

Theory Answers & Outputs

Data structures and Algorithms

Exercise 2: E-commerce Platform Search Function

Big O Notation describes the time complexity of algorithms based on input size. It helps in analyzing performance for large data.

- Best Case: First element match — $O(1)$
- Average Case: Element in middle — $O(n/2)$ for linear, $O(\log n)$ for binary
- Worst Case: Element not found — $O(n)$ (linear), $O(\log n)$ (binary)

Linear Search: $O(n)$; simple but slow.

Binary Search: $O(\log n)$; faster, needs sorted data.

Conclusion: Binary search is more suitable for optimized, large-scale e-commerce search if data is sorted.

OUTPUT

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PS C:\Users\KIIT\Downloads\CSharp_DesignPatterns_Exercises (1)\6364375_week1\EcommerceSearch> dotnet run
>>
C:\Users\KIIT\Downloads\CSharp_DesignPatterns_Exercises (1)\6364375_week1\EcommerceSearch\Program.cs(20,27):
: Converting null literal or possible null value to non-nullable type.
C:\Users\KIIT\Downloads\CSharp_DesignPatterns_Exercises (1)\6364375_week1\EcommerceSearch\Program.cs(23,27):
: Converting null literal or possible null value to non-nullable type.
Linear Search: Shoes
Binary Search: Shoes
❖ PS C:\Users\KIIT\Downloads\CSharp_DesignPatterns_Exercises (1)\6364375_week1\EcommerceSearch> |
```