**ROLL NO:-45**

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**PRACTICAL NO:-**

**PRACTICAL NAME :- IMPLEMENTATION OF HEAP SORT.**

#include "iostream.h"

#include "conio.h"

#include "stdlib.h"

class LIST

{

int \*A,size;

public:

LIST(int);

void SET\_LIST();

void VIEW\_LIST();

void HEAP\_SORT();

void HEAPIFY();

void ADJUST(int,int);

};

LIST::LIST(int par)

{

size = par;

A = new int[size+1];

}

void LIST::SET\_LIST()

{

for(int i=1;i<=size;i++)

{

cout<<endl<<"enter the element";

cin>>A[i];

}

}

void LIST::VIEW\_LIST()

{

cout<<"List elements are : ";

for(int i=1;i<=size;i++)

cout<<A[i]<<" ";

}

void LIST::HEAP\_SORT()

{

HEAPIFY();

for(int i=size;i>1;i--)

{

int temp = A[1];

A[1] = A[i];

A[i] = temp;

ADJUST(1,i-1);

}

}

void LIST::HEAPIFY()

{

for(int i=size/2;i>=1;i--)

ADJUST(i,size);

}

void LIST::ADJUST(int i,int n)

{

int item = A[i]; int j = 2\*i;

while(j<=n)

{

if(j<n && A[j] < A[j+1])

j = j+1;

if(item >= A[j])

break;

else

A[j/2] = A[j];

j = j\*2;

}

A[j/2] = item;

}

void main()

{

int n;

clrscr();

cout<<"\n Enter size of array : ";

cin>>n;

LIST obj(n);

obj.SET\_LIST();

cout<<endl<<"List before sorting : \n";

obj.VIEW\_LIST();

obj.HEAP\_SORT();

cout<<endl<<"List after sorting : \n";

obj.VIEW\_LIST();

getch();

}