

Student Information

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Due Date: 7 Dec. 4pm.

Submit written answer on paper in class or submit electronic version online through Dropbox. Submission without student information will **NOT** be marked!

Exercise 1

Consider the optimal parenthesization problem for the case of 6 matrices with dimensions (5,1), (1,5), (5,1), (1,4), (4,2), (2,5) (the first 5 matrices are as in the lecture slides). Solve the DP by filling the corresponding table of sub-problems (reusing the part that is already computed in the slides for the problem of size 5).

- A. The minimum cost is 50 and the original problem is divided into the 2 sub-problems for (5,1) and for ((1,5), (5,1), (1,4), (4,2), (2,5)).(T/F) \top
- B. The minimum cost is 75 and the original problem is divided into the 2 sub-problems for ((5,1), (1,5), (5,1), (1,4), (4,2)) and for (2,5).(T/F) F

Exercise 2

Compute the longest common subsequence (LCS) for the strings *ABCABD* and *BACDA*.

- A. The length is 3. (T/F) \top
- B. The solution is unique.(T/F) F

Exercise 3

Solve the knapsack problem by filling the DP table for the objects of (size, value) pairs (2,1), (2,1), (3,5), (4,6), and a knapsack of size $S=5$.

- A. The last column of the sub-problem matrix will be (0,1,2,6,6). (T/F) \top
- B. B. The last column of the sub-problem matrix will be (0,1,2,5,6). (T/F) F