

E-commerce Platform Search Function

```
Program.cs
1 using System;
2
3 // references
4 public class Product
5 {
6     // 1 reference
7     public int ProductId { get; set; }
8     // 1 reference
9     public string ProductName { get; set; }
10    // 1 reference
11    public string Category { get; set; }
12
13    // 4 references
14    public Product(int productId, string productName, string category)
15    {
16        ProductId = productId;
17        ProductName = productName;
18        Category = category;
19    }
20 }
21
22 // 0 references
23 class Program
24 {
25     // 1 reference
26     public static Product LinearSearch(Product[] products, string name)
27     {
28         foreach (var product in products)
29         {
30             if (product.ProductName.Equals(name, StringComparison.OrdinalIgnoreCase))
31             {
32                 return product;
33             }
34         }
35         return null;
36     }
37
38     // 1 reference
39     public static Product BinarySearch(Product[] products, string name)
40     {
41         int left = 0;
42         int right = products.Length - 1;
43
44         while (left <= right)
45         {
46             int mid = (left + right) / 2;
47             int comparison = string.Compare(products[mid].ProductName, name, StringComparison.OrdinalIgnoreCase);
48
49             if (comparison == 0)
50             {
51                 return products[mid];
52             }
53             else if (comparison < 0)
54             {
55                 left = mid + 1;
56             }
57             else
58             {
59                 right = mid - 1;
60             }
61         }
62         return null;
63     }
64
65     // 2 references
66     static void Main()
67     {
68         Product[] products = new Product[]
69         {
70             new Product(1, "Laptop", "Electronics"),
71             new Product(2, "Shirt", "Clothing"),
72             new Product(3, "Mobile", "Electronics"),
73             new Product(4, "Shoes", "Footwear"),
74             ...
75         };
76
77         Array.Sort(products, (p1, p2) => p1.ProductName.CompareTo(p2.ProductName));
78
79         string searchName = "Mobile";
80
81         var resultLinear = LinearSearch(products, searchName);
82         var resultBinary = BinarySearch(products, searchName);
83
84         Console.WriteLine("Linear Search Result: " + (resultLinear != null ? resultLinear.ProductName : "Not Found"));
85         Console.WriteLine("Binary Search Result: " + (resultBinary != null ? resultBinary.ProductName : "Not Found"));
86     }
87 }
```

OUTPUT:

```
Build succeeded with 2 warning(s) in 4.1s
Linear Search Result: Mobile
Binary Search Result: Mobile
```