

Task . Search for a given element in a sorted array using Binary Search.

```
public class BinarySearchExample {  
  
    public static void main(String[] args) {  
  
        int[] numbers = {10, 20, 30, 40, 50, 60, 70};  
  
        int target = 40;  
  
  
        int result = binarySearch(numbers, target);  
  
  
        if (result == -1) {  
  
            System.out.println("Element not found.");  
  
        } else {  
  
            System.out.println("Element found at index: " + result);  
  
        }  
    }  
  
    public static int binarySearch(int[] arr, int target) {  
  
        int left = 0;  
  
        int right = arr.length - 1;  
  
  
        while (left <= right) {  
  
            int mid = left + (right - left) / 2;  
  
  
            if (arr[mid] == target) {  
  
                return mid; // found  
  
            }  
  
            if (arr[mid] < target) {  
  
                left = mid + 1; // search right half  
  
            } else {  
  

```

```
        right = mid - 1; // search left half
    }
}

return -1; // not found
}
}
```

BinarySearchExample.java

Share

Run

```
17
18
19-   while (left <= right) {
20       int mid = left + (right - left) / 2;
21
22-       if (arr[mid] == target) {
23           return mid; // found
24       }
25-       if (arr[mid] < target) {
26           left = mid + 1; // search right half
27-       } else {
28           right = mid - 1; // search left half
29       }
30   }
31   return -1; // not found
32 }
33 }
```

Output

Element found at index: 3
=== Code Execution Successful ===