

```
int a[13],ele,i,j,k,m,n,count,s[10],d[10];
```

```
ele=sizeof(a)/sizeof(a[0]);
```

```
printf("Enter %d elements : \n",ele);
```

```
for(i=0;i<ele;i++)
```

```
{
```

```
scanf("%d",&a[i]);
```

```
}
```

```
for(i=0;i<ele;i++)
```

```
{
```

```
printf("%d ",a[i]);
```

```
}
```

```
printf("\n");
```

```
m = n = 0;
```

```

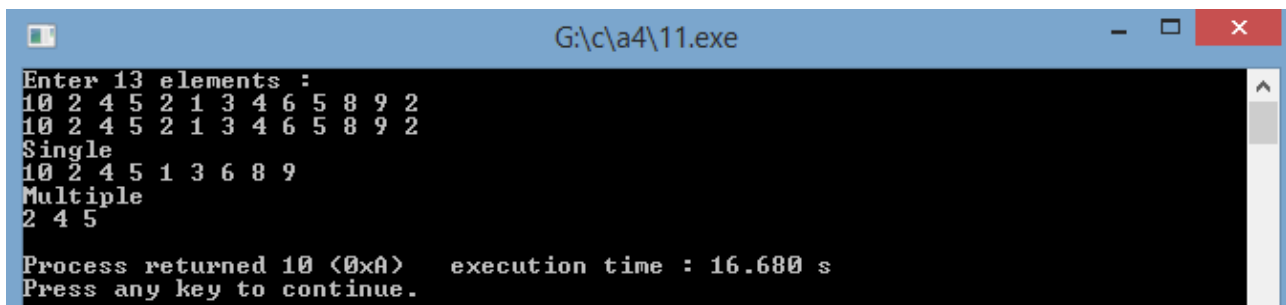
for(i=0;i<ele;i++)
{
count=1;
for(j=i+1;j<ele;j++)
{
    if(a[i] == a[j])
    {
        count++;
        a[j] = -99;
    }

}
if(a[i] != -99)
{
    if(count > 1)
    d[m++]=a[i];
    s[n++]=a[i];
    //printf("%d : %d\n",a[i],count);
}
}
printf("Single\n");
for(i=0;i<n;i++)
{
    printf("%d ",s[i]);

```



```
}  
  
printf("\n");  
  
printf("Multiple\n");  
  
for(i=0;i<m;i++)  
{  
    printf("%d ",d[i]);  
}  
  
printf("\n");  
  
}
```



```
G:\c\a4\11.exe  
Enter 13 elements :  
10 2 4 5 2 1 3 4 6 5 8 9 2  
10 2 4 5 2 1 3 4 6 5 8 9 2  
Single  
10 2 4 5 1 3 6 8 9  
Multiple  
2 4 5  
Process returned 10 (0xA)   execution time : 16.680 s  
Press any key to continue.
```

**12) Write a C program to evaluate the following series. The series contains sum of square of numbers from 1 to 'n'. Store result of each term in an array. Calculate value of 'S' using array.**

$$S = 1^2 + 2^2 + 3^2 + 4^2 + \dots + n^2$$
$$= [ 1, 4, 9, 16, \dots, n^2 ]$$

Suppose  $n = 4$ ,

then  $S = 1^2 + 2^2 + 3^2 + 4^2$ ;

$$S = 1 + 4 + 9 + 16;$$

$$S = 30.$$

```
#include<stdio.h>
```

```
main()
```

```
{
```

```
    int i,k,s=0,b[10],t;
```

```
    printf("SIZE : \n");
```

```
    scanf("%d",&k);
```

```
    t=0;
```

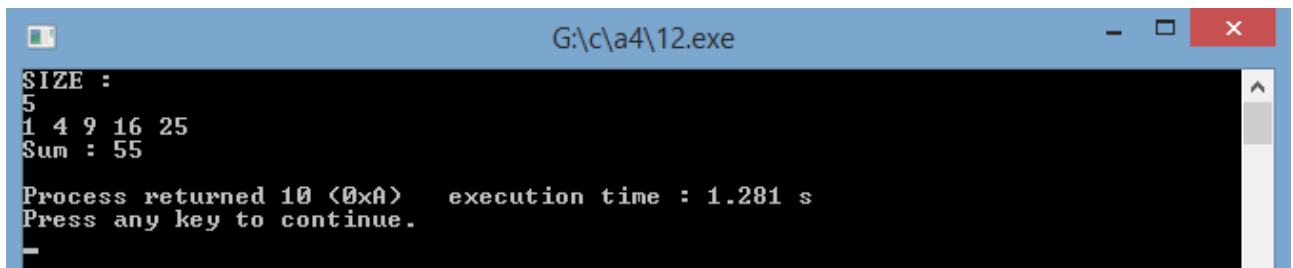
```
    for(i=1;i<=k;i++)
```

```
    {
```

```
        b[t++] = i * i;
```

```
    }
```

```
for(t=0;t<k;t++)  
{  
    printf("%d ",b[t]);  
    s = s + b[t];  
}  
printf("\nSum : %d\n",s);  
}
```



```
G:\c\12.exe  
SIZE :  
5  
1 4 9 16 25  
Sum : 55  
Process returned 10 (0xA)   execution time : 1.281 s  
Press any key to continue.  
-
```