1. **已知二叉树用下列语法字符串输入，试以此建立二叉链表表示的二叉树。**

**大写字母**

**二叉树**

**二叉树**

**叉树**

**(**

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**)**

**#**

**二叉树**

#include <iostream>

using namespace std;

struct Node

{

char data;

Node \*lc, \*rc;

};

typedef Node \*Bitptr;

void crtBtree(Bitptr &t)

{

char c;

do

{

scanf("%c", &c); // 不能用cin，结尾的回车不会输入

if (c == '#')

t = NULL;

else if (c >= 'A' && c <= 'Z')

{

t = new Node;

t->data = c, t->lc = NULL, t->rc = NULL;

}

else if (c == '(') // 有子结点

crtBtree(t->lc), crtBtree(t->rc);

} while (c != ')' && c != ','&&c != '\n'); // 左子树/右子树创建完成/结束的标志

return;

}

// 先序遍历输出

void preOrder(Bitptr t)

{

if (t != NULL)

{

cout << t->data << " ";

preOrder(t->lc), preOrder(t->rc);

}

return;

}

int main()

{

cout << "请输入二叉树：";

Bitptr root = NULL;

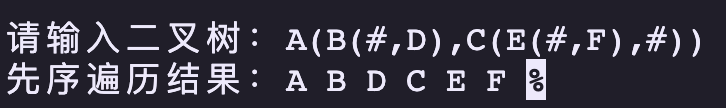
crtBtree(root);

cout << "先序遍历结果：";

preOrder(root);

return 0;

}



1. **试给出算法按凹入表方式打印以二叉链表表示的二叉树。**

#include <iostream>

using namespace std;

struct Node

{

char data;

Node \*lc, \*rc;

};

typedef Node \*Bitptr;

void crtBtree(Bitptr &t)

{

char c;

do

{

scanf("%c", &c); // 不能用cin，结尾的回车不会输入

if (c == '#')

t = NULL;

else if (c >= 'A' && c <= 'Z')

{

t = new Node;

t->data = c, t->lc = NULL, t->rc = NULL;

}

else if (c == '(') // 有子结点

crtBtree(t->lc), crtBtree(t->rc);

} while (c != ')' && c != ',' && c != '\n'); // 左子树/右子树创建完成/结束的标志

return;

}

void print(Bitptr &t, int num)

{

if (t == NULL)

return;

// 右

print(t->rc, num + 1);

// 根

for (int i = 0; i < num; i++)

cout << ' ';

cout << t->data << endl;

// 左

print(t->lc, num + 1);

return;

}

int main()

{

cout << "请输入二叉树：";

Bitptr root = NULL;

crtBtree(root);

int num = 0;

print(root,num);

return 0;

}

