

## Top-20 Training Program (Advanced DP Problems)

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Apply the solution building strategies discussed in class to solve following problems.

### Group1: Counting Problems

**Unique BST:** <https://leetcode.com/problems/unique-binary-search-trees/description/>

**Unique BST-II:** <https://leetcode.com/problems/unique-binary-search-trees-ii/>

**Cut the Stick:**

[https://uva.onlinejudge.org/index.php?option=com\\_onlinejudge&Itemid=8&page=show\\_problem&problem=944](https://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=944)

### Group2: Operations over linear sequence of objects

**Stone Game:** <https://www.lintcode.com/problem/stone-game/description>

**Segment Stone Merge:** <https://www.lintcode.com/problem/segment-stones-merge/description>

**Mixtures:** <http://www.spoj.com/problems/MIXTURES/>

**Burst Balloons:** <https://leetcode.com/problems/burst-balloons/description/>

**An Old Stone Game:** <http://poj.org/problem?id=1738>

**Sweet & Sour Rock:** <http://www.spoj.com/problems/ROCK/>

**Matrix Chain Multiplication:** <https://www.hackerrank.com/contests/programming-jam-2-0/challenges/matrix-chain-multiplication>

**Min Cuts for Palindrome Partitioning:** <https://leetcode.com/problems/palindrome-partitioning-ii/description/>

**Restaurant Merging:** Given a linear row of n restaurants of varying sizes, find an efficient algorithm that computes minimum cost required to merge them into single very large restaurant subject to following rules:

- You can only merge any two adjacent restaurants and a new restaurant will replace those two.
- The cost of merging equals to maximum size of those restaurants.
- The size of the new restaurant equals to sum of sizes of those restaurants.