

MERGE SORT

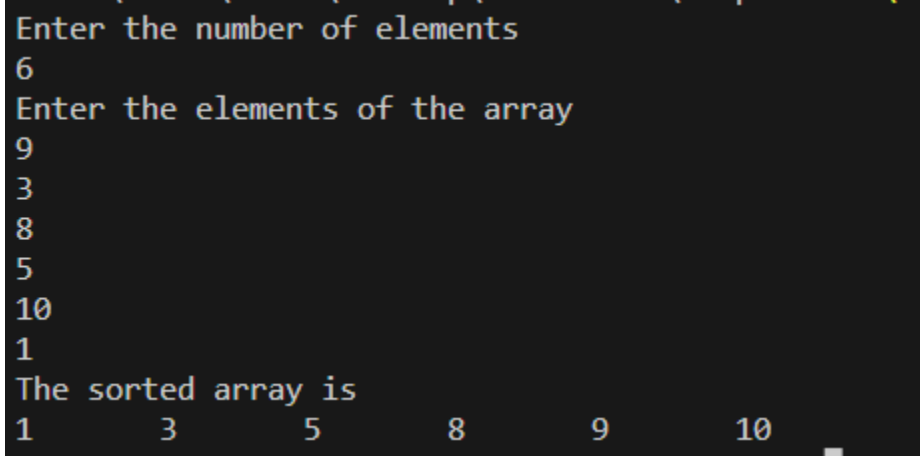
```
#include<stdio.h>
#include<conio.h>
int a[10],low,mid,high;
void merge(int a[],int low,int mid,int high){
    int i,j,k,c[10];
    i=low;
    j=mid+1;
    k=low;
    while(i<=mid && j<=high){
        if(a[i]<a[j])
            c[k++]=a[i++];
        else
            c[k++]=a[j++];
    }
    while(i<=mid){
        c[k++]=a[i++];
    }
    while(j<=high)
        c[k++]=a[j++];

    for(i=low;i<=high;i++){
        a[i]=c[i];
    }
}
```

```
void merge_sort(int a[],int low,int high){
    int mid;
    if(low<high){
        mid=(low+high)/2;
        merge_sort(a,low,mid);
        merge_sort(a,mid+1,high);
        merge(a,low,mid,high);
    }
}
```

```
void main(){
    int n;
    printf("Enter the number of elements\n");
    scanf("%d",&n);
    printf("Enter the elements of the array\n");
    for(int i=0;i<n;i++)
        scanf("%d",&a[i]);
    merge_sort(a,0,n-1);
    printf("The sorted array is\n");
    for(int i=0;i<n;i++){
        printf("%d\t",a[i]);
    }
}
```

OUTPUT



```
Enter the number of elements
6
Enter the elements of the array
9
3
8
5
10
1
The sorted array is
1      3      5      8      9      10
```

