**Recursion**

A method calls itself in order to decompose a problem down into smaller units.We must have a base case to stop the recursion from continuing indefinitely.

**Example:**

**Forecast(5000, 0.05, 5)**

**= 5000 \* (1.05)^5**

**Asymptotic Analysis**

Big O Notation is how we describe the growth of time as the input size n gets larger.This is important for understanding the estimated performance over time or scale.

**3. Algorithm Implementation**

**Method Code Approach Use Case**

Recursive ForecastValue calls itself Good for clarity

Iterative Loop-based version More efficient

**4. Complexity & Limitations**

**Approach Time Complexity Space Complexity**

Recursive O(n) O(n)

Iterative O(n) O(1)

Optimized O(1) O(1)