ClassWork

Binary Search in Java

```java
package com.help.code;
import java.util.*;
public class BinarySearch {

	public static boolean isFound(int arr[],int arraySize,int key) {
		int start=0;
		int end=arraySize-1;
		int mid=start+(end-start)/2;

		while(start<=end) {
			if(arr[mid]==key) {
				return true;
			}else if(arr[mid]<key) {
				start=mid+1;
			}else {
				end=mid-1;
			}

			mid=start+(end-start)/2;
		}
		return false;
	}

	public static void main(String[] args) {
		// TODO Auto-generated method stub
		Scanner sc=new Scanner(System.in);
		int[] arr=new int[1000];
		System.out.println("Enter size of array between 1 and 100");
		int arraySize=sc.nextInt();

		System.out.println("Enter elements in array ");
		for(int i=0;i<arraySize;i++) {
			arr[i]=sc.nextInt();
		}

		System.out.println("Enter key to search");
		int key=sc.nextInt();
```

```
            if(isFound(arr,arraySize,key)) {
                    System.out.println("Element is found ");
            }else {
                    System.out.println("Element is not found ");
            }
    }

}
```

Binary Search in C++

```cpp
#include<iostream>
using namespace std;

bool isFound(int arr[],int arraySize,int key){
    int start=0;
    int end=arraySize-1;
    int mid=start+(end-start)/2;

    while(start<=end){
        if(arr[mid]==key){
            return 1;
        }else if(arr[mid]<key){
            start=mid+1;
        }else{
            end=mid-1;
        }
        mid=start+(end-start)/2;
    }
    return 0;
}

int main(){
    int arr[1000];
    int key;
    int arraySize;

    cout<<"Enter size of array "<<endl;
```

```cpp
    cin>>arraySize;

    cout<<"Enter elements in array in monotonic function"<<endl;
    for(int i=0;i<arraySize;i++){
        cin>>arr[i];
    }

    cout<<"Enter element to search"<<endl;
    cin>>key;
    if(isFound(arr,arraySize,key)){
        cout<<"Element is found "<<endl;
    }else{
        cout<<"Elements is not found"<<endl;
    }
}
```