实验二、Three languages for algebraic expressions

一、实验目的

For this lab, you will study and work on the problems about three languages for algebraic expressions.There are three languages for algebraic expressions:

• Infix: An operator appears between its operands.

• Prefix: An operator appears before its operands.

• Postfix: An operator appears after its operands.

In all three versions, the operands occur in the same order, and just the operators must be moved to keep the meaning correct. A fully parenthesized infix algebraic expression is an infix algebraic expression where every operator and its operands are contained in parentheses.

二、使用仪器、材料

Computer

三、实验内容

Convert the following infix expressions into fully parenthesized infix expressions. And then convert each fully parenthesized infix expression into to prefix and postfix. Compare your results with others.

A + B * C + D

(A + B) * (C + D)

A * B + C * D

A + B + C + D

四、实验步骤及过程记录

1.Fully parenthesized: ((A + (B * C)) + D)
Prefix: + + A * BCD
Postfix: ABC * + D +
2.Fully parenthesized：((A + B) * (C + D))
Prefix:* + AB + CD
Postfix: AB + CD + *
3.Fully parenthesized: ((A * B) + (C * D))
Prefix:+ * AB * CD
Postfix: AB * CD * +
4.Fully parenthesized:(((A + B) + C) + D)

Prefix:+ + + ABCD
Postfix:AB + C + D +

五、实验收获与体会

1.In-depth study of prefix, postfix, and fully parenthesized infix expressions.

2.Learned to convert between three expressions.

3.Understood the relationship between algebraic expression conversions and stack operations