UCS 1312 Data Structures Lab
A7: Applications of AVL Trees

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Best Practices to be adapted

- Modular design and coding using versions
- Improve readability of code by making the program self-explanatory, giving meaningful names to your variables and functions
- Avoiding global variables

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Write algorithms for applications and trace them with an example. Inspect the steps using the diagrammatic representation of the tree.

1. Create an ADT for a AVL tree (avl.h). (CO2, K3)

   a) Add the following operations:

      Insert, inorder, search, height

   b) Implement a simple telephone directory manager using AVL Tree Data Structure and provide the following interfaces. Assume that each directory entry holds the name of the person and his telephone number for simplicity. (a7avl.c)

      A. Print_Dir() to print the directory in sorted order of names.
      B. Add_Phone() to include a person and phone number

   c) Demonstrate the binary search tree operations and applications with the following test case:

      Sample Input:

      Madhesh 9811111111

      Rangesh 9822222222

      Sarvesh 9833333333

      Donesh 9844444444

      Sikshesh 9855555555

      Dinesh 9866666666

      Amresh 9877777777

      Parvesh 9888888888

      Dhyanesh 9899999999

      Display AVL tree after each insertion

      The inorder traversal of the final AVLL tree is as follows

      Amresh 9877777777

      Dhyanesh 9899999999

      Dinesh 9866666666

      Donesh 9844444444

      Madhesh 9811111111

Parvesh 9888888888

Rangesh 9822222222

Sarvesh 9833333333

Sikshesh 9855555555

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