**BRAC University**

**Department of Computer Science and Engineering**

**CSE 220: Data Structures**

**Lab 04**

**Input**

Your program will take an arithmetic expression as an input. For Example:

1 + 2 \* (3 / 4)

1 + 2 \* [3 \* 3 + {4 – 5 (6 (7/8/9) + 10) – 11 + (12\*8)] + 14

1 + 2 \* [3 \* 3 + {4 – 5 (6 (7/8/9) + 10)} – 11 + (12\*8) / {13 +13}] + 14

**Program**

Your program will determine whether the open brackets (the square brackets, curly braces and the parentheses) are closed in the correct order.

**Output**

**Output 1**

1 + 2 \* (3 / 4)

This expression is correct.

**Output 2**

1 + 2 \* [3 \* 3 + {4 – 5 (6 (7/8/9) + 10) – 11 + (12\*8)] + 14

This expression is NOT correct.

Error at character # 10. ‘{‘- not closed.

**Output 3**

1 + 2 \* [3 \* 3 + {4 – 5 (6 (7/8/9) + 10)} – 11 + (12\*8) / {13 +13}] + 14

This expression is correct.

**Output 4**

1 + 2 ] \* [3 \* 3 + {4 – 5 (6 (7/8/9) + 10) – 11 + (12\*8)] + 14

This expression is NOT correct.

Error at character # 4. ‘]‘- not opened.

**Task 1**

Solve the above problem using an array based stack.

**Task 2**

Solve the above problem using a linked list based stack.