#include<iostream>

Source Code

#include<stdlib.h>

#include<time.h>

#include<fstream>

using *namespace* std;

// ---------Linear Search----------

*int* linearSearch(*int* *arr*[],*int* *n*,*int* *x*,*int* &*count*){

    for(*int* i=0;i<*n*;i++){

*count*++;

        if(*arr*[i]==*x*){

            return i;

        }

    }

    return -1;

}

// ------------Sorting------------

*void* sortArray(*int* *arr*[],*int* *n*){

    for(*int* i=1;i<*n*;i++){

*int* j=i-1;

*int* key=*arr*[i];

        while(j>=0 and key<*arr*[j]){

*arr*[j+1]=*arr*[j];

            j--;

        }

*arr*[j+1]=key;

    }

}

// -------------Binary Search--------------

*int* binarySearch(*int* *arr*[],*int* *first*,*int* *last*,*int* *x*,*int* &*count*){

    while(*first*<=*last*){

*count*++;

*int* mid=(*first*+*last*)/2;

        if(*x*>*arr*[mid]){

            return binarySearch(*arr*,mid+1,*last*,*x*,*count*);

        }

        if(*x*<*arr*[mid]){

            return binarySearch(*arr*,*first*,mid-1,*x*,*count*);

        }

        if(*x*==*arr*[mid]){

            return mid;

        }

    }

    return -1;

}

// -------------PrintLinear----------

*void* printLinear(*int* *arr*[],*int* *n*,*int* *ele*[],*int* *num*){

    cout<<"\*\*\*\*\*\*\*\*\*\*\*\*LINEAR SEARCH\*\*\*\*\*\*\*\*\*\*\*\*\*\*"<<endl;

    cout<<"Enteries for LinearSearch: ";

    for(*int* i=0;i<*n*;i++){

         cout<<*arr*[i]<<" ";

    }

    cout<<endl;

*int* ans=0;

    for(*int* i=0;i<*num*;i++){

*int* count=0;

*int* ans=linearSearch(*arr*,*n*,*ele*[i],count);

        if(ans!=-1){

            cout<<"The Element "<<*ele*[i]<<" is found at position: "<<ans+1<<" in "<<count<<" comparison"<<endl;

        }

        else{

            cout<<"The Element "<<*ele*[i]<<" is not found!!! "<<" in "<<count<<" comparison"<<endl;

        }

    }

    cout<<"\n"<<endl;

}

// ------------PrintBinary------------

*void* printBinary(*int* *arr*[],*int* *n*,*int* *ele*[],*int* *num*){

    cout<<"\*\*\*\*\*\*\*\*\*\*\*\*BINARY SEARCH\*\*\*\*\*\*\*\*\*\*\*\*\*\*"<<endl;

    sortArray(*arr*,*n*);

    cout<<"New Enteries for BinarySearch: ";

    for(*int* i=0;i<*n*;i++){

        cout<<*arr*[i]<<" ";

    }

    cout<<endl;

*int* ans=0;

    for(*int* i=0;i<*num*;i++){

*int* count=0;

        ans=binarySearch(*arr*,0,*n*-1,*ele*[i],count);

        if(ans!=-1){

            cout<<"The Element "<<*ele*[i]<<" is found at position: "<<ans+1<<" in "<<count<<" comparison"<<endl;

        }

        else{

            cout<<"The Element "<<*ele*[i]<<" is not found!!! "<<" in "<<count<<" comparison"<<endl;

        }

    }

    cout<<"\n"<<endl;

}

*int* main(){

*int* n,num;

*int* ele[6];

    cout<<"Enter the size: ";

    cin>>n;

*int* arr[n];

    // --------------File----------------

*fstream* fin,fout;

    // Reset file

    fout.open("input.txt",*ios*::out);

    fout<<"";

    fout.close();

    // write

*int* count=0;

    srand(time(0));

    fout.open("input.txt",*ios*::app);

    while( count<n and fout<<((rand()%100) +1)<<" "){

        count++;

    }

    fout.close();

    // read

    fin.open("input.txt",*ios*::in);

*int* j=0;

    while(j<n and fin>>arr[j]){

        // cout<<arr[j]<<" ";

        j++;

    }

    fin.close();

    cout<<"Enteries: ";

    for(*int* i=0;i<n;i++){

        cout<<arr[i]<<" ";

    }

    cout<<endl;

    cout<<"Enter the number of element to find (1-5): ";

    cin>>num;

    while(1>num || num>5){

        cout<<"Enter valid  number please!!!"<<endl;

        cout<<"Enter the number of element to find (1-5): ";

        cin>>num;

    }

    cout<<"Enter the elements you want to find: ";

    for(*int* i=0;i<num;i++){

        cin>>ele[i];

    }

    printLinear(arr,n,ele,num);

    printBinary(arr,n,ele,num);

    // WorstCase

*int* find=arr[n-1];

*int* counter=0;

    cout<<"LinearSearch: "<<endl;

*int* ans=linearSearch(arr,n,find,counter);

        if(ans!=-1){

            cout<<"The Element in WorstCase "<<find<<" is found at position: "<<ans+1<<" in "<<counter<<" comparison\n"<<endl;

        }

        else{

            cout<<"The Element in WorstCase "<<find<<" is not found!!! "<<" in "<<counter<<" comparison"<<endl;

        }

    cout<<"BinarySearch: "<<endl;

    counter=0;

    ans=binarySearch(arr,0,n-1,find,counter);

        if(ans!=-1){

            cout<<"The Element in WorstCase "<<find<<" is found at position: "<<ans+1<<" in "<<counter<<" comparison\n"<<endl;

        }

        else{

            cout<<"The Element in WorstCase "<<find<<" is not found!!! "<<" in "<<counter<<" comparison"<<endl;

        }

    return 0;

}

OUTPUT