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

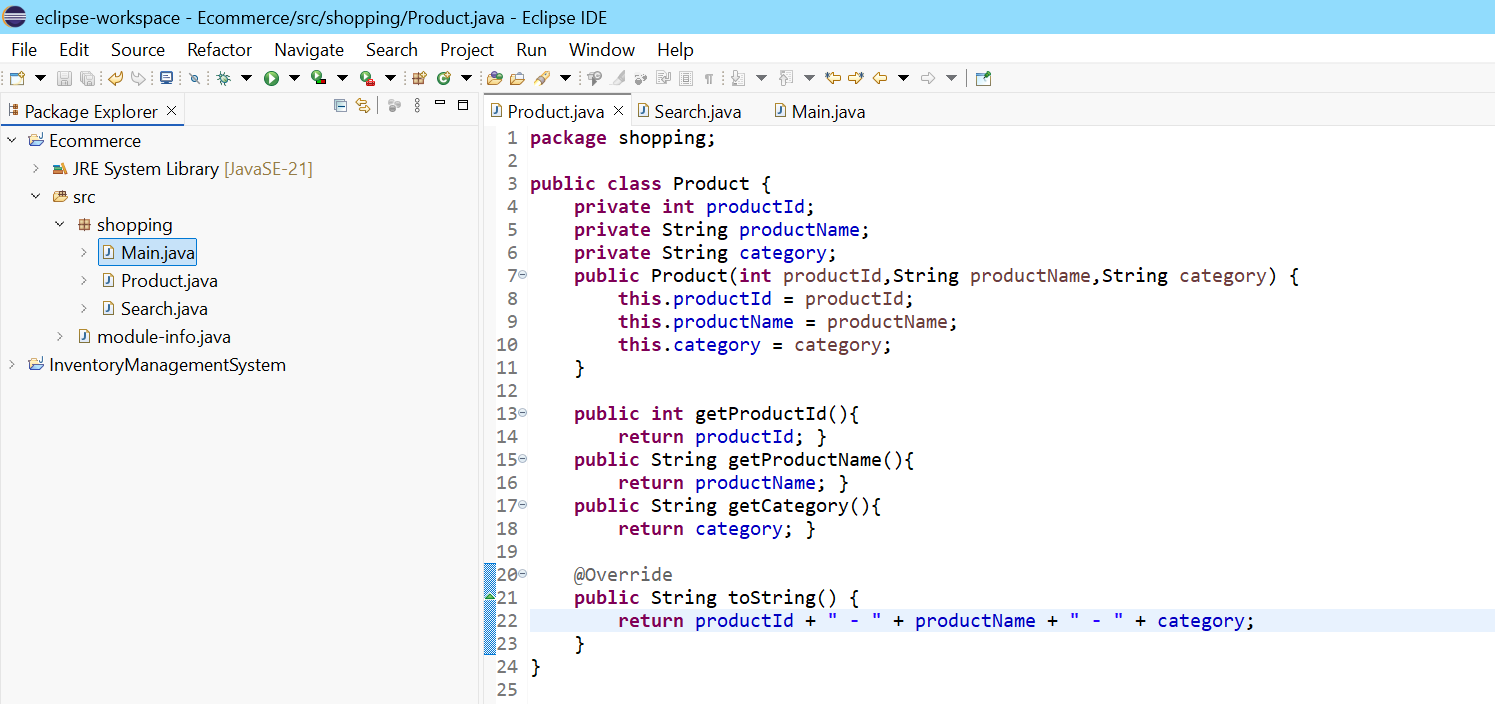
**Scenario:**

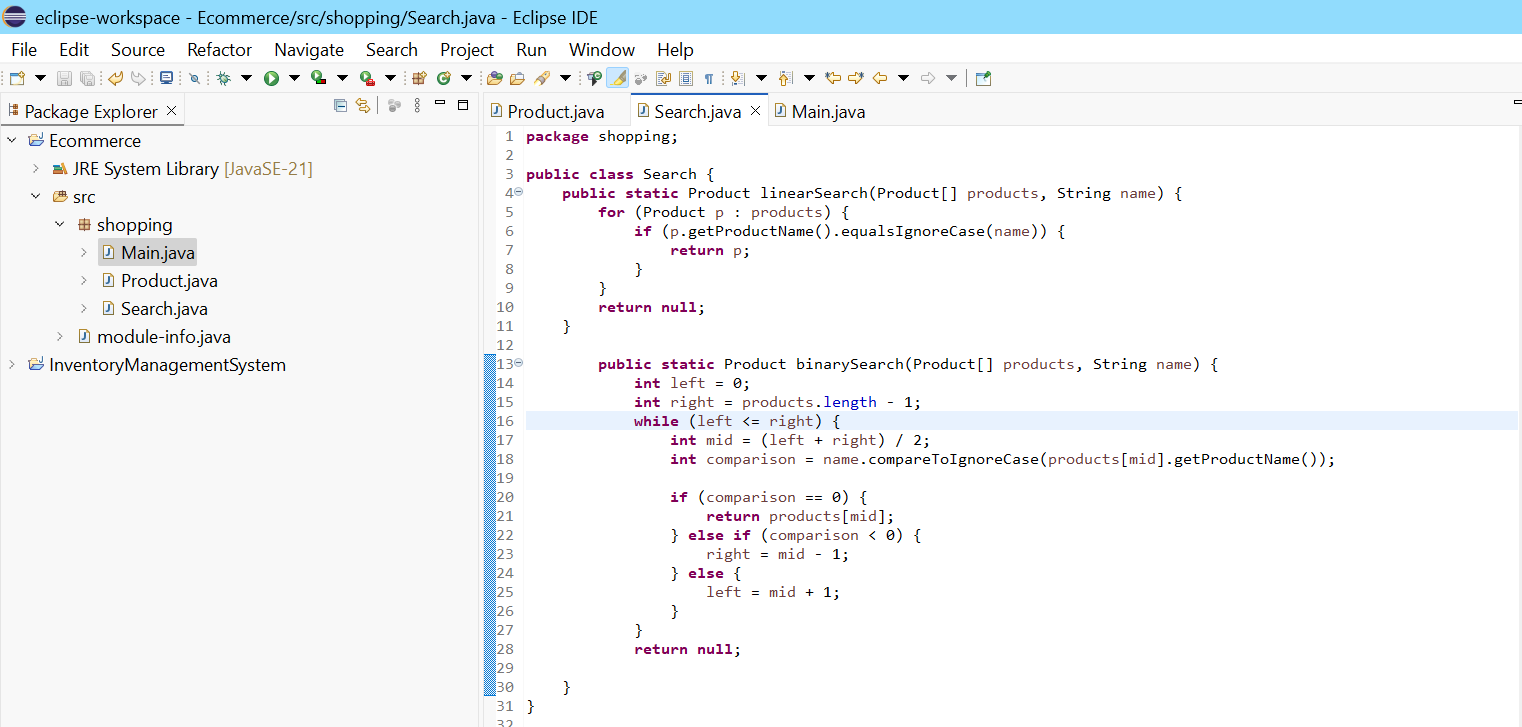
You are working on the search functionality of an e-commerce platform. The search needs to be optimized for fast performance.

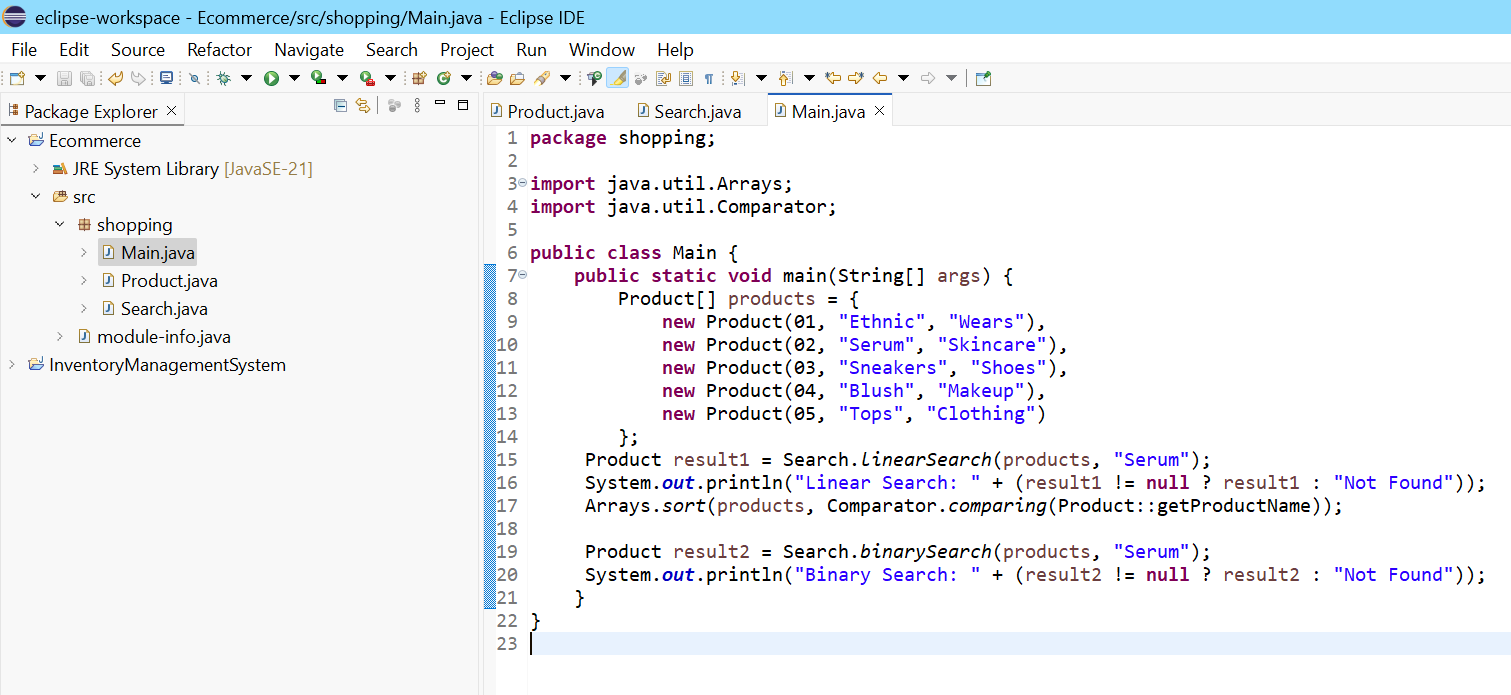
**Steps:**

1. **Understand Asymptotic Notation:**
   * Explain Big O notation and how it helps in analyzing algorithms.
   * Describe the best, average, and worst-case scenarios for search operations.
2. **Setup:**
   * Create a class **Product** with attributes for searching, such as **productId, productName**, and **category**.
3. **Implementation:**
   * Implement linear search and binary search algorithms.
   * Store products in an array for linear search and a sorted array for binary search.
4. **Analysis:**
   * Compare the time complexity of linear and binary search algorithms.
   * Discuss which algorithm is more suitable for your platform and why.

**SOLUTION:**

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**OUTPUT:**

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**TIME COMPLEXITY:**

**Linear Search** : Best Case– O(1)

Worst Case-O(n)

**Binary Search** : Best Case– O(1)

Worst Case-O(logn)

**Which algorithm is more suitable for my platform and why?**

Binary Search,as it is efficient for faster search.