```cpp
//Time Compexity : O(nlogn)
#include<iostream>
using namespace std;
void Merge(int arr[],int l,int mid,int r){
    int n1=mid-l+1;
    int n2=r-mid;
    int a[n1],b[n2];
    for(int i=0;i<n1;i++){
        a[i]=arr[l+i];
    }
    for(int i=0;i<n2;i++){
        b[i]=arr[mid+1+i];
    }
    int i=0,j=0,k=l;
    while(i<n1 and j<n2){
        if(a[i]<b[j]){
            arr[k]=a[i];
            i++;
        }
        else{
            arr[k]=b[j];
            j++;
        }
        k++;
    }
    while(i<n1){
        arr[k]=a[i];
        i++;
        k++;
    }
    while(j<n2){
        arr[k]=b[j];
        j++;
        k++;
    }
}
void MergeSort(int arr[],int l,int r){
    if(l<r){
        int mid=(l+r)/2;
        MergeSort(arr,l,mid);
        MergeSort(arr,mid+1,r);

        Merge(arr,l,mid,r);
    }
}
int main(){
    // int arr[]={5,4,3,2,1};
    int n;
```

```cpp
    int *a;
    cout<<"Enter the Size: ";
    cin>>n;
    a=new int[n];
    cout<<"Enter the Elements: "<<endl;
    for(int i=0;i<n;i++){
        cin>>a[i];
    }
    MergeSort(a,0,n-1);
    for(int i=0;i<5;i++){
        cout<<a[i]<<" ";
    }
    cout<<endl;
return 0;
}
```

OUTPUT

```
PS C:\Users\anil kumar\Documents\anil\.vscode\DataSructure_in_nsut> cd "c:\Users\anil kumar\D
cture_in_nsut\" ; if ($?) { g++ -std=c++17 17_MergeSort.cpp -o 17_MergeSort } ; if ($?) { .\1
Enter the Size: 6
Enter the Elements:
3
5
6
1
2
4
1 2 3 4 5 6
PS C:\Users\anil kumar\Documents\anil\.vscode\DataSructure_in_nsut>
```