


This repository has been archived by the owner. It is now read-only.

 **HBreithaupt / DigiPenCode** Archived

[Code](#)[Issues](#)[Pull requests](#)[Actions](#)[Projects](#)[Security](#)[Insights](#)

 master ▾

...

[DigiPenCode](#) / [CS280](#) / [Assignment4](#) / [AVLTree.h](#)



HBreithaupt CS280



 0 contributors

[Raw](#)[Blame](#)

59 lines (47 sloc) | 1.77 KB

```
1  /*****/
2  /*!
3   \file AVLTree.h
4   \author      Haven Breithaupt
5   \par DP email: h.breithaupt@digipen.edu
6   \par Course: CS280
7   \par Assignment 4
8   \date
9
10  \brief
11   function prototypes for AVLTree
12  */
13  /*****/
14
15
16
17  //-----
18  #ifndef AVLTREE_H
19  #define AVLTREE_H
20  //-----
21  #include <stack>
22  #include "BSTree.h"
23  #include <iostream>
24
25  /// avl tree class
26  template <typename T>
27  class AVLTree : public BSTree<T>
28  {
```

```
29     public:
30         /// making typename for compiler to resolve recognizing bintree*
31         typedef typename BSTree<T>::BinTreeNode* BinTree;
32
33         /// defining type for transparency (mostly for myself)
34         typedef std::stack<BinTree> stack;
35
36         AVLTree(ObjectAllocator *OA = 0, bool ShareOA = false);
37         virtual ~AVLTree();
38         virtual void insert(const T& value);
39         virtual void remove(const T& value);
40
41     private:
42         // private stuff
43
44         void InsertItemAVL(BinTree &tree, const T& value, stack &nodes, int depth);
45         void Balance(stack &nodes, bool Inserting = true);
46         void RotateLeft(BinTree &tree);
47         void RotateRight(BinTree &tree);
48         void DeleteItemAVL(BinTree &tree, const T& value, std::stack<BinTree> &nodes);
49         void AttachRotation(BinTree &parent, BinTree &rotation);
50         void LeftHeavyBalance(BinTree &y, std::stack<BinTree> &nodes);
51         void RightHeavyBalance(BinTree &y, std::stack<BinTree>& nodes);
52         unsigned int count_nodes(BinTree &Root);
53
54     };
55
56     #include "AVLTree.cpp"
57
58     #endif
59     //-----
```