**ROLL NO:-45**

**NAME : Harshit Atul Chilvirwar**

**PRACTICAL NO:-**

**PRACTICAL NAME :- IMPLEMENTATION OF BINARY SEARCH.**

#include "iostream.h"

#include "conio.h"

#include "stdlib.h"

class LIST

{

int \*A,size;

public:

LIST(int);

void SET\_LIST();

void VIEW\_LIST();

void BUBBLE\_SORT();

int BINARY\_SEARCH(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(1000);

}

void LIST::VIEW\_LIST()

{

cout<<"List elements are : ";

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

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

}

void LIST::BUBBLE\_SORT()

{

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

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

if(A[j] > A[j+1])

{

int temp = A[j];

A[j] = A[j+1];

A[j+1] = temp;

}

}

int LIST::BINARY\_SEARCH(int x)

{

int low=1,high=size,mid;

while(low<=high)

{

mid = (low+high)/2;

if(A[mid] == x)

return mid;

else

if(x < A[mid])

high = mid-1;

else

low = mid+1;

}

return 0;

}

void main()

{

int n,pos,ele;

clrscr();

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

cin>>n;

LIST obj(n);

obj.SET\_LIST();

cout<<endl<<"List of elements : \n";

obj.VIEW\_LIST();

obj.BUBBLE\_SORT();

cout<<endl<<"List of elements : \n";

obj.VIEW\_LIST();

cout<<"\n Enter element to search : ";

cin>>ele;

pos = obj.BINARY\_SEARCH(ele);

if(pos !=0)

cout<<endl<<ele<<" found at "<<pos;

else

cout<<endl<<ele<<" not found";

getch();

}