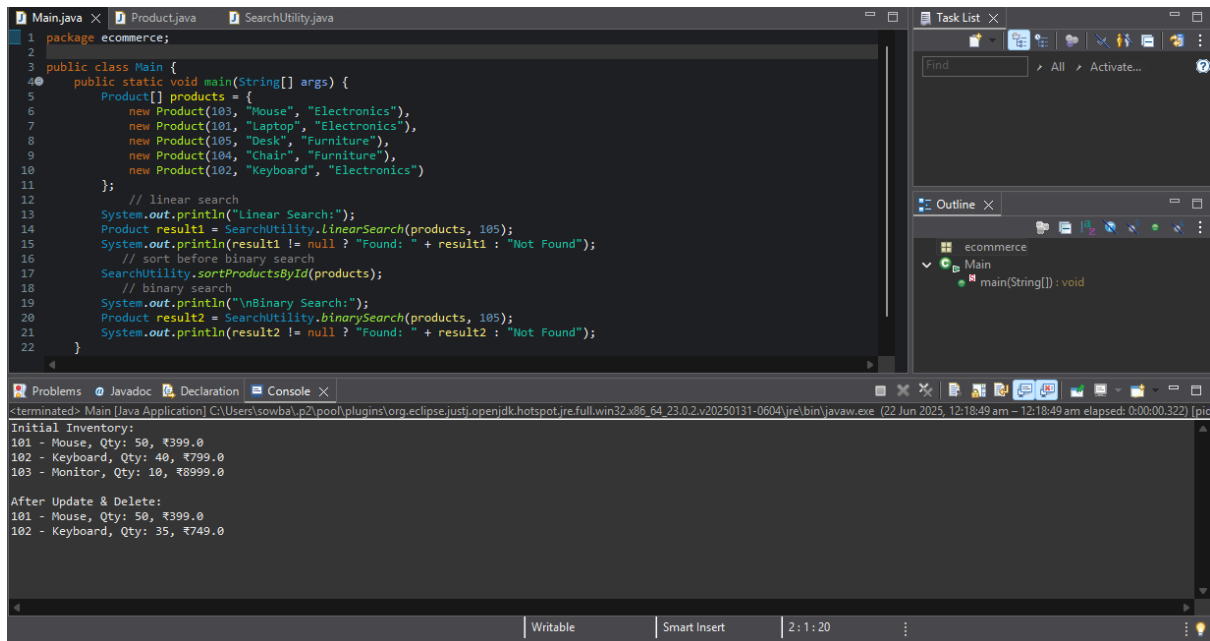


Exercise 2: E-commerce Platform Search Function

OUTPUT:



```
1 package ecommerce;
2
3 public class Main {
4     public static void main(String[] args) {
5         Product[] products = {
6             new Product(103, "Mouse", "Electronics"),
7             new Product(101, "Laptop", "Electronics"),
8             new Product(105, "Desk", "Furniture"),
9             new Product(104, "Chair", "Furniture"),
10            new Product(102, "Keyboard", "Electronics")
11        };
12        // linear search
13        System.out.println("Linear Search:");
14        Product result1 = SearchUtility.linearSearch(products, 105);
15        System.out.println(result1 != null ? "Found: " + result1 : "Not Found");
16        // sort before binary search
17        SearchUtility.sortProductsById(products);
18        // binary search
19        System.out.println("\nBinary Search:");
20        Product result2 = SearchUtility.binarySearch(products, 105);
21        System.out.println(result2 != null ? "Found: " + result2 : "Not Found");
22    }
23 }
```

Initial Inventory:
101 - Mouse, Qty: 50, ₹399.0
102 - Keyboard, Qty: 40, ₹799.0
103 - Monitor, Qty: 10, ₹8999.0

After Update & Delete:
101 - Mouse, Qty: 50, ₹399.0
102 - Keyboard, Qty: 35, ₹749.0

In the E-commerce search function, binary search is more efficient than linear search, especially for large, sorted datasets. Understanding Big O notation helps choose the right algorithm, improving search performance and enhancing user experience on the platform.