

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

```
void merge(int a[], int l, int m, int r)
```

```
{  
    int i = l, j = m + 1, k = l;  
    int temp[100];  
  
    while (i <= m && j <= r)  
    {  
        if (a[i] <= a[j])  
            temp[k++] = a[i++];  
        else  
            temp[k++] = a[j++];  
    }
```

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

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

```
    for (i = l; i <= r; i++)  
        a[i] = temp[i];  
}
```

```
void mergeSort(int a[], int l, int r)
```

```
{  
    if (l < r)  
    {  
        int m = (l + r) / 2;  
        mergeSort(a, l, m);  
        mergeSort(a, m + 1, r);  
        merge(a, l, m, r);  
    }  
}
```

```
int main()
```

```
{  
    int a[100], n, i;  
  
    printf("Enter number of elements: ");  
    scanf("%d", &n);  
  
    printf("Enter elements:\n");  
    for (i = 0; i < n; i++)  
        scanf("%d", &a[i]);  
  
    mergeSort(a, 0, n - 1);
```

```
printf("Sorted array:\n");  
for (i = 0; i < n; i++)  
    printf("%d ", a[i]);  
  
return 0;  
}
```