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#include <iostream>


using namespace std;
    // A function to merge the two half into a sorted data.
void Merge(int a[], int low, int high, int mid)
{
        // We have low to mid and mid+1 to high already sorted.
        int i, j, k, temp[100];
        i = low;
        k = 0;
        j = mid + 1;


        // Merge the two parts into temp[].
        while (i <= mid && j <= high)
        {
                if (a[i] < a[j])
                {
                        temp[k] = a[i];
                        k++;
                        i++;
                }
                else
                {
                        temp[k] = a[j];
                        k++;
                        j++;
                }
        }


        // Insert all the remaining values from i to mid into temp[].
        while (i <= mid)
        {
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                temp[k] = a[i];
                k++;
                i++;
        }

        // Insert all the remaining values from j to high into temp[].
        while (j <= high)
        {
                temp[k] = a[j];
                k++;
                j++;
        }



        // Assign sorted data stored in temp[] to a[].
        for (i = low; i <= high; i++)
        {
                a[i] = temp[i-low];
        }
}

// A function to split array into two parts.
void MergeSort(int a[], int low, int high)
{
        int mid;
        if (low < high)
        {
                mid=(low+high)/2;
                // Split the data into two half.
                MergeSort(a, low, mid);
                MergeSort(a, mid+1, high);
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                // Merge them to get sorted output.
                Merge(a, low, high, mid);
        }
}

int main()
{
        int n, i;
        cout<<"\nEnter the number of data element to be sorted: ";
        cin>>n;

        int arr[n];
        for(i = 0; i < n; i++)
        {
                cout<<"Enter element "<<i+1<<": ";
                cin>>arr[i];
        }

        MergeSort(arr, 0, n-1);

        // Printing the sorted data.
        cout<<"\nSorted Data ";
        for (i = 0; i < n; i++)
    cout<<"  "<<arr[i];

        return 0;
}
```