DATA STRUCTURE AND ALGORITHM : HANDS-ON(MANDATORY)

EXERCISE –2 : E-COMMERCE PLATFORM SEARCH FUNCTION

- To build a search feature for an E-COMMERCE site where users look for products by the name.

✓ **ALGORITHMS PRACTICED :**

1. LINEAR SEARCH :

* Checks each product one by one.
* Works on unsorted list.
* Used in smaller lists for quicker access.

2. BINARY SEARCH :

* Divides and conquers.
* Works on sorted list.
* Used in large list and faster.

✓ **TIME COMPLEXITY :**

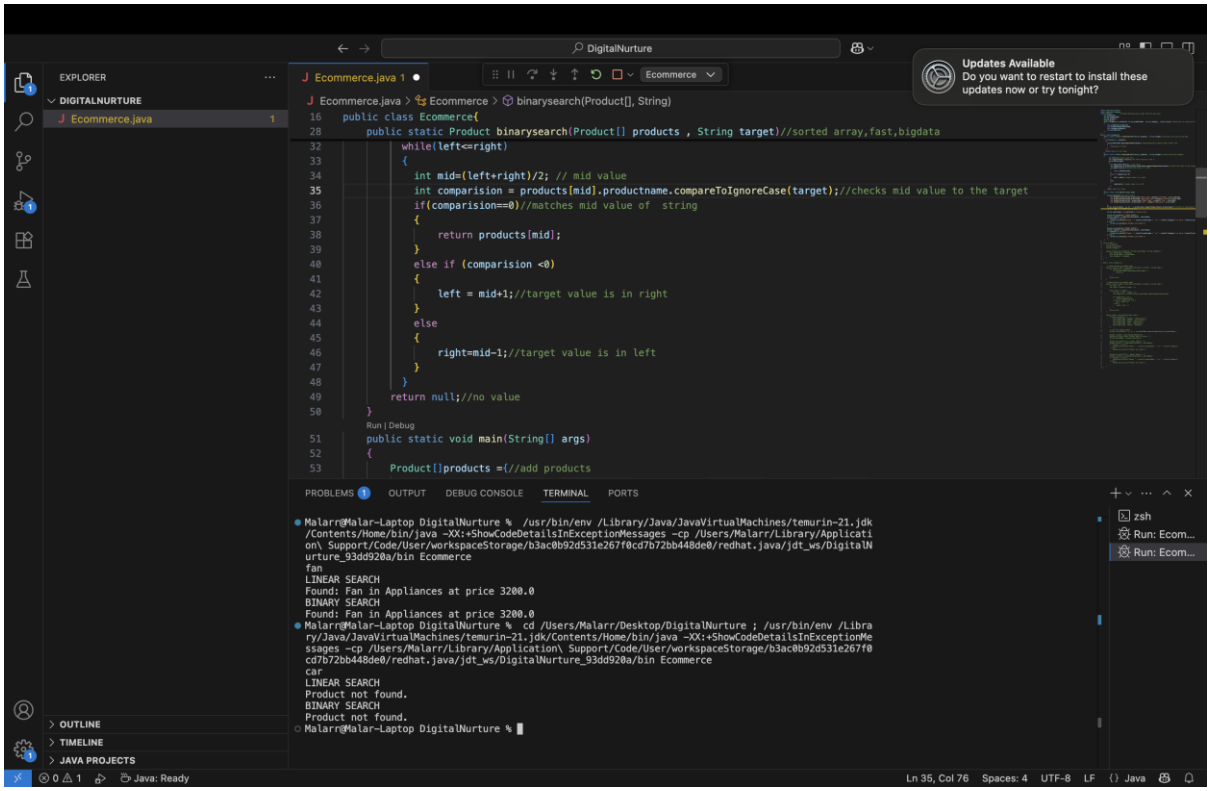
1. LINEAR SEARCH : 0(N) ->(Slow for big lists)
2. BINARY SEARCH : O(LOG N) ->(Fast for big lists)

✓ **KEYWORDS USED :**

1. *compareToIgnoreCase()* : Compares two string without case sensitivity.

2. *Arrays.sort()* : Sorts an array based on product name (needed for binary search)

✓ **OUTPUT :**



EXERCISE 7 : FINANCIAL FORECASTING

- To build a tool to predict future values (sales or investments) based on past growth .

✓ **CONCEPT :**

RECURSION :

* A function that calls itself with a smaller version of the same problem.
* Apply formula multiple time without writing loops.
* Used to calculate future value year by year applying growth at each step.

✓ **TIME COMPLEXITY :** O(n)

✓ **KEYWORDS :**

1. *Forecast()* : Recursive method used to compute future value.

✓ **OUTPUT :**