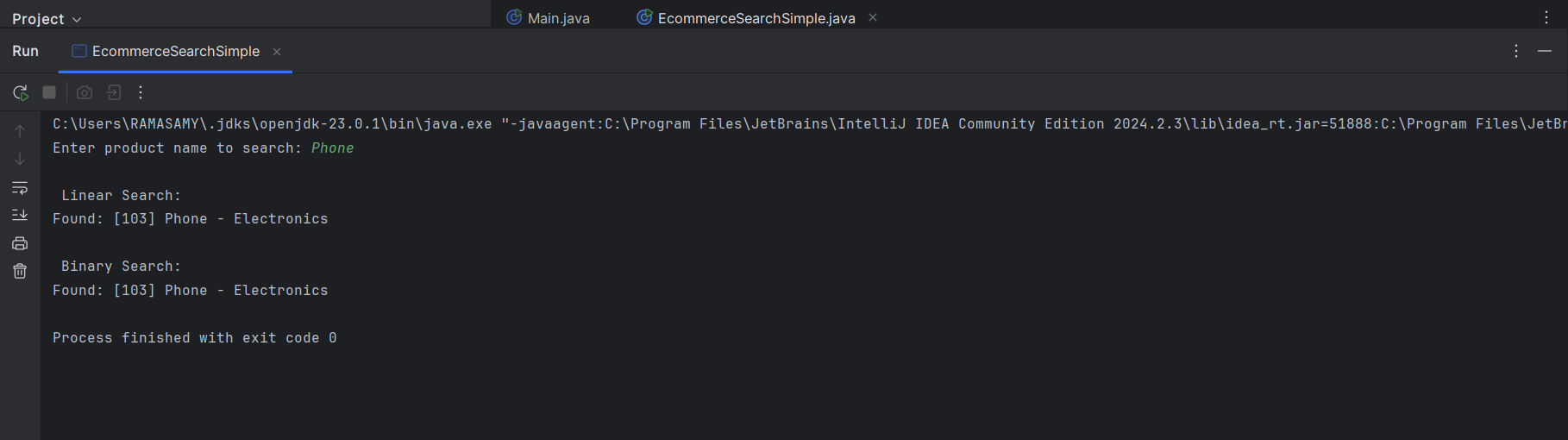
**Exercise 2: E-commerce Platform Search Function**

**CODE:**

**EcommerceSearchSimple.java**

import java.util.Arrays;  
import java.util.Comparator;  
import java.util.Scanner;  
  
public class EcommerceSearchSimple {  
 public static void main(String[] args) {  
 Scanner scanner = new Scanner(System.*in*);  
 Product[] products = {  
 new Product(101, "Laptop", "Electronics"),  
 new Product(102, "Shoes", "Fashion"),  
 new Product(103, "Phone", "Electronics"),  
 new Product(104, "Book", "Stationery")  
 };  
 System.*out*.print("Enter product name to search: ");  
 String searchName = scanner.nextLine();  
 System.*out*.println("\n Linear Search:");  
 Product result1 = SearchEngine.*linearSearch*(products, searchName);  
 System.*out*.println(result1 != null ? "Found: " + result1 : "Product not found.");  
 SearchEngine.*sortProducts*(products);  
 System.*out*.println("\n Binary Search:");  
 Product result2 = SearchEngine.*binarySearch*(products, searchName);  
 System.*out*.println(result2 != null ? "Found: " + result2 : "Product not found.");  
 scanner.close();  
 }  
}  
  
class Product {  
 int productId;  
 String productName;  
 String category;  
  
 public Product(int productId, String productName, String category) {  
 this.productId = productId;  
 this.productName = productName;  
 this.category = category;  
 }  
  
 public String toString() {  
 return "[" + productId + "] " + productName + " - " + category;  
 }  
}  
  
class SearchEngine {  
  
  
 public static Product linearSearch(Product[] products, String name) {  
 for (Product p : products) {  
 if (p.productName.equalsIgnoreCase(name)) {  
 return p;  
 }  
 }  
 return null;  
 }  
  
 public static Product binarySearch(Product[] products, String name) {  
 int left = 0;  
 int right = products.length - 1;  
  
 while (left <= right) {  
 int mid = (left + right) / 2;  
 int cmp = products[mid].productName.compareToIgnoreCase(name);  
 if (cmp == 0) return products[mid];  
 else if (cmp < 0) left = mid + 1;  
 else right = mid - 1;  
 }  
  
 return null;  
 }  
  
 public static void sortProducts(Product[] products) {  
 Arrays.*sort*(products, Comparator.*comparing*(p -> p.productName.toLowerCase()));  
 }  
}

**OUTPUT:**

****