Sequential Algorithms Complexity Analysis

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Algorithm 1: Unique Numbers

$$\begin{cases} \text{Time Complexity: } T(n) = O(n \log n) \\ \text{Space Complexity: } S(n) = O(n) \end{cases}$$

Algorithm 2: Optimized Sequence

$$\begin{cases} \text{Time Complexity: } T(n) = O(n^2) \\ \text{Space Complexity: } S(n) = O(n) \end{cases}$$

Algorithm 3: Brute Force

$$\begin{cases} \text{Time Complexity: } T(n) = O(n \cdot n!) \\ \text{Space Complexity: } S(n) = O(n) \end{cases}$$

Algorithm 4: Evaluate Sequence

$$\begin{cases} \text{Time Complexity: } T(n) = O(n) \\ \text{Space Complexity: } S(n) = O(1) \end{cases}$$

Algorithm 5: Print Numbers

$$\begin{cases} \text{Time Complexity: } T(n) = O(n \log n) \\ \text{Space Complexity: } S(n) = O(n) \end{cases}$$