CSE225 Data Structures, 2016-2017(FALL)

PROJECT #2 (Due:28.11.2016, 24:00)

Demos :29-30.11.2016

2-d Tree

This project is a programming assignment in C which aims to build an algorithm that will store information in**a 2-d Tree** and makes necessary operations in this tree.

The entries in the input file ("input.txt") will be similar:

(key-1, key-2)

50,100
25, 200
75,50
35,150
15,350
60,25
85,75
15,100
10,300
20,500
70,300
90,200
5,50
3,140
4,250
17,260
8,275
13,270
…

Your program will insert these entries into a tree based on the following rule:

This will be 2-d tree. A 2-d tree is similar to a BST with the only exception that branching is performed

- at even depth levels (0,2,4,6,…)with respect to **the first key**
- at odd depth levels (1,3,5,7,…)with respect to **the second key**

You are expected to the following:

1. Read the input file, build 2-d tree and print it. (50 points)
2. Ask for a new input from the user and insert it into correct position in this 2-d Tree. (25 points)
3. Ask the user to enter an entry, remove that entry and print the tree again. (50 points)

In your demo, we will run your program by**using an input file with the name "input.txt".** We want to see if above operations are **working correctly or not**, **and your demo grade will be calculated based on the number of test cases which are working correctly.**

Of course, other questions based on your implementation and coding structure will be asked you during your demo. These questions will be those kinds of questions which could be answered by only the students who really implement his/her project.

The main goal of this project is to be familiar with trees. So, if you use another data structure instead of trees then you will get zero, unfortunately.

In this project you are expected to develop an algorithm that is capable of finding a solution to the above problem and ***implement this algorithm in ANSI C that runs under either UNIX or Windows***.

You are responsible for demonstrating your program to your TA Berna Altınel on the scheduled demo day.

CODE SUBMISSION:

You should use the following email address in order to submit your code:

cse225.marmara at gmail dot com

NAMING YOUR FILE:

name_surname.c

Any submission after the project's due date, will not be taken into consideration.

You are required to make an ***individual effort*** on this project. Any potential violation of this rule will lead everyone involved to **failing from the course** and necessary disciplinary actions will be taken.

Good luck!!!