```c
#include<stdio.h>
#include<stdlib.h>
void merge(int arr[], int l, int m, int r)// Merge function to merge two subarrays
{
int i, j, k;
int n1 = m - l + 1;
int n2 = r - m;
int L[n1], R[n2];
for (i = 0; i < n1; i++)// Copy data to temporary arrays L[] and R[]
L[i] = arr[l + i];
for (j = 0; j < n2; j++)
R[j] = arr[m + 1 + j];
i = 0;// Merge the two subarrays back into the original array
j = 0;
k = l;
while (i < n1 && j < n2)
{
if (L[i] <= R[j])
{
arr[k] = L[i];
i++;
}
else
{
arr[k] = R[j];
j++;
}
k++;
}    // Copy any remaining elements of L[] and R[] if there are any
while (i < n1) {
arr[k] = L[i];
i++;
k++;
}
while (j < n2)
{
arr[k] = R[j];
j++;
k++;
}
}

void mergeSort(int arr[], int l, int r)
{
if (l < r)
{
int m = l + (r - l) / 2;
mergeSort(arr, l, m);
mergeSort(arr, m + 1, r);
merge(arr, l, m, r);
}
}
void printArray(int A[], int n)
{
int i;
for (i = 0; i < n; i++)
printf("%d ", A[i]);
printf("\n");
}
int main()
{
int n;
int arr[10];
printf("Enter the number of elements:\n");
scanf("%d", &n);
printf("Enter %d elements one by one:\n", n);
for(int i =0; i<n; i++)
scanf("%d", &arr[i]);
printf("Given array is \n");
printArray(arr, n);
mergeSort(arr, 0, n - 1);
printf("\nSorted array is \n");
printArray(arr, n);
return 0;
}

```