Homework 2(Posted 2nd February, Due before 11:59 p.m. 12th February, 120 pts)

Please submit hard copies to Ms. Drucilla Spanner, slide in her office if she is not there. Please submit each question separately. Please email programs to P.A.

Problem 1: 20 pts   3.7 (a), (b) Weiss

Problem 2: 20 pts   3.12, (b) Weiss

Problem 3: 10 pts   3.26, Weiss (you must use circular arrays)

Problem 7: 30   Program the symbol matching taught in class. You need to match parantheses, braces, curly brackets and begin-ends. If it helps, you can use numbers and alphabets for the inputs (1 for left parantheses, 2 for left brace, 3 for left curly bracket, 4 for begin, a, b, c, d for the corresponding right versions respectively). You need to do two implementations for the stack, one using linked list and the other using arrays. Your programs should be able to do symbol matching for expressions with up to $10,000$ symbols, and should be able to accept any expression of length less than or equal to $10,000$ as input. Next evaluate the run time for the two versions for expressions of length N, N varying from 100 to $10,000$. To ensure that the program operates with all elements of the expression, use the first $N/2$ symbols as left parantheses and the next $N/2$ expressions as the right parantheses in these test cases. Plot the run times.