SSN College of Engineering, Kalavakkam
Department of Computer Science and Engineering
III Semester - CSE
UCS 1312 Data Structures Lab Laboratory

Academic Year: 2021-2022 **Batch: 2020-2024**

Date of Assignment: 13.11.2021

Exercise 8: Dictionary Application using AVL Tree

[CO2,K3]

The structure AVL has integer data and pointers to left and right children. Implement the following methods.

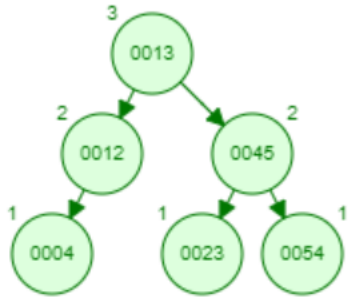
- void insert(struct AVL *t, int x) – Insert an integer data into BST
- void inorder(struct AVL *t) – Display the tree using inorder traversal
- void display(struct AVL *t) – Display the tree in hierarchical manner

Create AVLADTImpl.h with the implementations of the above-mentioned operations
Create AVLADTAppl.c that utilizes BSTADT and BSTADTImpl to perform the operations.

1. Demonstrate the AVLADT with the following test case
   Insert(t,23)
   Insert(t,12)
   Insert(t,13)
   Insert(t,4)
   Insert(t,45)
   Insert(t,54)

   Inorder(t) → 4,12,13,23,45,54

   Display(t) will display the tree as follows



2. Write an application to do the following

Develop a dictionary application using AVL Tree. Convert the AVLADT to include word and the meaning. Implement the following methods.

- void insert(struct dictionaryADT *D, struct wordMeaning x) – Insertion of a new word and meaning into dictionary
- void disp(struct dictionaryADT *D) – Display all the words and their meanings in ascending order

- void search(struct dictionaryADT *D, char word[]) – Will search for a word and provides its meaning

Test the application with the following testcase

Insert(“bisk”,”soup”)
Insert(“cite”,”refer”)
Insert(“boom”,”sound”)
Insert(“able”,”opportunity”)
Insert(“aged”,”old”)
Insert(“crew”,”group of people”)

Display AVL tree – ascending order

Able - opportunity
Aged - old
Boom - sound
Crew - group of people
Bisk - soup
Cite - refer

Search for a word to find the meaning
Input: Cite
Output: Refer