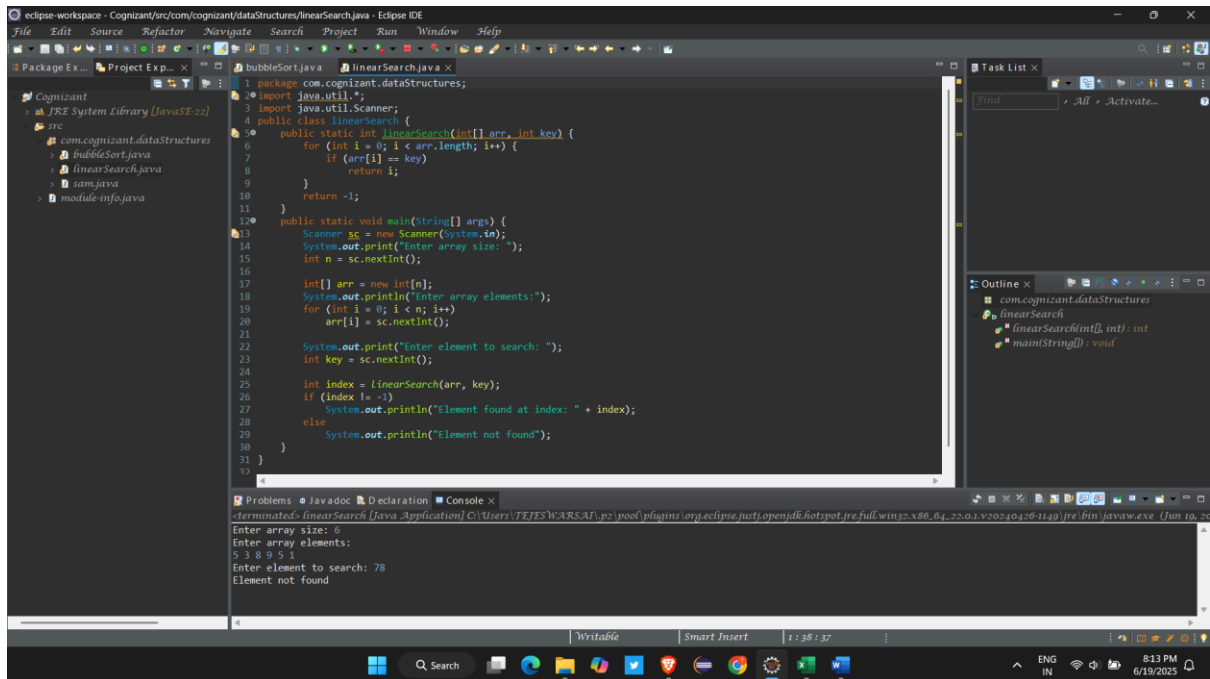


Linear Search :



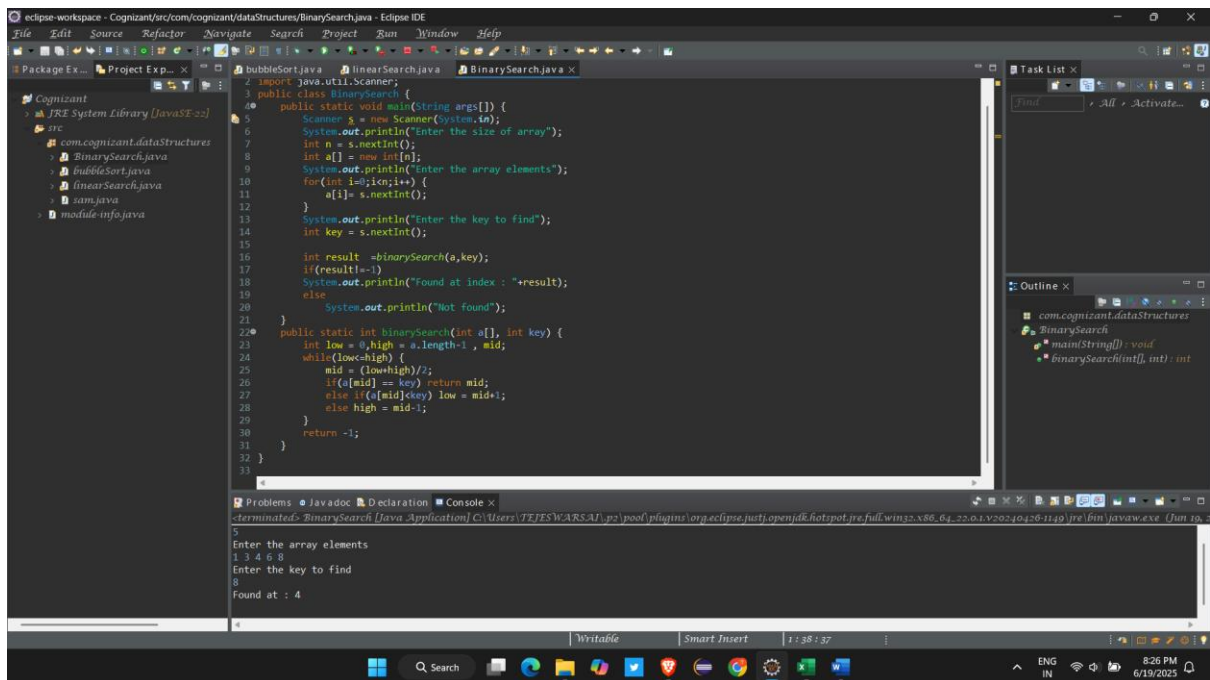
The screenshot shows the Eclipse IDE with a Java project named 'Cognizant'. The package 'com.cognizant.dataStructures' is selected. The file 'linearSearch.java' is open in the editor. The code implements a linear search algorithm. The console output shows the program execution: 'Enter array size: 6', 'Enter array elements: 5 3 8 9 5 1', 'Enter element to search: 78', and 'Element not found'.

```
1 package com.cognizant.dataStructures;
2 import java.util.*;
3 import java.util.Scanner;
4 public class linearSearch {
5     public static int linearSearch(int[] arr, int key) {
6         for (int i = 0; i < arr.length; i++) {
7             if (arr[i] == key)
8                 return i;
9         }
10        return -1;
11    }
12    public static void main(String[] args) {
13        Scanner sc = new Scanner(System.in);
14        System.out.println("Enter array size: ");
15        int n = sc.nextInt();
16
17        int[] arr = new int[n];
18        System.out.println("Enter array elements:");
19        for (int i = 0; i < n; i++)
20            arr[i] = sc.nextInt();
21
22        System.out.println("Enter element to search: ");
23        int key = sc.nextInt();
24
25        int index = linearSearch(arr, key);
26        if (index != -1)
27            System.out.println("Element found at index: " + index);
28        else
29            System.out.println("Element not found");
30    }
31 }
```

Console Output:

```
Enter array size: 6
Enter array elements:
5 3 8 9 5 1
Enter element to search: 78
Element not found
```

Binary Search:



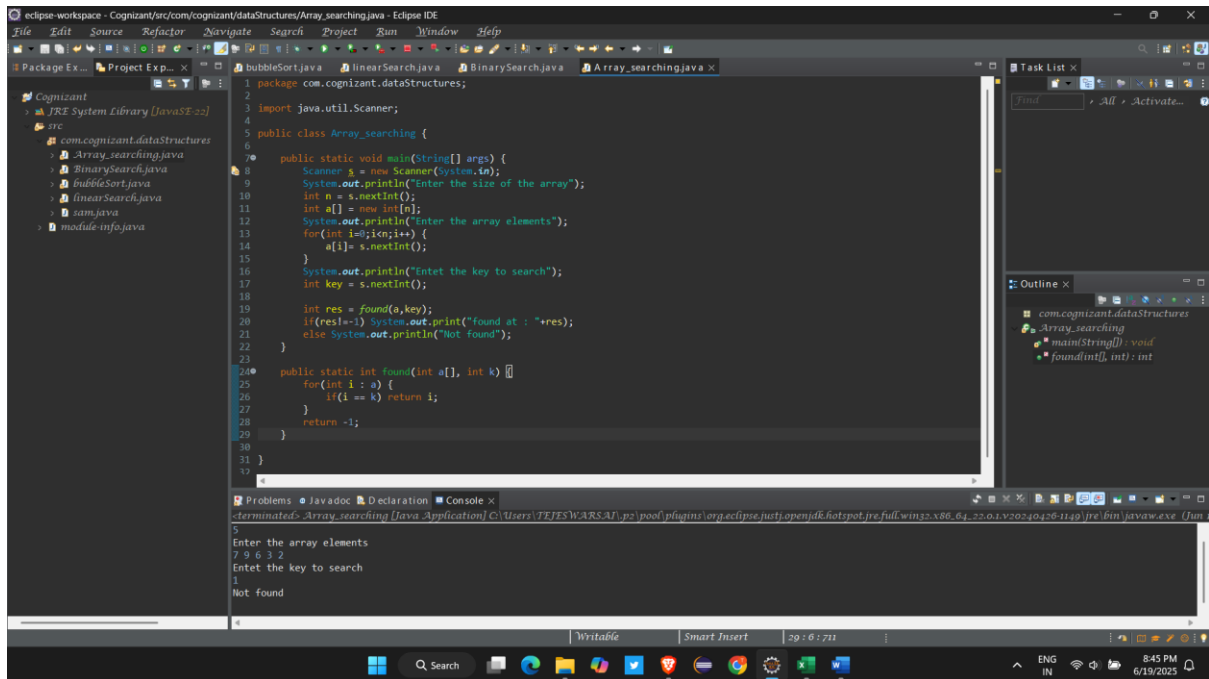
The screenshot shows the Eclipse IDE with a Java project named 'Cognizant'. The package 'com.cognizant.dataStructures' is selected. The file 'BinarySearch.java' is open in the editor. The code implements a binary search algorithm. The console output shows the program execution: 'Enter the array elements: 1 3 4 6 8', 'Enter the key to find: 8', and 'Found at : 4'.

```
1 package com.cognizant.dataStructures;
2 import java.util.*;
3 import java.util.Scanner;
4 public class BinarySearch {
5     public static void main(String args[]) {
6         Scanner s = new Scanner(System.in);
7         System.out.println("Enter the size of array");
8         int n = s.nextInt();
9         int a[] = new int[n];
10        System.out.println("Enter the array elements");
11        for (int i = 0; i < n; i++)
12            a[i] = s.nextInt();
13
14        System.out.println("Enter the key to find");
15        int key = s.nextInt();
16
17        int result = binarySearch(a, key);
18        if (result != -1)
19            System.out.println("Found at index : " + result);
20        else
21            System.out.println("Not found");
22    }
23    public static int binarySearch(int a[], int key) {
24        int low = 0, high = a.length - 1, mid;
25        while (low <= high) {
26            mid = (low + high) / 2;
27            if (a[mid] == key) return mid;
28            else if (a[mid] < key) low = mid + 1;
29            else high = mid - 1;
30        }
31        return -1;
32    }
33 }
```

Console Output:

```
Enter the array elements
1 3 4 6 8
Enter the key to find
8
Found at : 4
```

Array operations:searching



The screenshot displays the Eclipse IDE interface with a Java project named 'Cognizant'. The project structure in the left sidebar includes a package 'com.cognizant.dataStructures' containing several Java files: 'Array_searching.java', 'BinarySearch.java', 'BubbleSort.java', 'LinearSearch.java', 'sam.java', and 'module-info.java'. The 'Array_searching.java' file is open in the editor, showing the following code:

```
1 package com.cognizant.dataStructures;
2
3 import java.util.Scanner;
4
5 public class Array_searching {
6
7     public static void main(String[] args) {
8         Scanner s = new Scanner(System.in);
9         System.out.println("Enter the size of the array");
10        int n = s.nextInt();
11        int a[] = new int[n];
12        System.out.println("Enter the array elements");
13        for(int i=0;i<n;i++) {
14            a[i] = s.nextInt();
15        }
16        System.out.println("Enter the key to search");
17        int key = s.nextInt();
18
19        int res = found(a, key);
20        if(res != -1) System.out.print("found at : "+res);
21        else System.out.println("Not found");
22    }
23
24    public static int found(int a[], int k) {
25        for(int i : a) {
26            if(i == k) return i;
27        }
28        return -1;
29    }
30 }
31 }
```

The right sidebar shows the 'Outline' view with the following structure:

- com.cognizant.dataStructures
 - Array_searching
 - main(String[]) : void
 - found(int[], int) : int

The bottom of the IDE shows the 'Console' view with the following output:

```
5 Enter the array elements
7 9 6 3 2
Entet the key to search
1
Not found
```

The status bar at the bottom indicates the file is 'Writable', 'Smart Insert' is active, and the cursor is at line 29, column 6. The system tray shows the date and time as 8:45 PM on 6/19/2023.