WEEK 1:- ENGINEERING CONCEPTS

Data Structures and Algorithms ---

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:**

   o Explain Big O notation and how it helps in analyzing algorithms.
   o Describe the best, average, and worst-case scenarios for search operations.

2. **Setup:**

   o Create a class **Product** with attributes for searching, such as **productId, productName**, and **category**.

3. **Implementation:**

   o Implement linear search and binary search algorithms.
   o Store products in an array for linear search and a sorted array for binary search.

4. **Analysis:**

   o Compare the time complexity of linear and binary search algorithms.
   o Discuss which algorithm is more suitable for your platform and why.