Cognizant Deep Nurture 4.0

Algorithms And Data Structures

**Candidate Name:** Samarth Chourey  
**Superset ID:** 6394625

**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:**

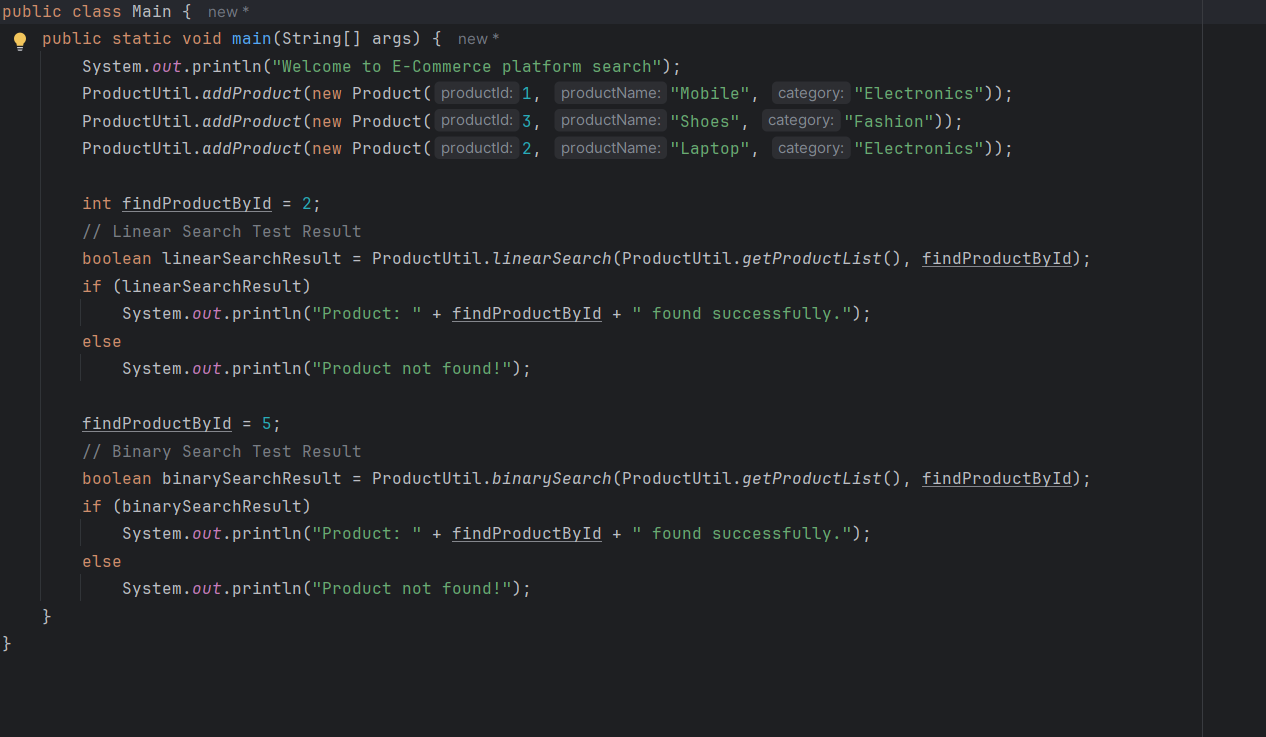
1. **Understand Asymptotic Notation:**
   * Explain Big O notation and how it helps in analyzing algorithms.
   * Describe the best, average, and worst-case scenarios for search operations.
2. **Setup:**
   * Create a class **Product** with attributes for searching, such as **productId, productName**, 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 Checklist (For Theory Check Markdown file)**

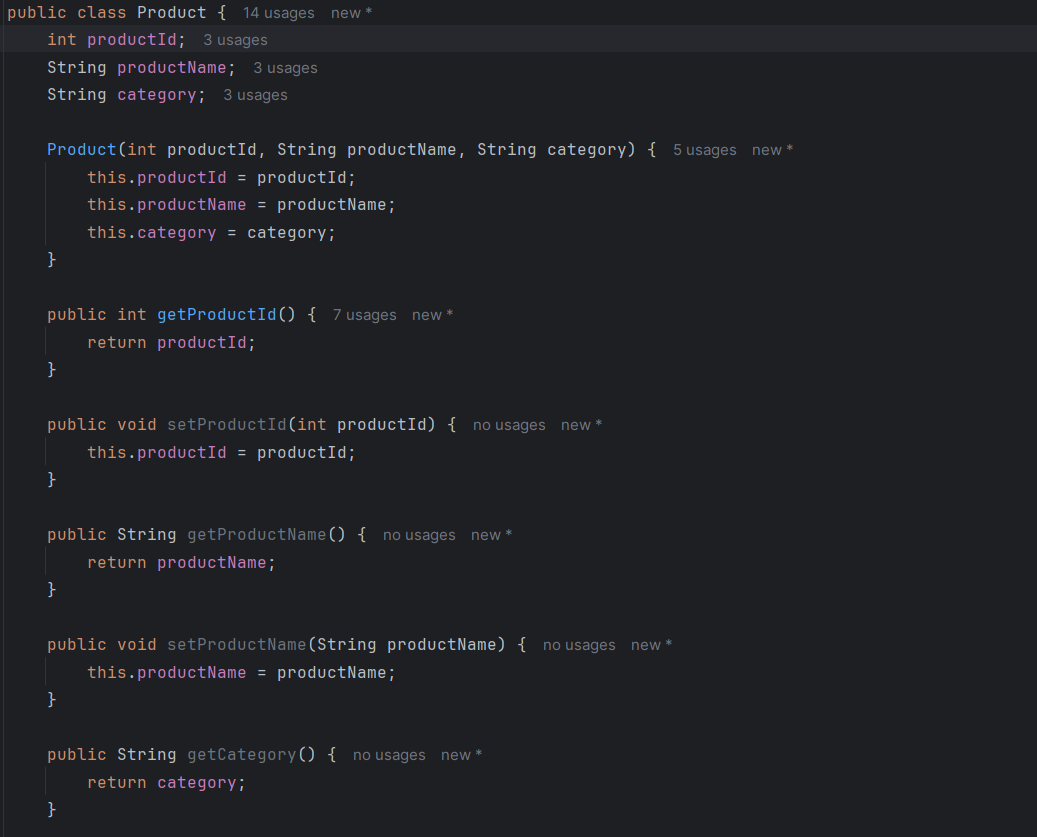
1. Theoretical Part in the txt file.
2. Implemented Linear and Binary Search Algorithms.

**Screenshots**

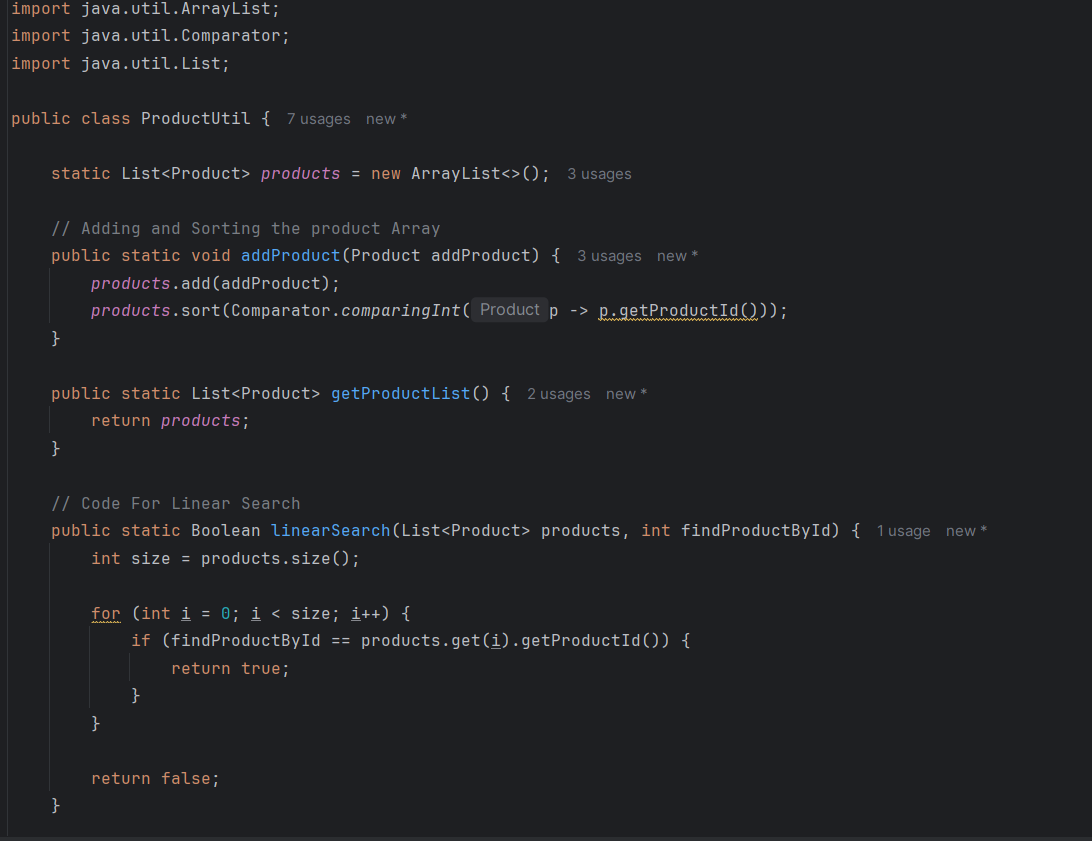
**Main.java**

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**Product.java**

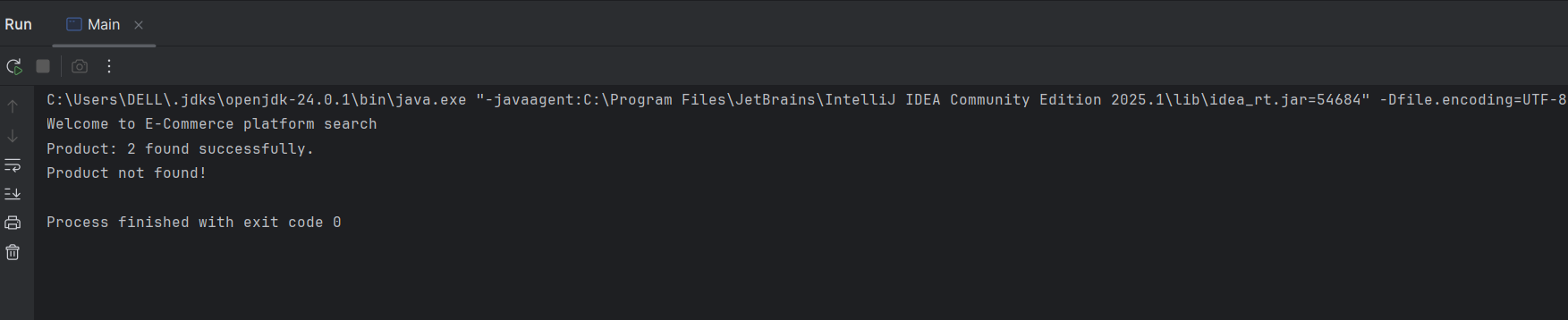
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**ProductUtil.java**

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**Output:**

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