

12. Write a c program to initialize an array and print elements.

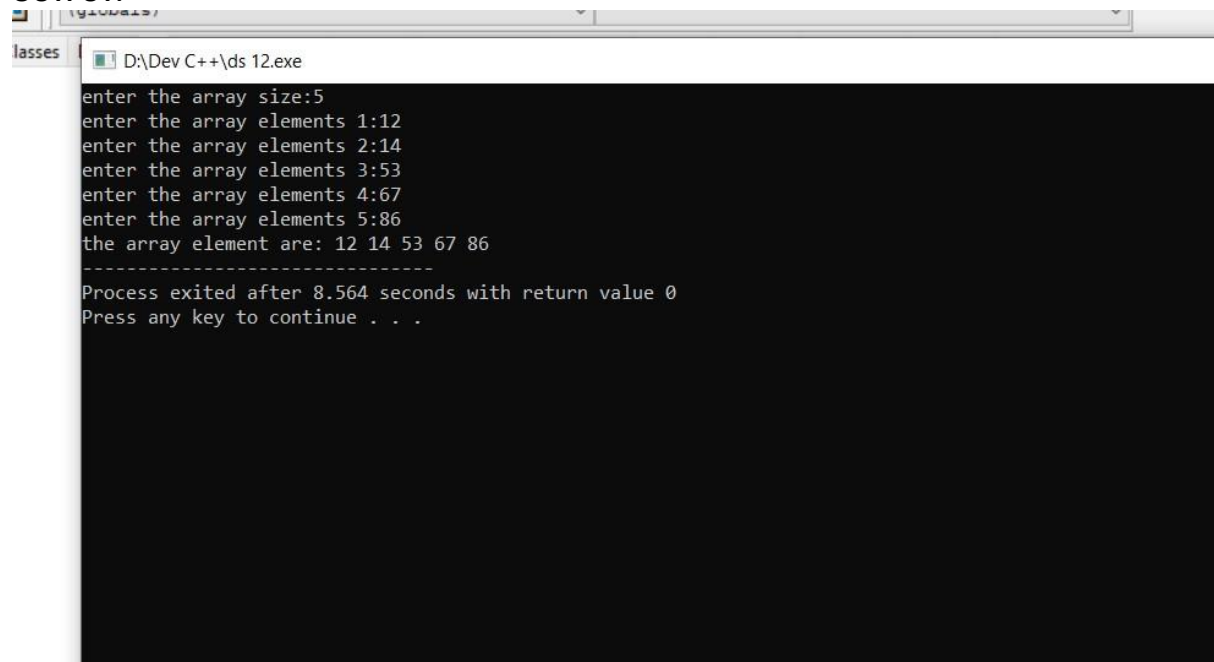
PROGRAM :

```
#include<stdio.h>

int main()
{
    int a[100],n,i;
    printf("enter the array size:");
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        printf("enter the array elements %d:",i+1);
        scanf("%d",&a[i]); }
    printf("the array element are:");
    for(i=0;i<n;i++)
    {

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

OUTPUT:

A screenshot of a Windows command prompt window titled "D:\Dev C++\ds 12.exe". The window shows the execution of a C program. The user enters '5' for the array size. Then, for each of the 5 elements, the user enters a value: 12, 14, 53, 67, and 86. The program then prints out the array elements: "the array element are: 12 14 53 67 86". Below this, it shows "Process exited after 8.564 seconds with return value 0" and "Press any key to continue . . .".

```
D:\Dev C++\ds 12.exe
enter the array size:5
enter the array elements 1:12
enter the array elements 2:14
enter the array elements 3:53
enter the array elements 4:67
enter the array elements 5:86
the array element are: 12 14 53 67 86
-----
Process exited after 8.564 seconds with return value 0
Press any key to continue . . .
```

13. Write a c program for sum of elements in array.

PROGRAM:

```
#include<stdio.h>

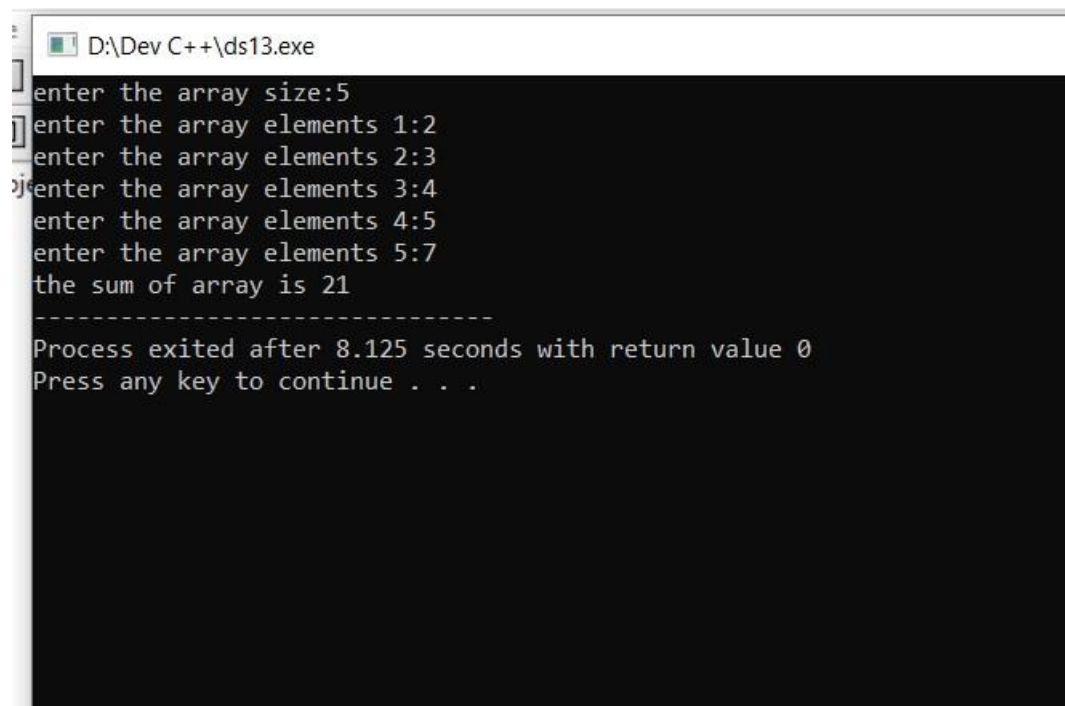
int main()
{ int a[100],n,i,sum=0;
  Printf("enter the size of array:");
  scanf("%d",&n);

  for(i=0;i<n;i++)
  {
      printf("enter the array elements %d:",i+1);
      scanf("%d",&a[i]); }

  for(i=0;i<n;i++)
  {
      sum=sum+a[i];
  }

  printf("the sum of array is %d",sum);
}
```

OUTPUT :



```
D:\Dev C++\ds13.exe
enter the array size:5
enter the array elements 1:2
enter the array elements 2:3
enter the array elements 3:4
enter the array elements 4:5
enter the array elements 5:7
the sum of array is 21
-----
Process exited after 8.125 seconds with return value 0
Press any key to continue . . .
```

14. Write a C program for print sum of elements and sum of odd numbers in array.

PROGRAM:

```
#include<stdio.h>

int main()
{
    int a[100],n,i,evensum=0,oddsum=0;
    printf("enter the array size:");
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        printf("enter the array elements %d:",i+1);
        scanf("%d",&a[i]); }
    for(i=0;i<n;i++)
    {
        if(i%2==0)
        {
            evensum=evensum+a[i]; }
        else
        {
            oddsum = oddsum+a[i];
        }
    }

    printf("the even sum of array is %d",evensum);
    printf("\nthe odd sum of array is %d",oddsum);
}
```

OUTPUT :

g ds 1 experiment.c ds 2.cpp ds 3 exper.cpp ds 4.cpp ds5.cpp ds 6.cpp [*] ds 7.cpp ds 8.cpp ds 9 reve

D:\Dev C++\Untitled10.exe

```
enter the array size:4
enter the array elements 1:2
enter the array elements 2:3
enter the array elements 3:4
enter the array elements 4:5
the even sum of array is 6
the odd sum of array is 8
-----
Process exited after 5.009 seconds with return value 0
Press any key to continue . . .
```

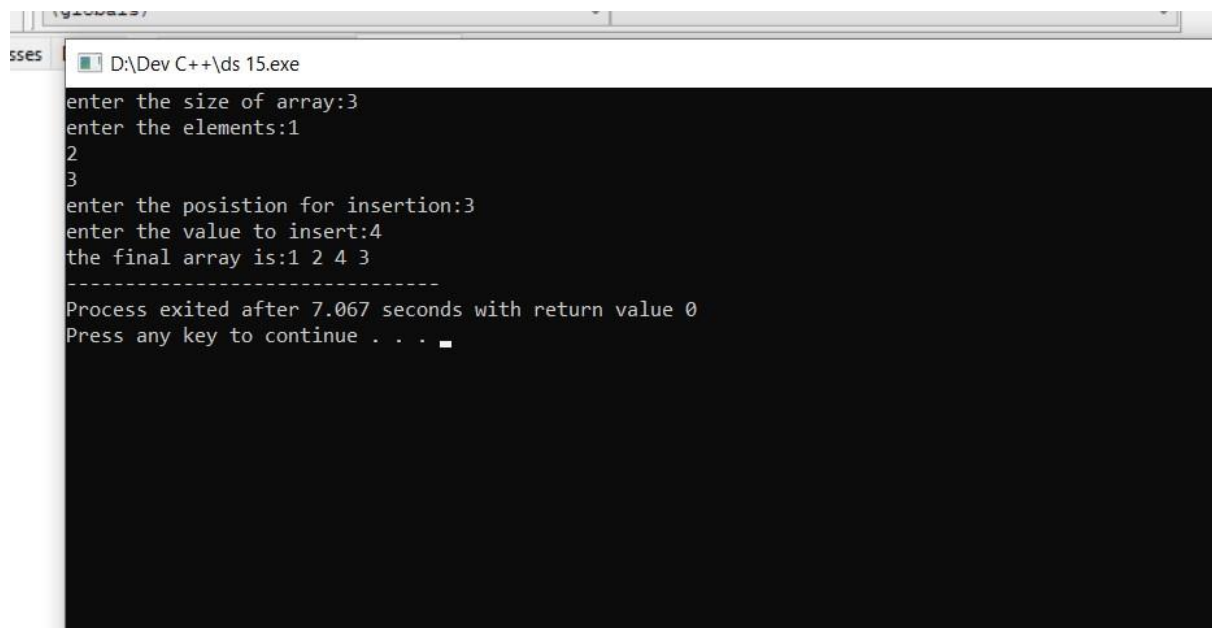
15.1. Write a c program for insertion a element in array.

PROGRAM:

```
#include<stdio.h>

int main()
{
    int i,j,n,a[100],p,v;
    printf("enter the size of array:");
    scanf("%d",&n);
    printf("enter the elements:");
    for(i=0;i<n;i++)
    {
        scanf("%d",&a[i]);
    }
    printf("enter the posistion for insertion:");
    scanf("%d",&p);
    printf("enter the value to insert:");
    scanf("%d",&v);
    for(i=n-1;i>=p-1;i--)
    {
        a[i+1]=a[i];
        a[p-1]=v;
    }
    printf("the final array is:");
    for(i=0;i<n+1;i++)
    {
        printf("%d ",a[i]);
    }
}
```

OUTPUT:



```
D:\Dev C++\ds 15.exe
enter the size of array:3
enter the elements:1
2
3
enter the position for insertion:3
enter the value to insert:4
the final array is:1 2 4 3
-----
Process exited after 7.067 seconds with return value 0
Press any key to continue . . .
```

15.2 write a c program for deletion in array.

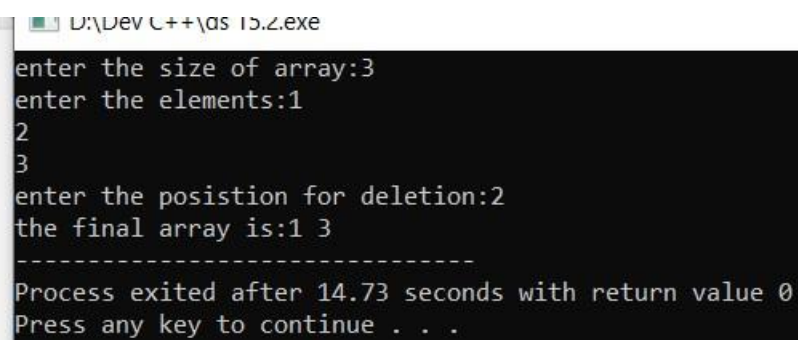
PROGRAM :

```
#include<stdio.h>

int main()
{
    int i,j,n,a[100],p,v;
    printf("enter the size of array:");
    scanf("%d",&n);
    printf("enter the elements:");
    for(i=0;i<n;i++)
    {
        scanf("%d",&a[i]);
    }
    printf("enter the position for deletion:");
    scanf("%d",&p);
    for(i=p-1;i<n-1;i++)
    {
        a[i]=a[i+1];
    }
}
```

```
    }  
    printf("the final array is:");  
    for(i=0;i<n-1;i++)  
    {  
        printf("%d ",a[i]);  
    }  
}
```

OUTPUT :



```
D:\Dev C++\qs 15.2.exe  
enter the size of array:3  
enter the elements:1  
2  
3  
enter the posistion for deletion:2  
the final array is:1 3  
-----  
Process exited after 14.73 seconds with return value 0  
Press any key to continue . . .
```

16. Write a c program for merging array.

PROGRAM :

```
#include<stdio.h>

int main()
{
    int a[100],b[100],n1,n2,i,n3;

    printf("enter the first array size:");
    scanf("%d",&n1);

    for(i=0;i<n1;i++)
    {
        printf("enter the firstarray elements %d:",i+1);
        scanf("%d",&a[i]); }

    printf("enter the second array size:");
    scanf("%d",&n2);

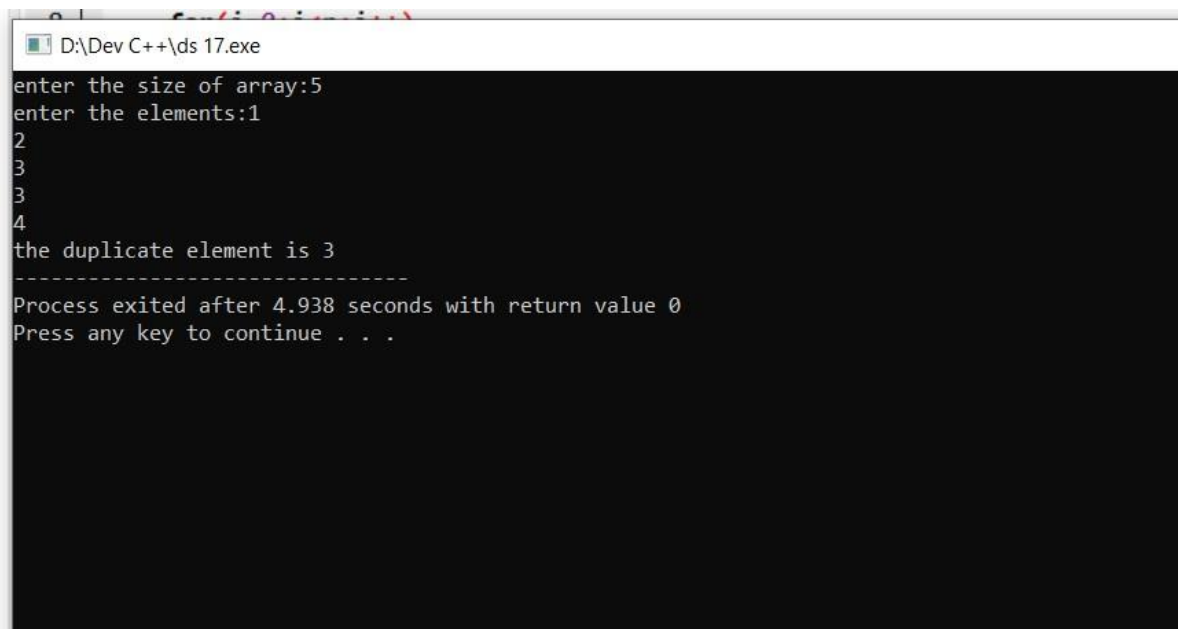
    for(i=0;i<n2;i++)
    {
        printf("enter the secondarray elements %d:",i+1);
        scanf("%d",&b[i]);
    }

    n3=n1+n2;
    int c[n3];
    for(i=0;i<n1;i++)
    {
        c[i] = a[i];
    }
    for(i=0;i<n2;i++)
    {
        c[i+n1] = b[i];
```



```
}  
for(i=0;i<n3;i++)  
{  
printf("%d ",c[i]);  
}  
}
```

OUTPUT :



```
D:\Dev C++\ds 17.exe  
enter the size of array:5  
enter the elements:1  
2  
3  
3  
4  
the duplicate element is 3  
-----  
Process exited after 4.938 seconds with return value 0  
Press any key to continue . . .
```

17. Write a c program for find duplicate element in array.

PROGRAM:

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

```
int main()
```

```
{
```

```
    int a[100],b[100],n,i,j,k,x=0;
```

```
    printf("enter the size of array:");
```

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

```
    printf("enter the elements:");
```

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

```
    {
```

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

```
    }
```

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

```
    {
```

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

```
        {
```

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

```
            {
```

```
                x=a[i];
```

```
            }
```

```
        }
```

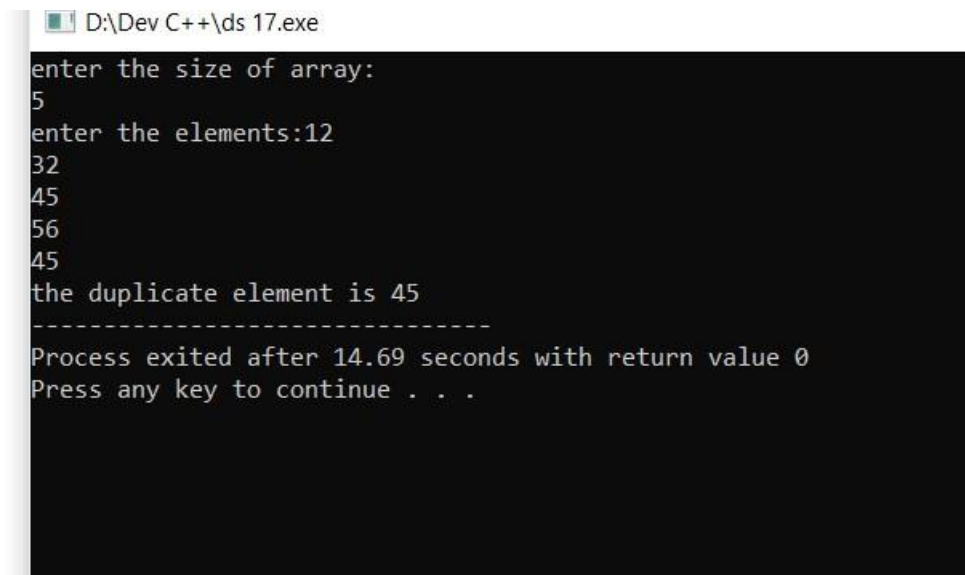
```
    }
```

```
    if(x!=0)
```

```
{
```

```
printf("the duplicate element is %d",x); }  
else  
{  
    printf("there is no duplicate");  
}  
return 0;  
}
```

OUTPUT :



```
D:\Dev C++\ds 17.exe  
enter the size of array:  
5  
enter the elements:12  
32  
45  
56  
45  
the duplicate element is 45  
-----  
Process exited after 14.69 seconds with return value 0  
Press any key to continue . . .
```

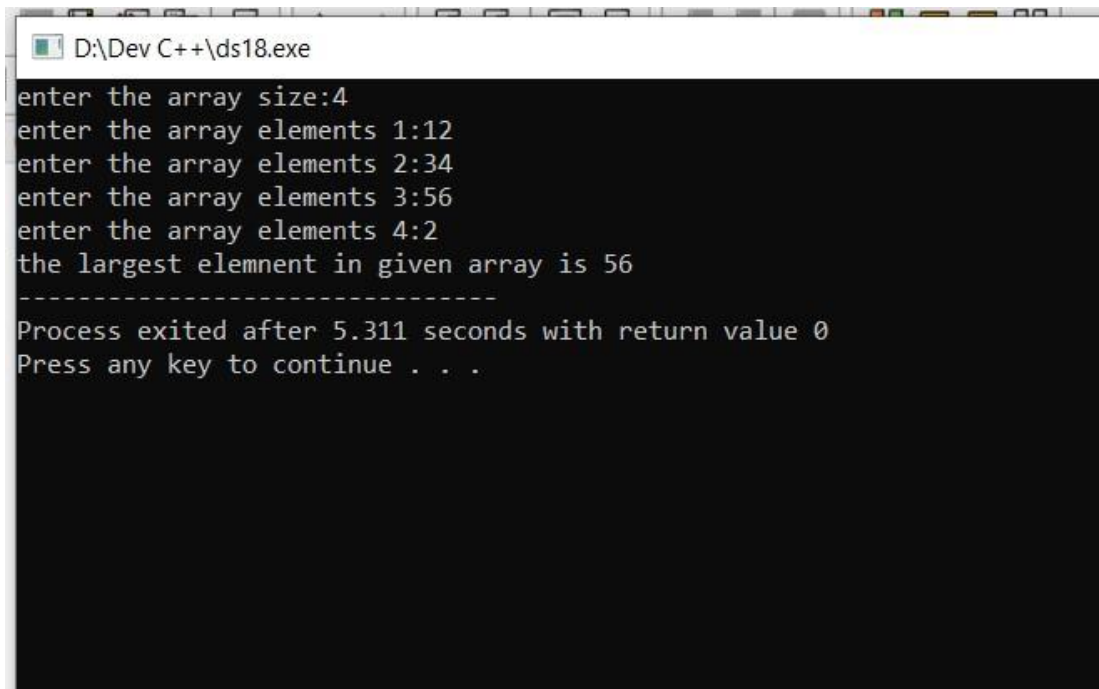
18. Write a c program for finding largest element in array.

PROGRAM :

```
#include<stdio.h>

int main()
{
    int a[100],n,i,large=0;
    printf("enter the array size:");
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        printf("enter the array elements %d:",i+1);
        scanf("%d",&a[i]); }
    for(i=0;i<n;i++)
    {
        if(a[i]>large)
        {
            large=a[i];
        }
    }
    printf("the largest elemnent in given array is %d",large);
}
```

OUTPUT :



```
D:\Dev C++\ds18.exe
enter the array size:4
enter the array elements 1:12
enter the array elements 2:34
enter the array elements 3:56
enter the array elements 4:2
the largest element in given array is 56
-----
Process exited after 5.311 seconds with return value 0
Press any key to continue . . .
```

19. Write a C program for searching an element using linear search.

PROGRAM :

```
#include<stdio.h>

int main()
{
    int a[100],n,i,x,e;
    printf("enter the array size:");
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        printf("enter the array elements %d:",i+1);
        scanf("%d",&a[i]);
    }
    printf("enter the element to search:");
    scanf("%d",&x);
```

```

for(i=0;i<=n;i++)
{
    if(x==a[i])
    {
        printf("the %d is located at %d index",x,n-1);
        e=0;
        break;
    }
    else
    {e=1;}
}
if(e==1)
{printf("the %d value not present",x);
}
}

```

OUTPUT :

```

print hello world.cpp 19.cpp ds 12.cpp ds 21.cpp
2 int main()
3 {
4     int n;
5     printf("enter the array size:\n");
6     scanf("%d",&n);
7     int a[n];
8     printf("enter the array elements\n");
9     for(i=0;i<n;i++)
10    {
11        scanf("%d",&a[i]);
12    }
13    int x;
14    printf("enter the element to search:\n");
15    scanf("%d",&x);
16    int e=1;
17    for(i=0;i<=n;i++)
18    {
19        if(x==a[i])
20        {
21            printf("the %d is located at %d index",x,n-1);
22            e=0;
23            break;
24        }
25        else
26        {e=1;}
27    }
28    if(e==1)
29    {printf("the %d value not present",x);
30    }
31 }
32
D:\Dev C++\19.exe
enter the array size:3
enter the array elements 1:1
enter the array elements 2:2
enter the array elements 3:3
enter the element to search:3
the 3 is located at 2 index
-----
Process exited after 4.628 seconds with return value 0
Press any key to continue . . .

```

20. Write a c program for searching an element using binary search.

PROGRAM :

```
#include<stdio.h>

int main()
{
    int a[100],low,high,mid,n,i,k;
    printf("enter the size of array:");
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        printf("enter the array element %d :",i+1);
        scanf("%d",&a[i]);
    }
    printf("enter the elemnt to search:");
    scanf("%d",&k);
    low=0;
    high=n-1;
    mid=(low+high)/2;
    for(i=0;i<a[i];i++)
    {
        if(a[mid]==k)
        {
            printf("the position of %d is at %d ",k,mid);
            break;
        }
        else if(a[mid]<k)
        {

```

```

        low=mid+1; }

    else
    {
        high = mid-1; }

    mid=(low+high)/2;
}

if(low>high)

{

    printf("the element is not present in given array");

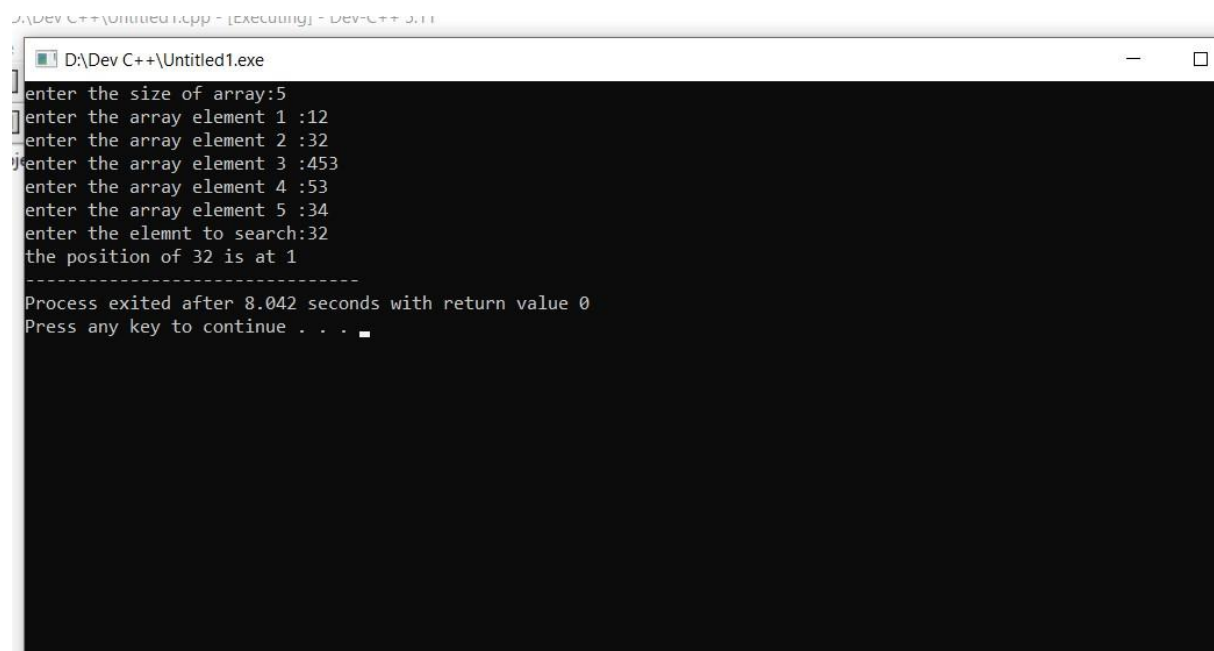
}

return 0;

}

```

OUTPUT :



```

D:\Dev C++\Untitled1.exe
enter the size of array:5
enter the array element 1 :12
enter the array element 2 :32
enter the array element 3 :45
enter the array element 4 :53
enter the array element 5 :34
enter the elemnt to search:32
the position of 32 is at 1
-----
Process exited after 8.042 seconds with return value 0
Press any key to continue . . .

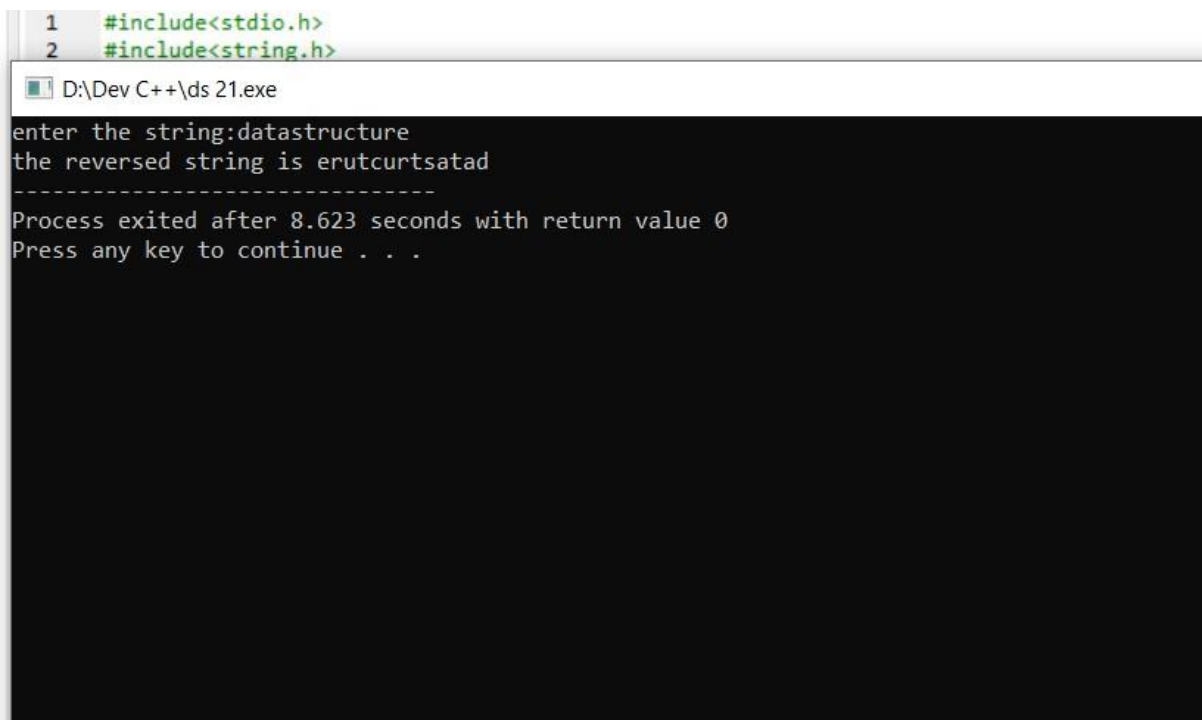
```


21. Write c program for reverse a string.

PROGRAM :

```
#include<stdio.h>
#include<string.h>
int main()
{
    int i;
    char a[100],b[10];
    printf("enter the string:");
    gets(a);
    printf("the reversed string is %s",strrev(a));
}
```

OUTPUT :



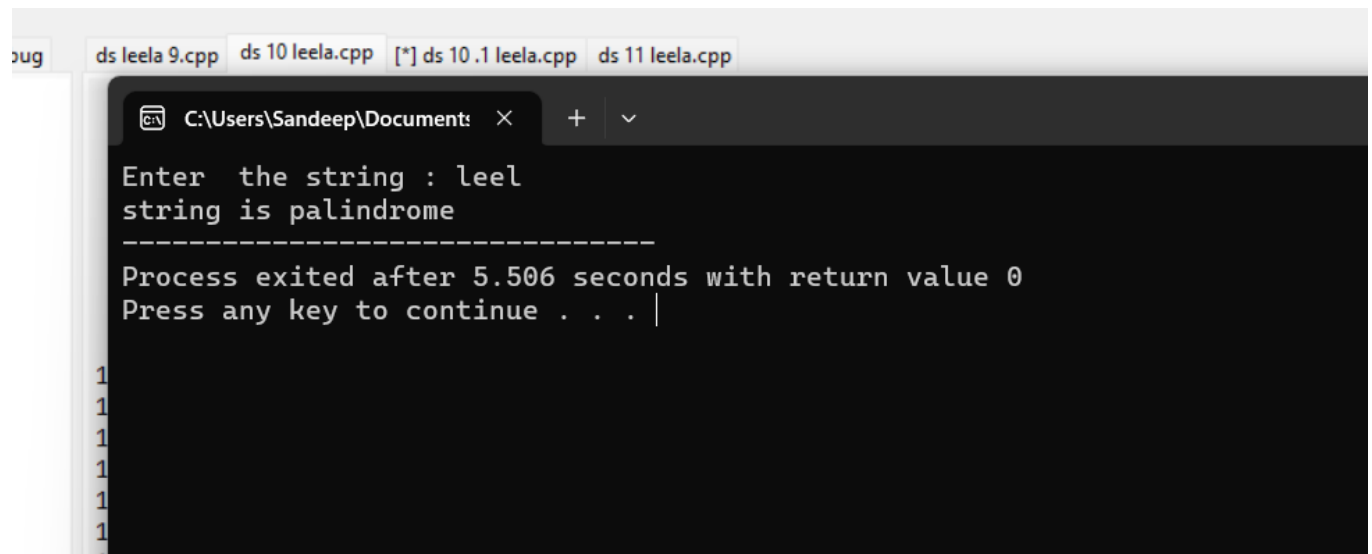
The screenshot shows a code editor with two lines of C code: `#include<stdio.h>` and `#include<string.h>`. Below the editor is a terminal window titled `D:\Dev C++\ds 21.exe`. The terminal displays the program's execution: it prompts "enter the string:" and receives the input "datastructure". It then outputs "the reversed string is erutcurtsatad". A separator line of dashes follows, and the terminal shows "Process exited after 8.623 seconds with return value 0" and "Press any key to continue . . .".

22. write a c program for check whether the string is palindrome or not.

PROGRAM:

```
#include<stdio.h>
#include<string.h>
int main()
{
    int i,c=0;
    char a[100],b[100],n;
    printf("enter the string :");
    scanf("%s",&a);
    n=strlen(a);
    for(i=0;i<n/2;i++)
    {
        if(a[i]==a[n-i-1])
        { c++;
        }
    }
    if(c==i)
    {
        printf("string is palindrome");
    }
    else
    {
        printf("string is not palindrome");
    }
}
```

OUTPUT :



```
ds leela 9.cpp ds 10 leela.cpp [*] ds 10.1 leela.cpp ds 11 leela.cpp
C:\Users\Sandeep\Documents
Enter the string : leel
string is palindrome
-----
Process exited after 5.506 seconds with return value 0
Press any key to continue . . . |
```

22. Write a c program to count the vowels in a string.

PROGRAM:

```
#include<stdio.h>
#include<string.h>
int main()
{
    int i,n,count=0;
    char a[100];
    printf("enter the string :");
    scanf("%s",&a);
    n=strlen(a);
    for(i=1;a[i]!='\0';i++)
    {
        if(a[i]=='a' || a[i]=='e' || a[i]=='i' || a[i]=='o' || a[i]=='u' || a[i]=='A' ||
a[i]=='E' || a[i]=='I' || a[i]=='O' || a[i]=='U')
        {
            count = count +1;
        }
    }
```

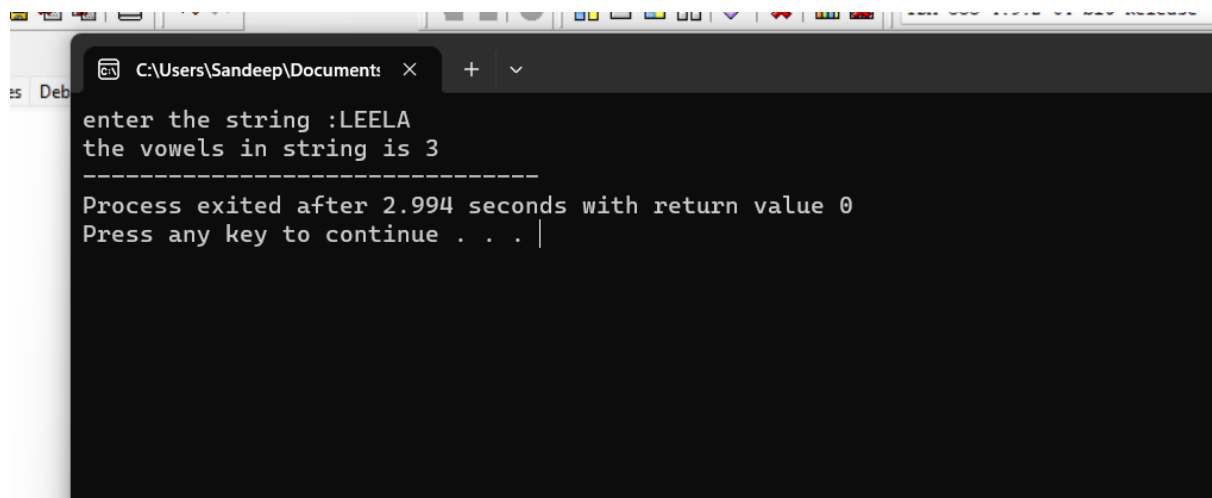
```

    }

    printf("the vowels in string is %d",count);
}

```

OUTPUT :



```

C:\Users\Sandeep\Documents
enter the string :LEELA
the vowels in string is 3
-----
Process exited after 2.994 seconds with return value 0
Press any key to continue . . . |

```

24. Write a c program for multiply two matrices.

PROGRAM:

```

#include<stdio.h>

int main()
{
    int a[10][10],b[10][10],m[10][10],i,j,k,r,c;
    printf("enter the size of rows:");
    scanf("%d",&r);
    printf("enter the size of coloumn:");
    scanf("%d",&c);
    printf("enter the first matrix elements:");

```

```

for(i=0;i<r;i++)
{
    for(j=0;j<c;j++)
    {
        scanf("%d",&a[i][j]);
    }
}
printf("enter the second matrix elements:");
for(i=0;i<r;i++)
{
    for(j=0;j<c;j++)
    {
        scanf("%d",&b[i][j]);
    }
}

for(i=0;i<r;i++)
{
    for(j=0;j<c;j++)
    {
        m[i][j]=0;

        for(k=0;k<c;k++)
        {
            m[i][j] += a[i][k]*b[k][j];

        }
    }
}

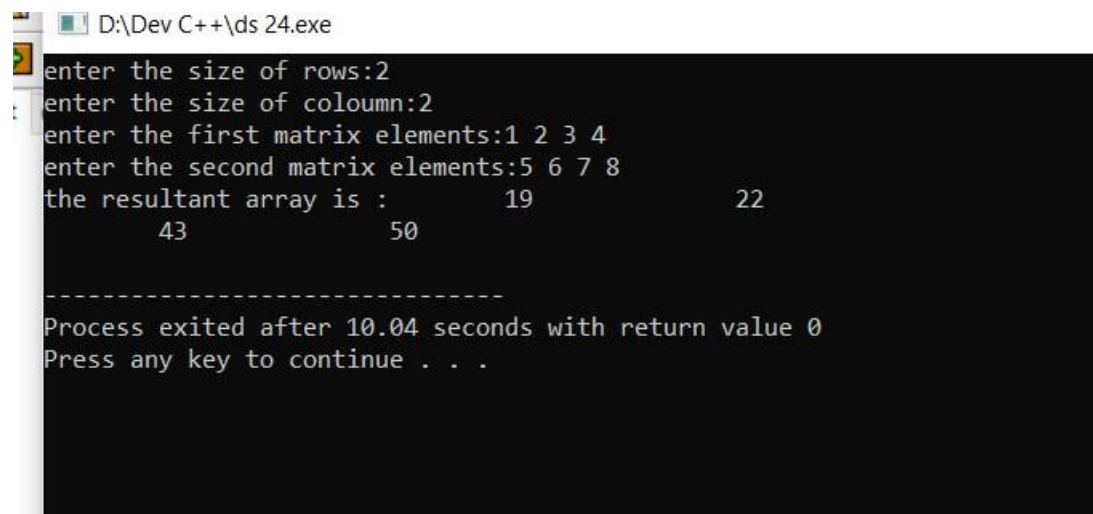
printf("the resultant array is :");
for(i=0;i<r;i++)
{

```

```
        for(j=0;j<c;j++)
        {
            printf("\t%d\t",m[i][j]);

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

OUTPUT :



```
D:\Dev C++\ds 24.exe
enter the size of rows:2
enter the size of coloumn:2
enter the first matrix elements:1 2 3 4
enter the second matrix elements:5 6 7 8
the resultant array is :      19      22
                        43      50

-----
Process exited after 10.04 seconds with return value 0
Press any key to continue . . .
```