

**PROGRAM:**

```
#include <stdio.h>

void Merge(int A[],int p,int q,int r)
{
    int n1,n2,i,j,k;
    n1=q-p+1;
    n2=r-q;
    int L[n1],R[n2];
    for(i=1;i<=n1;i++)
        L[i]=A[p+i-1];
    for(j=1;j<=n2;j++)
        R[j]=A[q+j];
    L[n1+1]=1000;
    R[n2+1]=1000;
    i=1;
    j=1;
    for(k=p;k<=r;k++)
    {
        if(L[i] <= R[j])
        {
            A[k]=L[i];
            i++;
        }
        else
        {
            A[k]=R[j];
            j++;
        }
    }
}
```

```

void MergeSort(int A[],int p,int r)
{
    if(p<r)
    {
        int q=(p+r)/2;
        MergeSort(A,p,q);
        MergeSort(A,q+1,r);
        Merge(A,p,q,r);
    }
    printf("\n");
    for(int i=1;i<=r;i++)
        printf("%d ",A[i]);
}

```

```

int main()
{
    int i,n;
    int A[15];
    printf("Enter the number of elements \n");
    scanf("%d",&n);
    printf("Enter %d elements \n",n);
    for(i=1;i<=n;i++)
        scanf("%d",&A[i]);
    printf("Unsorted Array \n");
    for(i=1;i<=n;i++)
        printf("%d ",A[i]);
    printf("\n Sorting the Array \n");
    MergeSort(A,1,n);
    return 0;
}

```

**OUTPUT:**

Enter the number of elements

7

Enter 7 elements

33 59 1 15 27 44 68 82

Unsorted Array

33 59 1 15 27 44 68

Sorting the Array

33

33 59

33 59

33 59 1

33 59 1 15

33 59 1 15

1 15 33 59

1 15 33 59 27

1 15 33 59 27 44

1 15 33 59 27 44

1 15 33 59 27 44 68

1 15 33 59 27 44 68

1 15 27 33 44 59 68