HW4: Binary Tree traversal

제출은 gitLab을 통해서 하며 **http://hconnect.hanyang.ac.kr/2017\_CSE2010\_수업번호/2017\_CSE2010\_수업번호\_학번.git 에 HW4라는 폴더를 만들어 진행.**

\* 프로그램 제출간 유의사항

- 소스코드에는 주석이 있어야 함.

- 주어진 구조체와 input.txt를 사용해야 함

**- 숙제의 소스코드 평가는 linux ubuntu 16.04.2 LTS 버전 gcc 5.4.0에서 함.**

\* 보고서 제출간 유의사항

- 작성한 소스 코드가 첨부되어야 하며, 실행결과가 첨부되어야 함.

- 분량은 제한이 없으나 1~2apge로 간략하게 설명.

- 보고서는 hw4\_학번.확장자(doc, docx, pdf)로 제출.

**제출시간: '17.4.12(23:59) 까지**

**\*지연제출**

- 24시간 이내는 해당 과제 50% 감점, 48시간 이내는 75% 감점.

- 지연제출자는 E-mail(casualab@hanyang.ac.kr)과 gitlab에 모두 제출.

- E-mail제목: "hw4\_학번\_자신의 수업 요일(수, 목)\_이름 " 형식으로 제출.

Using the tree ADT implemented on the class(practice time) create a tree shown below. Additionally, you should implement three print functions with different ways of traversal.

The tree of form.

|  |
| --- |
| tree traversal에 대한 이미지 검색결과 |

* Input

Obtain a list of operations from the given input file, and execute the given operations in order. A detailed specification of the operations is provided below. Each line represents a single operation. Each operation and the necessary parameters are separated by a space. You may assume that the input values (represented as x below) are any integer.

* **r:** print the tree by preorder traversal
* **i**: print the tree by inorder traversal
* **o:** print the tree by postorder traversal

An input file is shown below.

|  |
| --- |
|  |

* Tree ADT

(1) Data Specification for the objects

typedef int element;

typedef struct \_TreeNode

{

element data;

struct \_TreeNode \* left;

struct \_TreeNode \* right;

} TreeNode;

(2) Function specification

- TreeNode \* createTreeNode(void)

- setData(TreeNode \* node, element data)

- element getData(TreeNode \* node)

- TreeNode \* getLeftSubTree(TreeNode \* node)

- TreeNode \* getRightSubTree(TreeNode \* node)

- void makeLeftSubTree(TreeNode \* main, TreeNode \* sub)

- void makeRightSubTree(TreeNode \* main, TreeNode \* sub)

- void printInorder(TreeNode \*root)

- Print the tree by inorder traversal.

- void printPreorder(TreeNode \*root)

- Print the tree by preorder traversal.

-void printPostorder(TreeNode \*root)

- Print the tree by postorder traversal.

3. Program description

* name : hw4\_학번.c
* input : a list of operations in a file (an input file name is given as a command line argument. See the example in “1. input” on the first page)
* output : the corresponding result in the standard output