

2. Writing a program in Java implementing the binary search algorithm

```
package javafsd4;
```

```
public class binarySearch {  
  
    public static int find(int arr[],int search) {  
        int start=0;  
        int end=arr.length-1;  
  
        while(start<=end) {  
            int mid=(start+end)/2;  
            if(search>arr[mid])  
                start=mid+1;  
            else if(search<arr[mid])  
                end=mid-1;  
            else  
                return mid;  
        }  
        return -1;  
    }  
}
```

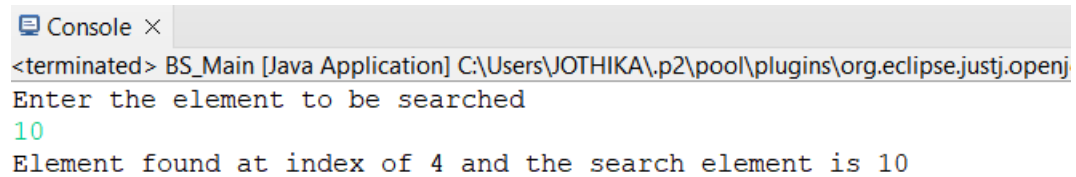
```
package javafsd4;
```

```
import java.util.Scanner;
```

```
public class BS_Main {  
  
    public static void main(String[] args) {  
        int[] arr= {2,4,6,8,10,12,14,16,18,20};  
        Scanner sc = new Scanner(System.in);  
        System.out.println("Enter the element to be searched");  
        int search = sc.nextInt();  
        int result=binarySearch.find(arr,search);  
    }  
}
```

```
if(result==-1){  
    System.out.println("Element not Found");  
} else {  
    System.out.println("Element found at index of "+result+"  
    and the search element is "+arr[result]);  
}  
  
}}
```

OUTPUT



The screenshot shows a console window titled "Console ×" with the following text: "<terminated> BS_Main [Java Application] C:\Users\JOTHIKA\p2\pool\plugins\org.eclipse.justj.openj". Below this, the prompt "Enter the element to be searched" is followed by the user input "10" (highlighted in green). The final output line is "Element found at index of 4 and the search element is 10".

```
<terminated> BS_Main [Java Application] C:\Users\JOTHIKA\p2\pool\plugins\org.eclipse.justj.openj  
Enter the element to be searched  
10  
Element found at index of 4 and the search element is 10
```