

28.

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

```
void merge(int a[], int low, int mid, int high) {
```

```
    int i = low, j = mid + 1, k = 0, b[100];
```

```
    while (i <= mid && j <= high) {
```

```
        if (a[i] < a[j])
```

```
            b[k++] = a[i++];
```

```
        else
```

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

```
    while (i <= mid) b[k++] = a[i++];
```

```
    while (j <= high) b[k++] = a[j++];
```

```
    for (i = low, k = 0; i <= high; i++, k++)
```

```
        a[i] = b[k];
```

```
}
```

```
void mergeSort(int a[], int low, int high) {
```

```
    if (low < high) {
```

```
        int mid = (low + high) / 2;
```

```
        mergeSort(a, low, mid);
```

```
        mergeSort(a, mid + 1, high);
```

```
        merge(a, low, mid, high);}
```

```
}
```

```
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;}
```

```
Enter number of elements: 3
```

```
Enter elements:
```

```
54 32 87
```

```
Sorted array:
```

```
32 54 87
```