4.Sort a given set of N integer elements using Merge Sort technique and compute its time taken. Run the program for different values of N and record the time taken to sort.

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Code:
#include <stdio.h>
#include <stdlib.h>
void merge(int low,int mid,int high,int a[])
  int c[50];
  int i,j,k;
  i=low;
  j=mid+1;
  k=low;
  while(i<=mid&&j<=high)
     if(a[i] < a[j])
        c[k]=a[i];
        i++;
        k++;
     else{
        c[k]=a[j];
       j++;
        k++;
     }
  while(i<=mid)
     c[k]=a[i];
     k++;
     i++;
  while(j<=high)
     c[k]=a[j];
     k++;
     j++;
  for(i=low;i<=high;i++)</pre>
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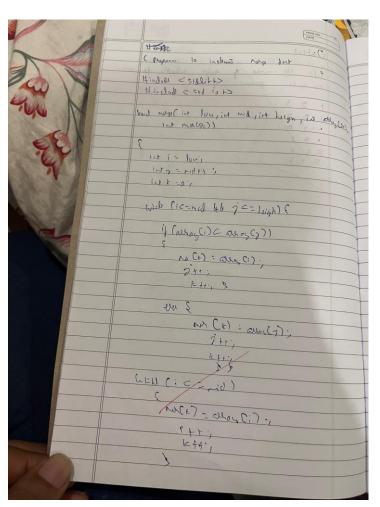
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a[i]=c[i];
  }
void mergeSort(int low, int high,int a[])
  if(low<high)
     int mid=(low+high)/2;
     mergeSort(low, mid, a);
     mergeSort(mid+1,high,a);
     merge(low, mid, high, a);
  }
void main()
{
  int n;
   printf("\nEnter the size");
  scanf("%d",&n);
  int i, a[50], low=0, high=n-1;
  printf("Enter the elements to be sorted: ");
  for(i=0;i< n;i++)
     scanf("%d",&a[i]);
  mergeSort(low, high, a);
  for(i=0;i< n;i++)
  {
     printf("%d\t",a[i]);
  }
}
```

Output:

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Enter the elements to be sorted: 99 88 77 66 55 44 33
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