Indian Institute of technology, Guwahati

Department of Computer Science and Engineering

Data Structure Lab: (CS210)

Lab Assignment: 1

Date: 7th August, 2016. **Total Marks: 20**

1. Write a function that reverse a single linked list. Create a link list first using a function. Write a function that prints a linked list**.**

[10]

Input: list of numbers with a zero at end. Zero indicates end of inputs.
Output: inputs in reverse directions.

Test 1:
Input: 1 2 3 4 5 6 7 8 9 0
Output: 9 8 7 6 5 4 3 2 1 0

Test 2:
Input: 1 0
Output 1 0

Test 3:
Input 0
Output 0

Evaluation Criteria:

1. Main only contains a link list declaration and 3 function calls: Create, Reverse and Print. **Penalty: -4.**
2. No Global Variable: **Penalty: -2**.
3. Program works for all three tests: **10.** Partial marking as per evaluation by TA.

2. Write a program that evaluates a post-fix expression using **stack**. Your program reports if something is wrong in the input expression. You may assume that your all operands are single digit integer. Your output may be a floating point number.
   Input: A string that represents a post-fix expression.
   Output: Result of the evaluation

   Test1:
   Input: 6 5 4 / *
   Output: 7.5

   Test2:
   Input: 6 5 + 3 + +
   Output: Incorrect Input

   Test 3:
   Input: 4 + 4
   Output: Incorrect Input

   Test4:
   Input: 6 2 3 + - 3 8 2 / + * 2 $ 3 +
   Output: 52

   Evaluation Criteria:
   1. Stack operations are written properly: **3**
   2. Post-fix evaluation logic is correct: **1**
   3. Works for all 4 test cases: **6**.