

E-commerce Platform Search Function

```
J Main.java > Main
1  import java.util.Arrays;
2  import java.util.Comparator;
3
4  public class Main {
5
6      public static Product linearSearch(Product[] products, String targetName) {
7          for (Product product : products) {
8              if (product.productName.equalsIgnoreCase(targetName)) {
9                  return product;
10             }
11         }
12         return null;
13     }
14
15     public static Product binarySearch(Product[] products, String targetName) {
16         int low = 0;
17         int high = products.length - 1;
18
19         while (low <= high) {
20             int mid = (low + high) / 2;
21             int cmp = products[mid].productName.compareToIgnoreCase(targetName);
22
23             if (cmp == 0) return products[mid];
24             else if (cmp < 0) low = mid + 1;
25             else high = mid - 1;
26         }
27         return null;
28     }
29
30     Run | Debug
31     public static void main(String[] args) {
32         Product[] products = {
33             new Product(productId:101, productName:"iPhone 13", category:"Electronics"),
34             new Product(productId:102, productName:"Samsung TV", category:"Electronics"),
35             new Product(productId:103, productName:"Nike Shoes", category:"Footwear"),
36             new Product(productId:104, productName:"Levi's Jeans", category:"Apparel"),
37             new Product(productId:105, productName:"Dell Laptop", category:"Electronics")
38         };
39
40         // Linear Search
41         Product result1 = linearSearch(products, targetName:"Nike Shoes");
42         System.out.println("Linear Search Result: " + (result1 != null ? result1 : "Product not found"));
43
44         // Binary Search (requires sorting)
45         Arrays.sort(products, Comparator.comparing(p -> p.productName));
46         Product result2 = binarySearch(products, targetName:"Nike Shoes");
47         System.out.println("Binary Search Result: " + (result2 != null ? result2 : "Product not found"));
48     }
49 }
```

```
J Product.java
1  public class Product {
2      int productId;
3      String productName;
4      String category;
5
6      public Product(int productId, String productName, String category) {
7          this.productId = productId;
8          this.productName = productName;
9          this.category = category;
10     }
11
12     public String toString() {
13         return "Product[ID=" + productId + ", Name=" + productName + ", Category=" + category + "];";
14     }
15 }
16
```

OUTPUT:

```
PS C:\Users\Lenovo\OneDrive\Desktop\Cognizant\week1\DPP\E-commerce Platform Search Function> javac Product.java Main.java
>>
PS C:\Users\Lenovo\OneDrive\Desktop\Cognizant\week1\DPP\E-commerce Platform Search Function> java Main
>>
Linear Search Result: Product[ID=103, Name=Nike Shoes, Category=Footwear]
Binary Search Result: Product[ID=103, Name=Nike Shoes, Category=Footwear]
PS C:\Users\Lenovo\OneDrive\Desktop\Cognizant\week1\DPP\E-commerce Platform Search Function> 
```