**LAB -1**

**AIM: Binary Search Using Iterative Method.**

**SOFTWARE USED:** Ubuntu

**SOURCE CODE:**

#include <stdio.h>

int main(){

int n,mid,x,i;

int a[50];

printf("Enter the length of array:");

scanf("%d",&n);

printf("\n Enter elements:");

for(i=0;i<n;i++){

scanf("%d",&a[i]);

}

printf("\n Enter the number to be searched: ");

scanf("%d",&x);

int start=0;

int end;

end=n-1;

mid=(start+end)/2;

printf("mid point:%d \n",mid);

while(start<=end){

if(a[mid]==x)

{

printf("position:%d \n",mid+1);

break;

}

else if(x<a[mid])

{

 end=mid-1;

}

else{

start=mid+1;

}

mid=(start+end)/2;

}

if ( start > end )

      printf("Not found! %d is not present in the list.\n", x);

  return 0;

}

**AIM: Binary Search Using Recursive Method.**

**SOFTWARE USED:** Ubuntu

**SOURCE CODE:**

#include <stdio.h>

int search(int a[50],int low,int high,int x)

{

int mid=(low+high)/2;

if(low>high){

return -1;

}

if(x==a[mid]){

return mid;

}

else if(x<a[mid]){

return search(a,low,mid-1,x);

}

else{

return search(a,mid+1,high,x);

}

return 0;

}

int main(){

int n,x,i,pos;

int a[50];

printf("Enter the length of array:");

scanf("%d",&n);

printf("\n Enter elements:");

for(i=0;i<n;i++){

scanf("%d",&a[i]);

}

printf("\n Enter the number to be searched: ");

scanf("%d",&x);

pos=search(a,0,n-1,x);

if (pos < 0 ){

printf("Cannot find the element.\n");

}

else{

printf("The position in the array is %d.\n",pos+1);

}

return 0;

}

**LAB -2**

**AIM: Insertion Sort Using Iterative Method.**

**SOFTWARE USED:** Ubuntu

**SOURCE CODE:**

#include <stdio.h>

int main()

{

int n,key,j,i;

int a[50];

printf("Enter the length of array: \n");

scanf("%d",&n);

printf("\n Enter elements: ");

for(i=0;i<n;i++){

scanf("%d",&a[i]);

}

for(j=1;j<n;j++){

key=a[j];

i=j-1;

while(i>=0&&a[i]>key){

a[i+1]=a[i];

i=i-1;

a[i+1]=key;

}

}

printf("\n Sorted order:");

for(i=0;i<n;i++){

printf("%d \n",a[i]);

}

}

**AIM: Selection Sort Using Iterative Method.**

**SOFTWARE USED:** Ubuntu

**SOURCE CODE:**

#include <stdio.h>

int main()

{

int n,min,j,i,swap;

int a[50];

printf("Enter the length of array: \n");

scanf("%d",&n);

printf("\n Enter elements: ");

for(i=0;i<n;i++){

scanf("%d",&a[i]);

}

for(i=0;i<n-1;i++){

min=i;

for(j=i+1;j<n;j++){

if(a[j]<a[min])

{

min=j;

}

}

if(min!=i)

{

swap = a[i];

a[i] = a[min];

a[min] = swap;

}

}

printf("\n Sorted order:");

for(i=0;i<n;i++){

printf("%d \n",a[i]);

}

}

**AIM: Bubble Sort Using Iterative Method.**

**SOFTWARE USED:** Ubuntu

**SOURCE CODE:**

#include <stdio.h>

int main()

{

int n,j,i,swap;

int a[50];

printf("Enter the length of array: \n");

scanf("%d",&n);

printf("\n Enter elements: ");

for(i=0;i<n;i++)

{

scanf("%d",&a[i]);

}

for(i=0;i<n-1;i++){

for(j=0;j<n-1;j++){

if(a[j]>a[j+1]){

swap=a[j];

a[j]=a[j+1];

a[j+1]=swap;

}

}

}

printf("\n Sorted order:");

for(i=0;i<n;i++){

printf("%d \n",a[i]);

}

}