**Handson 3: E-commerce Platform Search Function**

1. Understand Asymptotic Notation:

Big O notation is a way to describe how fast or slow an algorithm runs as the input size increases.

It doesn’t care about exact time, but rather the growth pattern. Think of it as the speed label, for our code.

Examples:

O(1) → Constant time (super fast, doesn’t care about input size)

O(n) → Linear time (time grows with input)

O(log n) → Logarithmic time (very efficient for large data, like binary search)

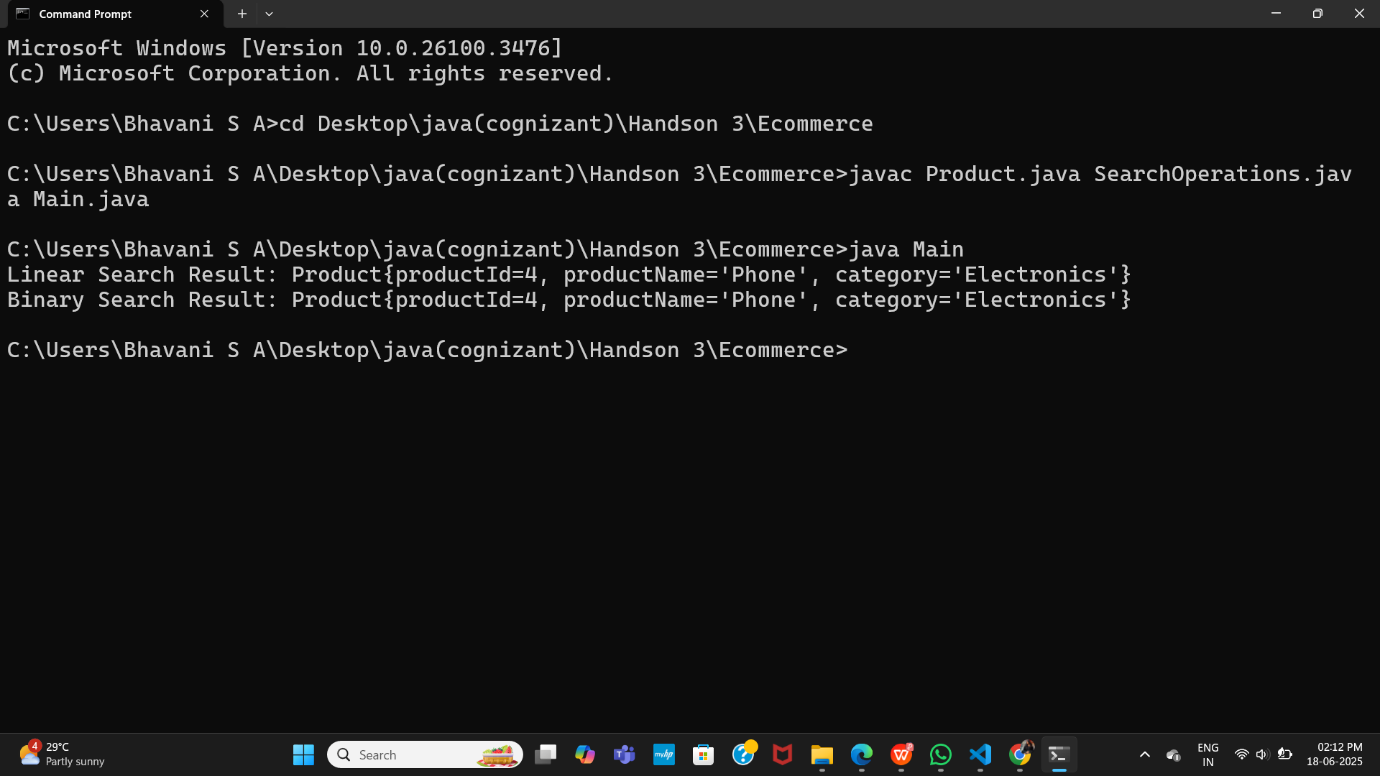
| **Case** | **Linear Search** | **Binary Search** |
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| Best | O(1) – if it’s the first item | O(1) – if it's right in the middle |

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| Average | O(n/2) → simplified as O(n) | O(log n) |

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| Worst | O(n) – last item or not found | O(log n) – keeps dividing until end |

**OUTPUT:**

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