S.No: 6	Exp. Name: ***Program to sort a list of elements using Merge Sort***	Date:

Aim:

Program to sort a list of elements using Merge Sort

Source Code:

Merge.c

```
#include<stdio.h>
#include<time.h>
void merge(int a[],int low,int mid,int high){
   int b[20];
   int i,j,k;
   i=low,j=mid+1,k=low;
   while(i<=mid && j<=high){
      if(a[i]<=a[j])
         b[k++]=a[i++];
      else
         b[k++]=a[j++];
   }
   while(i<=mid)
      b[k++]=a[i++];
   while(j<=high)
      b[k++] = a[j++];
   for(k=low;k<=high;k++)
      a[k]=b[k];}
   void mergesort(int a[],int low,int high){
      int mid;
      if(low>=high)
      return;
   mid=(low+high)/2;
   mergesort(a,low,mid);
   mergesort(a,mid+1,high);
   merge(a,low,mid,high);

   }
int main(){
   printf(" Enter How many Numbers : ");
   int n,i;
   scanf("%d",&n);
   int a[n];
   printf(" Enter %d Numbers :",n);
   for(i=0;i<n;i++){
      scanf("%d",&a[i]);
   }
   mergesort(a,0,n-1);
   printf(" Sorted Numbers are : ");
   for(i=0;i<n;i++){
      printf("%d\t",a[i]);
   }
   return 0;
}
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Enter How many Numbers : 6

Test Case - 1
Enter 6 Numbers : 12 10 5 4 3 1
Sorted Numbers are : 1 3 4 5 10 12

Test Case - 2
User Output
Enter How many Numbers : 4
Enter 4 Numbers : -8 -4 1 2
Sorted Numbers are : -8 -4 1 2

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