**ROLL NO:-45**

**NAME : Harshit Atul Chilvirwar**

**PRACTICAL NO:-**

**PRACTICAL NAME :- IMPLEMENTATION OF QUICK 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 QUICK\_SORT(int,int);

void PARTITION(int,int &);

};

LIST::LIST(int par)

{

size=par;

A =new int[size+1];

}

void LIST::SET\_LIST()

{

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

A[i]=random(99);

A[i+1]=9999;

}

void LIST::VIEW\_LIST()

{

cout<<"List elements are : ";

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

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

}

void LIST::PARTITION(int m,int & p)

{

int v=A[m]; int i=m;

do

{

do

{

i=i+1;

}while(A[i]<v);

do

{

p=p-1;

}while(A[p]>v);

if(i<p)

{

int temp=A[i];

A[i]=A[p];

A[p]=temp;

}

else

break;

}while(1);

A[m]=A[p];

A[p]=v;

}

void LIST::QUICK\_SORT(int p,int q)

{

if(p<q)

{

int j=q+1;

PARTITION(p,j);

QUICK\_SORT(p,j-1);

QUICK\_SORT(j+1,q);

}

}

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.QUICK\_SORT(1,n);

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

obj.VIEW\_LIST();

getch();

}