/\*This code include the process of searching (linear and binary) of the element in the sorted array

                     where all sorting functions are in sort.h header file.\*/

#include <cstdio>

#include <cstdlib>

#include "sort.h"

void linearsearch (int arr[], int size, int target)

{

    for(int i=0;i<size;i++)

    {

        if(target==arr[i])

        {

          printf("The target is found at the index: %d\n",i);

        }

    }

}

void binarysearch(int arr[], int size ,int target)

{

    int left=0;

    int right = size-1;

    while(left<=right)

    {

        int mid = (left+right)/2;

        if(target==arr[mid])

        {

           printf("The target is found at the index: %d\n",mid);

           break;

        }

        else if (target<arr[mid])

        {

           right=mid-1;

        }

        else

        {

           left=mid+1;

        }

    }

}

int main() {

    int size;

    int choice;

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

    scanf("%d", &size);

    int arr[size];

    printf("Enter the elements of the arrray:\n ");

    for(int index=0;index<size;index++)

    {

        scanf("%d", &arr[index]);

    }

    int target;

    printf("Enter the elements to be found:\n ");

    scanf("%d", &target);

    bubblesort(arr,size);

    printf("The sorted array is: ");

    output(arr,size);

    printf("Enter the choice you needed: ");

    scanf("%d", &choice);

    switch(choice) {

        case 1:

        printf("You have selected Binary Search method to search the arrray\n");

        binarysearch(arr,size,target);

        break;

        case 2:

        printf("You have selected Linear Search method to search the array\n");

        linearsearch(arr,size,target);

        break;

        case 3:

        printf("Your choice is not perfect please try again\n");

        break;

    }

    return 0;

}

Output:

Enter the size of the array:

5

Enter the elements of the arrray:

3 56 12 67 23

Enter the elements to be found:

23

The sorted array is: 312235667

Enter the choice you needed: 2

You have selected Linear Search method to search the array

The target is found at the index: 2