E-commerce

class Product {  
 int productId;  
 String product\_name;  
 public Product(int productId,String product\_name){  
 this.productId = productId;  
 this.product\_name = product\_name;  
 }  
 public void display(){  
 System.*out*.println("Id: " + productId + ", Name: " + product\_name);  
 }  
 public static Product linearSearch(Product[] products, int targetId) {  
 for (Product product : products) {  
 if (product.productId == targetId) {  
 return product;  
 }  
 }  
 return null; // not found  
 }  
 public static Product binarySearch(Product[] products, int targetId) {  
 int left = 0, right = products.length - 1;  
  
 while (left <= right) {  
 int mid = left + (right - left) / 2;  
 if (products[mid].productId == targetId) {  
 return products[mid];  
 } else if (products[mid].productId < targetId) {  
 left = mid + 1;  
 } else {  
 right = mid - 1;  
 }  
 }  
 return null; // not found  
 }  
  
}

import java.util.Arrays;  
import java.util.Comparator;  
  
public class Main {  
 public static void main(String[] args) {  
 Product[] products = {  
 new Product(3, "Keyboard"),  
 new Product(1, "Book"),  
 new Product(2, "Laptop"),  
 new Product(5, "Shoes"),  
 new Product(4, "Pen")  
 };  
  
 System.*out*.println("Linear Search Result:");  
 Product found1 = Product.*linearSearch*(products, 5);  
 if (found1 != null) found1.display();  
  
 Arrays.*sort*(products, Comparator.*comparingInt*(p -> p.productId));  
  
 System.*out*.println("Binary Search Result:");  
 Product found2 = Product.*binarySearch*(products, 5);  
 if (found2 != null) found2.display();  
 }  
}

