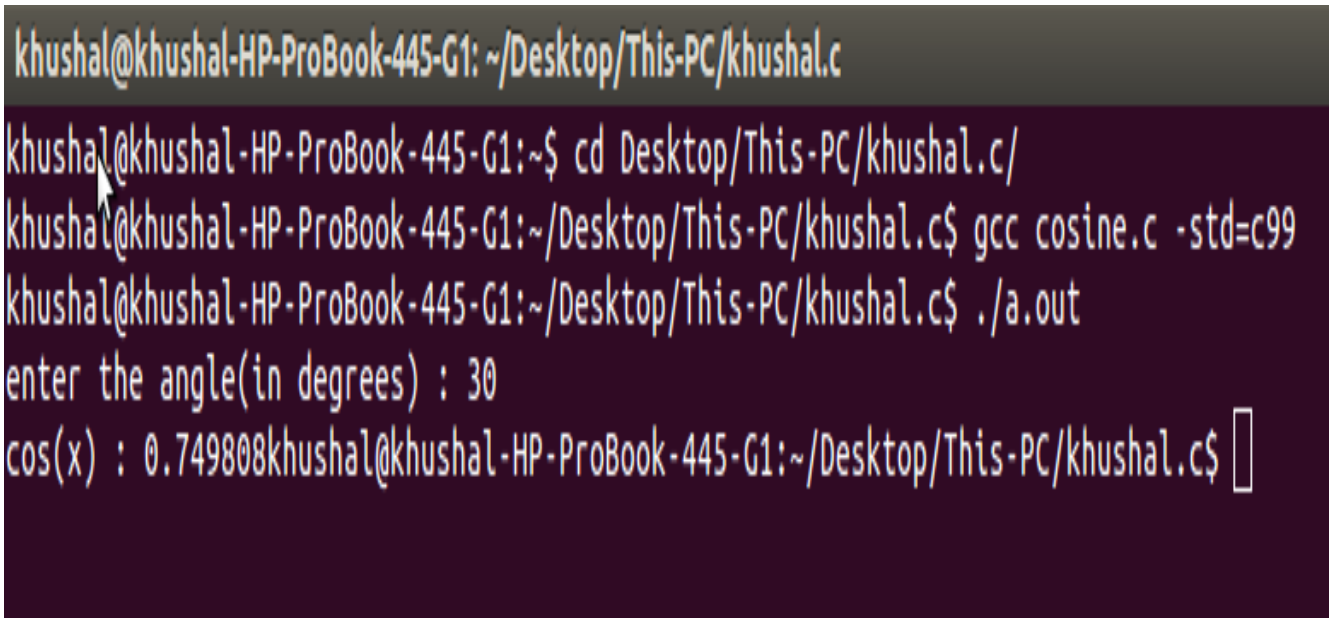
VALUE OF COSINE (X)

```
#include<stdio.h>
void main()
{
float x,a,b;
printf("enter the angle(in degrees) : ");
scanf("%f",&x);
x=x*3.14/180;
a=a+1;
b=1;
for(int i=1;i<=30;i++)
{
      a*=((2*i-1)^(-1))*x*x/(2*i*(2*i-1));
      b+=a;
}
printf("cos(x) : %f",b);
}
```

OUTPUT ::



SELECTION SORT

```
#include<stdio.h>
void main()
{
      int A[10],m,i,a,j,k,temp;
      printf("Enter the number of elements you want to put in an
array :: ");
      scanf("%d",&m);
      printf("Enter the elements of the array :: ");
      for(i=0;i<m;i++)
            scanf("%d",&A[i]);
      for(k=0;k<m;k++)
      for(i=0;i<m;i++)
      {
            a=A[i];
            j=i-1;
            if((A[j]>a)&&(j>=0))
                  temp=j;
            else
                  temp=i;
            A[i]=A[temp];
            A[temp]=a;
      }
      printf("\n The sorted array is :: ");
      for(i=0;i<m;i++)
      {     printf("\n %d",A[i]);
      }
}
```

OUTPUT ::

```
khushal@khushal-HP-ProBook-445-G1: ~/Desktop/This-PC/khushal.c
khushal@khushal-HP-ProBook-445-G1:~$ cd Desktop/This-PC/khushal.c/
khushal@khushal-HP-ProBook-445-G1:~/Desktop/This-PC/khushal.c$ gcc jadoo.c
khushal@khushal-HP-ProBook-445-G1:~/Desktop/This-PC/khushal.c$ ./a.out
Enter the number of elements you want to put in an array :: 7
Enter the elements of the array :: 29
47
16
34
7
31
23

 The sorted array is ::
 7
 16
 23
 29
 31
 34
 47khushal@khushal-HP-ProBook-445-G1:~/Desktop/This-PC/khushal.c$
```

INSERTION SORT

```
#include<stdio.h>
void main()
{
      int A[10],m,i,j,key;
      printf("Enter the number of elements you want to put in an
array :: ");
      scanf("%d",&m);
      printf("Enter the elements of the array :: ");
      for(i=0;i<m;i++)
            scanf("%d",&A[i]);
      for(i=1;i<m;i++)
      {
            key=A[i];
            j=i-1;
            while((j>=0)&&(key<A[j]))
            {
                  A[j+1]=A[j];
                  j--;
            }
            A[j+1]=key;
      }
      printf("\n The sorted array is :: ");
      for(i=0;i<m;i++)
      {     printf("\n %d",A[i]);
      }
}
```

OUTPUT ::

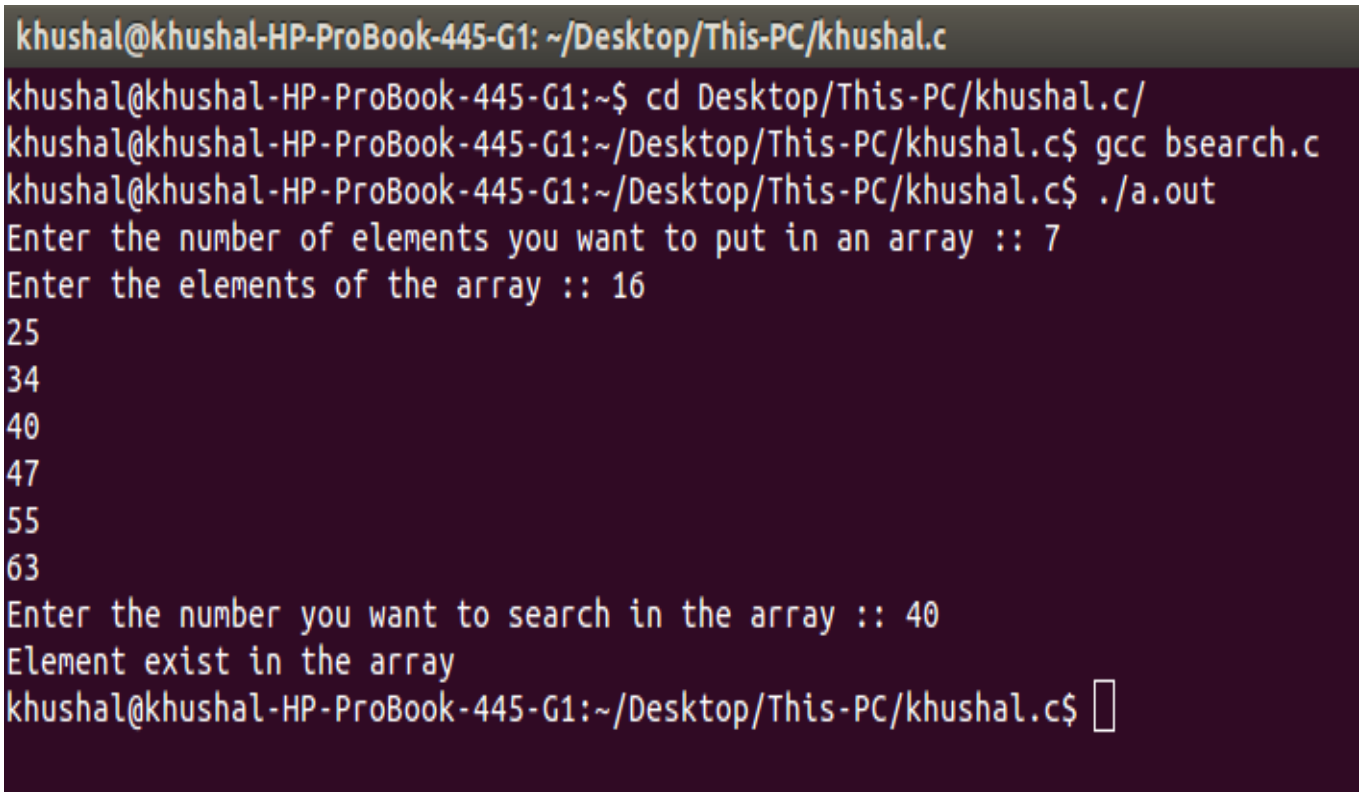
```
khushal@khushal-HP-ProBook-445-G1: ~/Desktop/This-PC/khushal.c
khushal@khushal-HP-ProBook-445-G1:~$ cd Desktop/This-PC/khushal.c/
khushal@khushal-HP-ProBook-445-G1:~/Desktop/This-PC/khushal.c$ gcc insertionsort.c
khushal@khushal-HP-ProBook-445-G1:~/Desktop/This-PC/khushal.c$ ./a.out
Enter the number of elements you want to put in an array :: 7
Enter the elements of the array :: 29
47
16
34
7
31
23

 The sorted array is ::
 7
 16
 23
 29
 31
 34
 47khushal@khushal-HP-ProBook-445-G1:~/Desktop/This-PC/khushal.c$
```

BINARY SEARCH

```
#include<stdio.h>
void main()
{
      int A[100],m,i,a,f=0,top,bot,mid;
      printf("Enter the number of elements you want to put in an
array :: ");
      scanf("%d",&m);
      printf("Enter the elements of the array :: ");
      for(i=0;i<m;i++)
            scanf("%d",&A[i]);
      printf("Enter the number you want to search in the array ::
");
      scanf("%d",&a);
      top=0;
      bot=m-1;
      for(i=0;i<m;i++)
      {
            mid=(top+bot)/2;
            if(a==A[top])
            {
                  f=1;
                  break;
            }
            else if(a==A[bot])
            {
                  f=1;
                  break;
            }
            else if(a==A[mid])
            {
                  f=1;
                  break;
            }
            else if(a>A[mid])
                  top=mid+1;
            else
                  bot=mid-1;
      }
      if(f==1)
            printf("Element exist in the array\n");
      else
            printf("Element does not exist in the array \n");
}
```

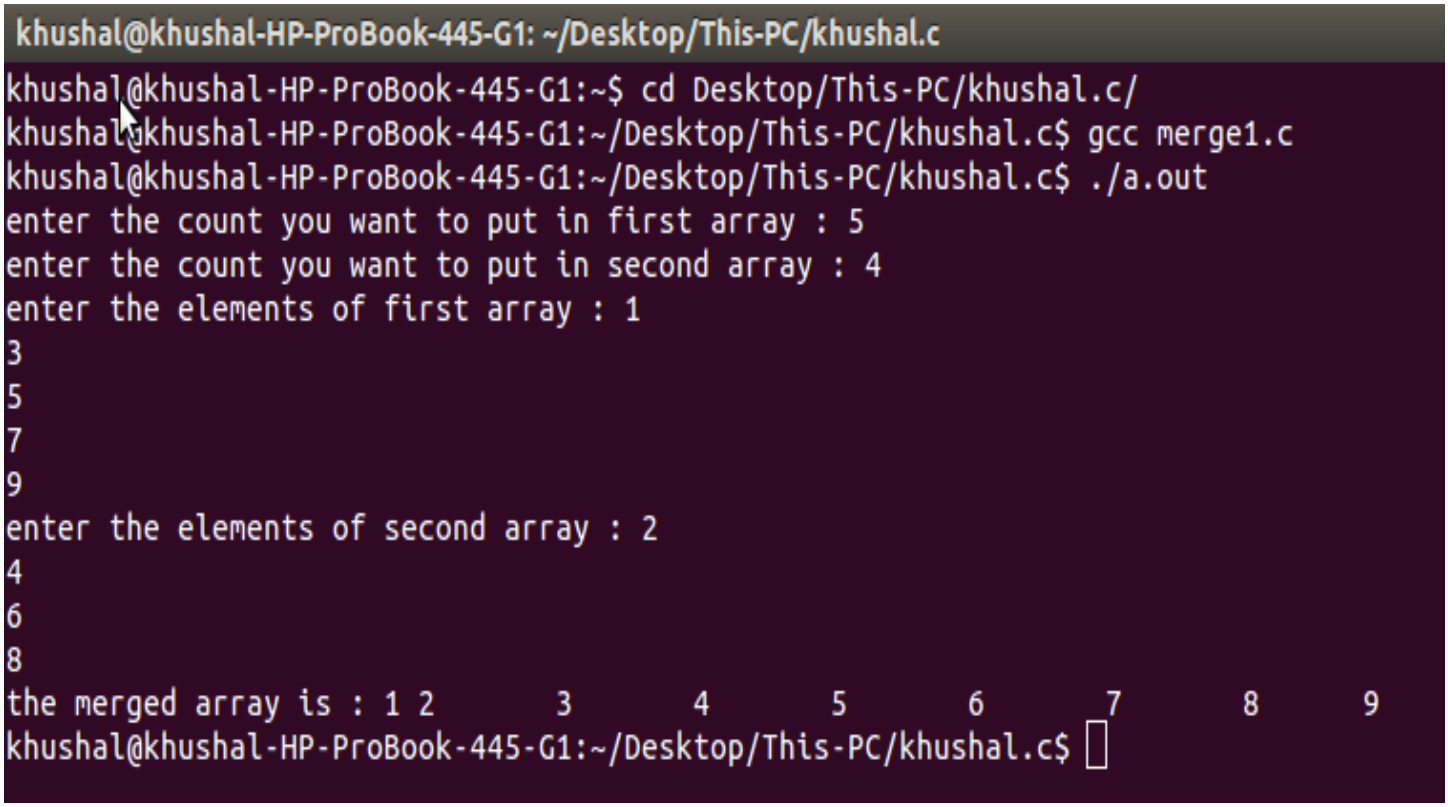
OUTPUT ::


khushal@khushal-HP-ProBook-445-G1: ~/Desktop/This-PC/khushal.c
khushal@khushal-HP-ProBook-445-G1:~$ cd Desktop/This-PC/khushal.c/
khushal@khushal-HP-ProBook-445-G1:~/Desktop/This-PC/khushal.c$ gcc bsearch.c
khushal@khushal-HP-ProBook-445-G1:~/Desktop/This-PC/khushal.c$ ./a.out
Enter the number of elements you want to put in an array :: 7
Enter the elements of the array :: 16
25
34
40
47
55
63
Enter the number you want to search in the array :: 40
Element exist in the array
khushal@khushal-HP-ProBook-445-G1:~/Desktop/This-PC/khushal.c$

MERGING OF ARRAY

```
#include<stdio.h>
void main()
{
int A[100],B[100],C[100],m,n,i,log=0,dot=0,com=0;
printf("enter the count you want to put in first array : ");
scanf("%d",&m);
printf("enter the count you want to put in second array : ");
scanf("%d",&n);
printf("enter the elements of first array : ");
for(i=0;i<m;i++)
      scanf("%d",&A[i]);
printf("enter the elements of second array : ");
for(i=0;i<n;i++)
      scanf("%d",&B[i]);
while((log<m)&&(dot<n))
{
      if(A[log]<B[dot])
      {
            C[com]=A[log];
            log++;
            com++;
      }
      else
      {
            C[com]=B[dot];
            dot++;
            com++;
      }
}
while(log<m)
{
      C[com]=A[log];
      log++;
      com++;
}
while(dot<n)
{
      C[com]=A[dot];
      dot++;
      com++;
}
printf("the merged array is : ");
for(i=0;i<(m+n);i++)
      printf("%d\t",C[i]);
}
```

OUTPUT ::


khushal@khushal-HP-ProBook-445-G1: ~/Desktop/This-PC/khushal.c
khushal@khushal-HP-ProBook-445-G1:~$ cd Desktop/This-PC/khushal.c/
khushal@khushal-HP-ProBook-445-G1:~/Desktop/This-PC/khushal.c$ gcc merge1.c
khushal@khushal-HP-ProBook-445-G1:~/Desktop/This-PC/khushal.c$ ./a.out
enter the count you want to put in first array : 5
enter the count you want to put in second array : 4
enter the elements of first array : 1
3
5
7
9
enter the elements of second array : 2
4
6
8
the merged array is : 1 2 3 4 5 6 7 8 9
khushal@khushal-HP-ProBook-445-G1:~/Desktop/This-PC/khushal.c$

STRUCTURES

```
#include<stdio.h>
#include<string.h>
struct student
{
int rollno;
int marks[100];
}s;
void main()
{
      int total=0,i,n;
      printf("Enter the ROll No. of the student :");
      scanf("%d",&s.rollno);
      printf("Enter the total number of subjects :");
      scanf("%d",&n);
      for(i=1;i<=n;i++)
      {
            printf("enter marks of subject %d ::",i);
            scanf("%d",&s.marks[i]);
      }
      printf(" \n Roll No : %d",s.rollno);
      for(i=1;i<=n;i++)
            total+=s.marks[i];
      printf("\n Total Marks : %d \n",total);
}
```

OUTPUT ::