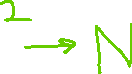
**1. Algorithm Variants**



* Explore and implement **different approaches** to solve the Josephus problem:
  + **Recursive vs Iterative**.
  + **Mathematical formulas** for direct computation.
  + Analyse their differences in terms of efficiency and resource usage.

**2. Visualization**

* Create a **graphical simulation** or an **interactive visualization**:
  + Show the elimination process step-by-step for different inputs.
  + Highlight the computational steps in real-time to make it more engaging.
  + Tools: Python (matplotlib, Pygame), JavaScript (D3.js).

**4. Comparative Analysis**

**5. Mathematical Insights**

* Dive deeper into the mathematical theory behind the Josephus problem:
  + Explain recurrence relations in detail.
  + Provide proofs for time complexity, space complexity, and correctness.