```
#include <stdio.h>
void merge(int arr[], int l, int m, int r) {
    int n1 = m - l + 1, n2 = r - m;
    int L[n1], R[n2];
    for (int i = 0; i < n1; i++) L[i] = arr[l + i];
    for (int j = 0; j < n2; j++) R[j] = arr[m + 1 + j];
    int i = 0, j = 0, k = l;
    while (i < n1 && j < n2) {
        if (L[i] <= R[j]) arr[k++] = L[i++];
        else arr[k++] = R[j++];
    }
    while (i < n1) arr[k++] = L[i++];
    while (j < n2) arr[k++] = R[j++];
}
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);
    }
}
int main() {
    int n;
    printf("Enter number of elements: ");
    scanf("%d", &n);
```

```
    int arr[n];
    printf("Enter elements:\n");
    for (int i = 0; i < n; i++) scanf("%d", &arr[i]);
    mergeSort(arr, 0, n-1);
    printf("Sorted array: ");
    for (int i = 0; i < n; i++) printf("%d ", arr[i]);
    return 0;
}
```

Output: