SLIIT
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BSc (Hons) in Information Technology
Year 2
Data Structures and Algorithms – IT2070

Tutorial 4 – Trees 2023

Question 1

Arrange the following sequence of integers into a binary search tree

280 308 180 416 298 350 156 255 580 275 12

Question 2

Print the elements in the tree built in Question1 using the following traversing methods.

a) inorder
b) preorder
c) postorder

Question 3

Draw the tree structures for the binary tree created in Question 1 for each of the following delete commands.

a) Delete(255)
b) Delete(308)
c) Delete (180)
d) Delete(280)

Question 4

Consider the Node class and Tree class given below.

Node
int iData double dData Node leftChild Node rightChild
void displayNode( )

Tree
Node root
Node find(int key) void insert(int id, double dd) boolean delete(int id) void inOrder( )

Implement a method called **minimum( )** which find the minimum key in a tree.

Question 5

Write a java program to implement the following.

a) Implement a **Node** class to store a height of a child. In the same class implement displayNode ( ) method to display the data stored in a Node.

b) Implement the **Tree** class with the following data members and methods.

Tree
Node root
void insert(int height) Node minimum( ) Node maximum ( ) void descendingOrder ( )

c) In your application, enter the height of 10 children in a class from the key board and store them in a tree. Use the above implemented methods to display the height of the tallest child, shortest child in the class. Also display the height of all ten children in descending order.