Kadir Has University

Department of Computer Engineering

CE 242 - Data Structures and Algorithms

Spring 2010 – Ahmet Ardal

Lab Assignment 6

1. Implement the isParenthesesWellFormed() method. It should check its parameter "str" in order to determine whether or not the parentheses are well-formed. Make use of the Stack data structure while developing your solution for the problem. The method should return true if the text is well-formed and otherwise false. For instance:

   `"{(a * b) - ((c[5][(z - y) * 3] * z) - k[52 / (ab[3] * m)])}"` **à** well-formed
   `"{(a * b) – [4)"` **à** not well-formed

   Method signature:

   ```
   public static boolean isParenthesesWellFormed(String str)
   ```

2. Implement the evaluateRPN() method. It should evaluate the arithmetic expression which is given in postfix notation or in Reverse Polish Notation in parameter "expr" and return the result. Make use of the Stack data structure while developing your solution for the problem. Assume all numbers in the expression are 1-digit positive integers and all intermediate results are also 1-digit positive integers. For instance, the expression "22*3+5-3*2/3*6-1+" should evaluate to 4.
   For more information check this: http://en.wikipedia.org/wiki/Reverse_Polish_Notation

   Method signature:

   ```
   public static int evaluateRPN(String expr)
   ```

   Note: While implementing the methods above, write your code into the method body of the corresponding method definition in the Java source file named "CE242_HW6.java", which is provided on the Blackboard. Also a main() method with some test code is available in the file "CE242_HW6.java" for you to test the methods you implement.