Tecnológico de Monterrey

Fundamentos de computación

Homework 3

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1 Problems

Solve the following problems:

1. Find an optimal parenthesization of a matrix-chain product whose sequence of dimensions are $p_0 = 10$, $p_1 = 19$, $p_2 = 29$, $p_3 = 33$, $p_4 = 9$ and $p_5 = 17$. Show and explain each step in the procedure.
2. Show that a full parenthesization of an n element expression has exactly $n - 1$ pairs of parentheses
3. Solve problem 15-4 from Cormen et al. Book.
4. Provide a comparative study on an investigation over algorithm-design strategies: Divide and Conquer, Dynamic Programming and Greedy Algorithms. State their definition, characteristics, advantages, disadvantages, examples of problems where each strategy is best applied, and a description to characterize problems within each technique. Add references to your work.