CMPT 307 Homework 6
November 19, 2019
Due date: November 29, 2019

Practice Problems from the text

1. **Chapter 6:** 6.2, 6.3, 6.8, 6.10, 6.12, 6.17, 6.18, 6.21, 6.22

Homework problems

Consider the following set of problems:

Coin-exchange problem Problem 6.19 of the text (page 181)

Chain matrix multiplication Multiply a chain of matrices $A_1 \times A_2 \times \ldots \times A_n$ where A_i's are matrices with dimensions $m_0 \times m_1, m_1 \times m_2, \ldots, m_{n-1} \times m_n$ such that the evaluation requires minimum number of multiplications. (Section 6.5 of the text (page 168))

Problem 6.4 of the text (page 178)

Problem 6.7 of the text (page 179)

Problem 6.21 of the text (page 183)

For each of the above problems, perform the following tasks.

1. Describe the subproblems of the problem. Identify the basic subproblems.
2. Design a recursive formulation to solve a subproblem.
3. Design a memoized version of the recursive algorithm to determine the optimal solution value of the problem.
4. Design an algorithm to retrieve the solution sequence that results in the optimal value.
5. Describe an iterated algorithm to solve the subproblems without recursive calls.