#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[high-low+1];

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)

{

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);

// 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;

}