

Design and Analysis of Algorithms

CS 302

Homework # 3

Here's a recurrence.

$$C(N) = \frac{2}{N} \left(\sum_{i=0}^{N-1} C(i) \right) + N$$

$$C(0) = 1$$

For example,

N	0	1	2	3	4
C(N)	1	3	6	9.67	13.8

Write the following three solutions for this recurrence. This is a programming assignment.
Submit code.

- 1) Brute force recursive solution [3 Marks]
- 2) Top Down recursive (Dynamic Programming) Solution [5 Marks]
- 3) Bottom Up (Iterative Dynamic Programming) Solution [5 Marks]