Homework#4 Tree Build, Traverse and Evaluation (due: 5/15)

1. Node Creation:

```
class node { public:
        Char    data;     // one character input per node ex) A
        Int     prio;     // priority number from precedence table
        node *left;   // left   link
        node *right;   // right   link
 }
```

2. Precedence Table

```
char prec[4][2] = { '*', 2,   '/', 2,   '+', 1,   '-', 1};
```

=>

*	/	+	-
2	2	1	1

3. Main Program

1) Get math expression in numbers (ex: 2+4*3)

2) Build Tree ==> same as Lab#7

3) Evaluate the expression and prints the results

4) Draw the Tree

4. Details

1) Get math expression(수식 입력): 키보드 에서 입력.

2) Build Tree

알고리즘 : 강의노트 참조

3) Traverse (Tree traverse algorithm 참조):

Inorder, Preorder, Postorder

4) Evaluation of the expression

알고리즘 ; 강의노트 참조

5) Draw Tree : to be announced

```
Procedure DrawTree (Node *p, int level) {        // start level as 1
    if (p != 0) {
        DrawTree (p->right,   level + 1);
        For (I = 1; I <= level-1; i++)   print "     ";      //오른쪽으로 빈공간 출력.

        Print p->data;                                    // 데이터 출력

        if (p->left != 0 && p->right != 0)   print "   <   ";

        else if (p->right != 0)                  print " / " ;

        else if (p->left != 0)                   print " " \ "

        DrawTree (p->left,   level + 1);
   }
}
```

- 검사절차예시 : Input: 2+4*3