```c
/*Implement merge sort to sort the elements of any user entered array in ascending order*/

#include<stdio.h>

void mergesort(int a[],int i,int j);
void merge(int a[],int i1,int j1,int i2,int j2);

int main()
{
 int a[30],n,i;
 printf("Enter no of elements:");
 scanf("%d",&n);
 printf("Enter array elements:");

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

 mergesort(a,0,n-1);

 printf("\nSorted array is :");
 for(i=0;i<n;i++)
  printf("%d ",a[i]);

 return 0;
}

void mergesort(int a[],int i,int j)
{
 int mid;

 if(i<j)
 {
  mid=(i+j)/2;
  mergesort(a,i,mid);
  mergesort(a,mid+1,j);
  merge(a,i,mid,mid+1,j);
 }
}

void merge(int a[],int i1,int j1,int i2,int j2)
{
 int temp[50];
 int i,j,k;
 i=i1;
 j=i2;
 k=0;

 while(i<=j1 && j<=j2)
 {
  if(a[i]<a[j])
   temp[k++]=a[i++];
  else
```

```
   temp[k++]=a[j++];
 }

 while(i<=j1)
  temp[k++]=a[i++];

 while(j<=j2)
  temp[k++]=a[j++];


 for(i=i1,j=0;i<=j2;i++,j++)
  a[i]=temp[j];
}
```

ANIRUDH PANDA
ROLL - 16(D2)