This assignment covers material from the lectures on Chapters 14, 15, and 17 preparation for Quiz 6.

Due: November 13, 11:35am

Page 345: Exercises 14.1-1, 14.1-2, 14.1-3, 14.1-7. (Some of these questions mention the fact that Figure 14.1 is a red-black tree. That fact is not important.)

Page 370: Exercises 15.1-2, 15.1-3

Page 378: Exercises 15.2-1 (construct the m and s tables, then use them to find the optimal parenthesization), 15.2-2

Page 389–390: Exercises 15.3-2, 15.3-3 (write pseudocode for a DP algorithm for this variant problem, or explain why DP won’t work), 15.3-4

Page 405: Problem 15-2

(Note: There are several other interesting problems on pages 404–412.)

Not in textbook: The tables generated by a certain run of the matrix chain multiplication algorithm from class are shown below. Find the optimal parenthesization for this instance.

Page 456: Exercises 17.1-1, 17.1-2 (This refers to a k-bit counter data structure, which is analyzed in detail in Chapter 17, but was not one of the examples we reviewed in the lecture.)

Page 458–459: Exercises 17.2-1, 17.2-3

Page 462: Exercise 17.3-3. 17.3-6 (Write pseudocode for DEQUEUE and ENQUEUE operations, using the PUSH and POP operations of the two stacks, then use the potential method analyze the amortized run time)

Not in textbook: Consider the dynamic table data structure from the textbook and the lecture. Find the amortized run time of each operation, using a potential function that evaluates to the number of elements in the table.