What is a Binary Tree?

A diagram of a diagram

Description automatically generated with medium confidence

What is the advantage of an AVL tree over a binary search tree? Construct an AVL tree from the given set of data: 50, 20, 60, 10, 8, 15, 32, 46, 11, 48.

Define max and min heaps. Construct a binary max heap using the following set of data and illustrate the deletion operation on this heap:

11, 2, 9, 13, 57, 25, 17, 1, 90, 3

How is a B-tree different to a Binary Search Tree?

Define order and shape properties of a heap.

What is the advantage of AVL tree over binary search tree? Construct an AVL tree from the given set of data 5,6,8, 3,2,4,7.

Define max heap and min heap. Construct a binary min heap using following set of data and illustrate the deletion operation on this heap: 42, 53, 97, 62, 72, 47, 35, 83, 37, 56, 27, 65, 22, 54, 89

What is complete and perfect Binary tree?

What is Skew heap?

What is the advantage of AVL tree over binary search tree? Construct an AVL tree from the given set of data: 5, 6, 8, 3, 2, 4, 7.

What is Splay Tree? Explain different rotation in splay tree.

What is Binary Heap? Create the Max heap of following data: 89, 19, 40, 17, 12, 10, 2, 5, 7, 11, 6, 9, 30

What is B Tree? Why is a tree a good data structure for a database? Construct a sample B-Tree of order 4.

What are D-heaps?

What is the advantage of AVL tree over binary search tree? Show the result of inserting 2, 1, 4, 5, 9, 3, 6, and 7 into an initially empty AVL tree.

What is Binary Heap? Create the Max heap of following data: 89, 19, 40, 17, 12, 10, 2, 5, 7, 11, 6, 9, 30

Define binary Tree? What do you mean by tree traversal? Write one algorithm.

What is the advantage of AVL tree over binary search tree? Construct an AVL tree from the given set of data: 5,6,8,3,2,4,7.

What is binary Tree? Explain pre-order, in order and post-Order traversal with an example.

What is Binary Heap? Create the Max heap of following data:

89, 19, 40, 17, 12, 10, 2, 5, 7, 11, 6, 9, 30

Create binary search tree for the following data:

14, 23, 7, 10, 33, 56, 80, 66, 70

Differentiate between complete binary tree and strictly binary tree.

What are the advantages of B-tree over binary tree? Given the pre-order and in-order traversal results of a binary tree, construct the original tree.

Preorder: 8, 5, 9, 7, 1, 12, 2, 4, 11, 3

Inorder: 9, 5, 1, 7, 2, 12, 8, 4, 3, 11

What is an AVL tree?

Define the leftist heap with leftist property.

Define BST. Create a BST from the following data and show the preorder, in-order and post-order traversal. 30, 55, 25, 60, 40, 62, 20, 15, 12, 25, 45, 28

What do you mean by min-heap and max-heap? Create binary min-heap from the following data.

20, 10, 30, 25, 15, 40, 5, 20, 32, 42, 12

What do you mean by complete binary tree and strictly binary tree?

Define the leftist heap with leftist property.

Define AVL Tree. Create an AVL Tree from the following data and show the deletion of root.

30, 55, 65, 60, 50, 62, 20, 15, 12, 25

What do you mean by leftist heap? What is null path length? Create a leftist heap from the following data:

20, 10, 30, 25, 15, 40, 50, 35

Create an AVL balanced tree for following sequence of elements:

5, 18, 35, 65, 25, 15, 10, 12, 14, 3, 2. [6]

Explain pre-order and in-order tree traversal with example. Construct an AVL balanced tree with given set of data: 15,20,24,10,13,7,30,36,25 [3+3+6]

Define B-tree with its properties.

Construct a binary tree from its given pre-order and in-order traversals.

Construct a B-tree of order 5 from the following data:

1, 7, 6, 2, 11, 4, 8, 13, 10, 5, 19, 9, 18, 24, 3, 12, 14, 20, 21, 16

Briefly explain pre-order, in-order, post-order tree traversal methods with example.

What are different traversal methods in a tree?

Construct a binary tree from its given pre-order and in-order traversals.

Define red-black tree with an example. Construct an AVL tree by inserting elements in given order.

Describe an AVL tree. Construct an AVL tree for the following sequence of elements:

5, 10, 15, 30, 25, 20, 4, 2, 1

Create a heap tree showing each insertion step for the following data:

28, 24, 50, 36, 42, 58, 22, 56, 46

Use the same heap tree to sort the data showing each intermediate step.

Explain balancing of B-tree with an example. Construct an AVL tree from the following sequence of data:

10, 20, 15, 25, 30, 16, 18, 19

Explain deletion of a node with two children in BST with a suitable example. Construct an AVL tree for the following data: 36, 12, 42, 23, 65, 96, 37, 79, 19, 24, 33, 44.

Explain deletion of a node with one child in BST with a suitable example. Construct a B-tree of order 5 for the following data: 82, 12, 22, 23, 56, 96, 37, 99, 59, 74, 28, 65, 60, 44.

What is tree recursion?

Define AVL rotations with suitable examples. Create an AVL balanced tree for the data sequence 10, 20, 30, 50, 45, 40, 8, 5, 3.

Draw a binary tree from its given pre-order and in-order traversals:

Preorder: FAEKCDHGB

In order: EACKFHDBG

Prove that a strictly binary tree with n leaves contains 2n-1 nodes.

Create an AVL balanced tree for the set of data 10, 20, 30, 35, 50, 70, 40, 80, 60, 65 by explaining each rotation rule used.

Construct a B-tree of order 5 for the set of data CNGAHEKQMFWLTZDPRXYS showing each step.

Insert the following sequence of data into an AVL tree:

89, 35, 15, 87, 67, 76, 37, 14, 22, 25

Insert the following keys to a 5-way B-tree:

3, 7, 9, 23, 45, 1, 5, 14, 25, 24, 13, 11, 4, 19, 8, 31, 35, 10, 13, 12

Write down the pre-order, in-order, and post-order traversals of the tree shown in the figure below.

A diagram of a network

Description automatically generated

Define AVL balance tree and create an AVL tree using the AVL balancing algorithm for the given sequence of data 3, 15, 21, 2, 7, 5, 13, 10, 8, 4, 19, 24, 1. Show the in-order traversal of the tree after each rotation clearly.

Define a complete binary tree with an example. Write an algorithm for the insertion of a node in a binary tree. Write the sequence of nodes in pre-order, in-order, and post-order traversal for a given tree.

A diagram of a network

Description automatically generated

Write short notes on:

* Almost Complete Binary Tree

Give the recursive searching algorithm for BST (Binary Search Tree). Create an AVL tree using the following data set:

14, 12, 20, 18, 23, 4, 44, 64, 66

Show all the steps including rotation where ever needed clearly.

Define B-tree. Explain the deletion process in a B-tree using approximate examples and also discuss the efficiency of multi-way trees.