EXPERIMENT [17](merge sort)

CODE:

#include <stdio.h>

void merge(int arr[], int l, int m, int r) {

int i, j, k;

int n1 = m - l + 1;

int n2 = r - m;

int L[100], R[100];

for (i = 0; i < n1; i++)

L[i] = arr[l + i];

for (j = 0; j < n2; j++)

R[j] = arr[m + 1 + j];

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 arr[100], n, i;

printf("Enter number of elements: ");

scanf("%d", &n);

printf("Enter %d elements:\n", n);

for (i = 0; i < n; i++) {

scanf("%d", &arr[i]);

}

mergeSort(arr, 0, n - 1);

printf("Sorted array:\n");

for (i = 0; i < n; i++) {

printf("%d ", arr[i]);

}

return 0;

}}

OUTPUT:

