DP intro U

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Max/Min

Max | Min , Shortest Longest.

It is used to solve optimization problems

1. Breaks down the complex problem into simpler subproblems
2. Find optimal solution to these subproblems
3. Store the results of subproblems **(memoization)**
4. Reuse them so that same subproblem is not calculated more than once
5. Finally calculates the result of complex problem

→ **Applicable to problems which are having properties of:**

- **Overlapping subproblems & Optimal Substructure**

In the context of algorithms and dynamic programming, "optimal substructure" means that an optimal solution to a problem can be constructed from optimal solutions to its subproblems.

The Fibonacci series is a sequence of numbers where each number is the sum of the two numbers before it. The sequence starts with 0 and 1, and continues with 1, 2, 3, 5, 8, 13, 21, and so on.

$$f(n) = \begin{cases} f(n-1)+f(n-2), & n>1 \\ 0, & n=0 \\ 1, & n=1 \end{cases}$$