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**Practical 9 :-** Implementation of Merge sort.

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```
#include<iostream.h>
#include<conio.h>
class Mergesort
{
public:
    int i,j,*A,n;
Mergesort(int size)
{
    n=size;
    A=new int[n+1];
}
void getdata()
{
    cout<<"\nEnter the no of elements: ";
    for(i=1;i<=n;i++)
    {
        cin>>A[i];
    }
}
void putdata()
{
    cout<<"\nElements are:- ";
    for(i=1;i<=n;i++)
    {
        cout<<A[i]<<" ";
    }
}
void Merge_sort(int low ,int high)
{
    int mid;
    if(low<high)
    {
        mid =(low+high)/2;
```

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        Merge_sort(low,mid);
        Merge_sort(mid+1,high);
        MERGE(low,mid,high);
    }
}

void MERGE(int low,int mid,int high)
{
    int *B,h;
    B=new int[n];
    h=low;
    i=low;
    j=mid+1;

    while(h<=mid && j<=high)
    {
        if(A[h]<A[j])
        {
            B[i]=A[h];
            h++;
        }
        else
        {
            B[i]=A[j];
            j++;
        }
        i++;
    }
    if(h>mid)
    {
        for(int k=j;k<=high;k++)
        {
            B[i]=A[k];
            i++;
        }
    }
    else
    {
        for(int k=h;k<=mid;k++)
        {
            B[i]=A[k];
        }
    }
}

```

```

        i++;
    }
}
for(int k=low;k<=high;k++)
{
    A[k]=B[k];
}
};

void main()
{
    clrscr();
    int n;
    cout<<"\nEnter the no of elements: ";
    cin>>n;
    Mergesort m(n);
    m.getdata();
    cout<<"\nBefore soting:- ";
    m.putdata();
    m.Merge_sort(1,n);
    cout<<"\nAfter sorting:- ";
    m.putdata();
    getch();
}

```

## OUTPUT:-

Enter the no of elements: 5

Enter the no of elements: 44 899 11 440 3

Before soting:-

Elements are:

44 899 11 440 3

After sorting:-

Elements are:

3 11 44 440 899