

Lab 4-Trees

Writing exercise

1.

a. Preoder: $D \rightarrow B \rightarrow A \rightarrow C \rightarrow F \rightarrow E \rightarrow G$

Inorder: $A \rightarrow B \rightarrow C \rightarrow D \rightarrow E \rightarrow F \rightarrow G$

Postorder: $A \rightarrow C \rightarrow B \rightarrow E \rightarrow G \rightarrow F \rightarrow D$

Level – order: $D \rightarrow B \rightarrow F \rightarrow A \rightarrow C \rightarrow E \rightarrow G$

b. Preorder: $C \rightarrow B \rightarrow A \rightarrow D \rightarrow E$

Inorder: $A \rightarrow B \rightarrow C \rightarrow D \rightarrow E$

Postorder: $A \rightarrow B \rightarrow E \rightarrow D \rightarrow C$

Level – order: $C \rightarrow B \rightarrow D \rightarrow A \rightarrow E$

c. Preorder: $E \rightarrow C \rightarrow B \rightarrow A \rightarrow D \rightarrow H \rightarrow F \rightarrow G \rightarrow I$

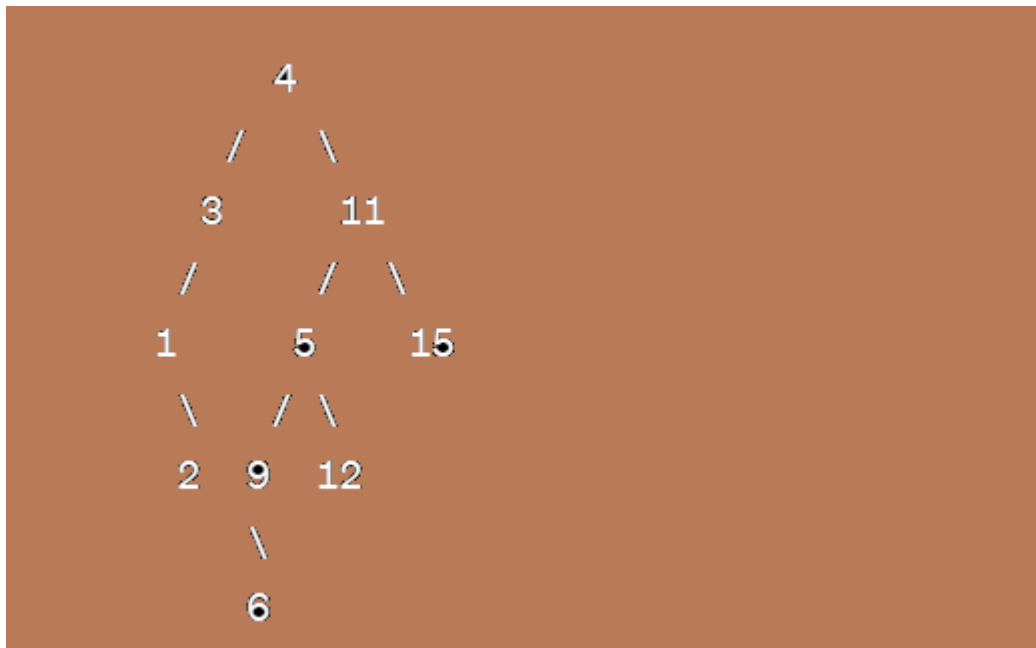
Inorder: $A \rightarrow B \rightarrow C \rightarrow D \rightarrow E \rightarrow F \rightarrow G \rightarrow H \rightarrow I$

Postorder: $A \rightarrow B \rightarrow D \rightarrow C \rightarrow G \rightarrow F \rightarrow I \rightarrow H \rightarrow E$

Level-order: $E \rightarrow C \rightarrow H \rightarrow B \rightarrow D \rightarrow D \rightarrow F \rightarrow I \rightarrow A \rightarrow G$

2.

(1) 4, 3, 1, 11, 5, 9, 2, 6, 15, 12.



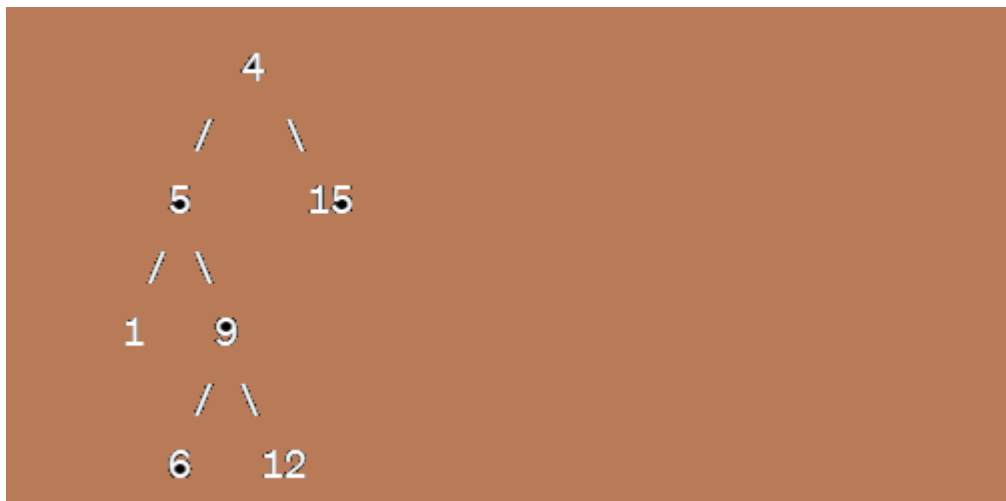
Preorder Traversal: 4, 3, 1, 2, 11, 5, 9, 6, 15, 12

Inorder Traversal: 1, 2, 3, 4, 5, 6, 9, 11, 12, 15

Postorder Traversal: 2, 1, 3, 6, 9, 5, 12, 15, 11, 4

Level-order Traversal: 4, 3, 11, 1, 5, 15, 2, 9, 12, 6

After Deletions (2, 3, 11):



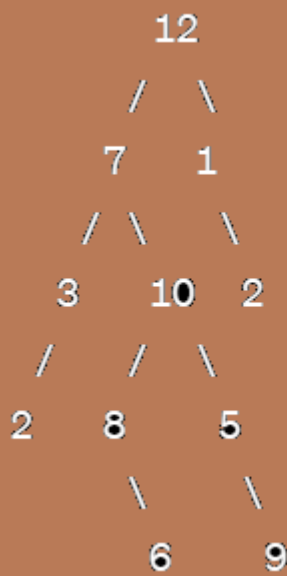
Preorder Traversal: 4, 5, 1, 9, 6, 15, 12

Inorder Traversal: 1, 4, 5, 6, 9, 12, 15

Postorder Traversal: 1, 6, 12, 9, 5, 15, 4

Level-order Traversal: 4, 5, 15, 1, 9, 12, 6

(2) 12, 7, 1, 3, 2, 5, 10, 8, 6, 9.



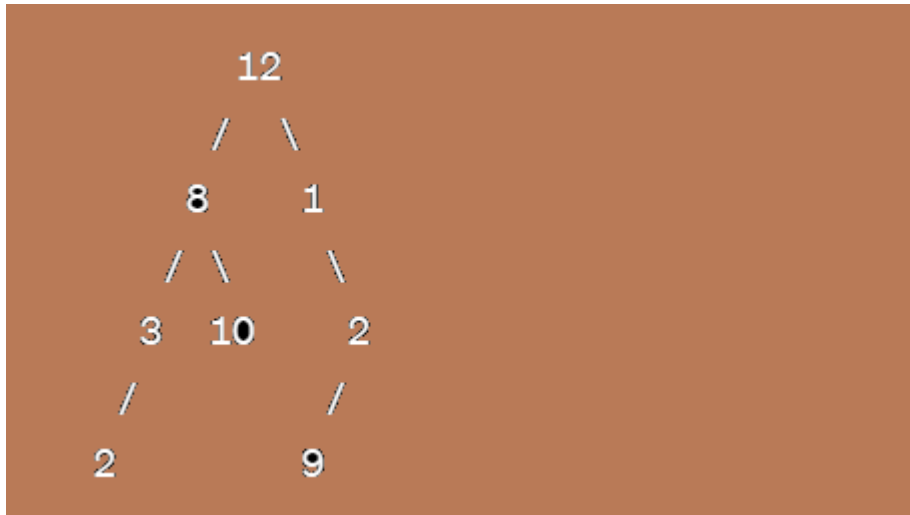
Preorder Traversal: 12, 7, 3, 2, 10, 8, 6, 1, 5, 9

Inorder Traversal: 2, 3, 6, 7, 8, 10, 12, 1, 5, 9

Postorder Traversal: 2, 6, 8, 10, 7, 3, 9, 5, 1, 12

Level-order Traversal: 12, 7, 1, 3, 10, 2, 8, 5, 6, 9

After Deletions (5, 6, 7):



Preorder Traversal: 12, 8, 3, 2, 10, 9, 1

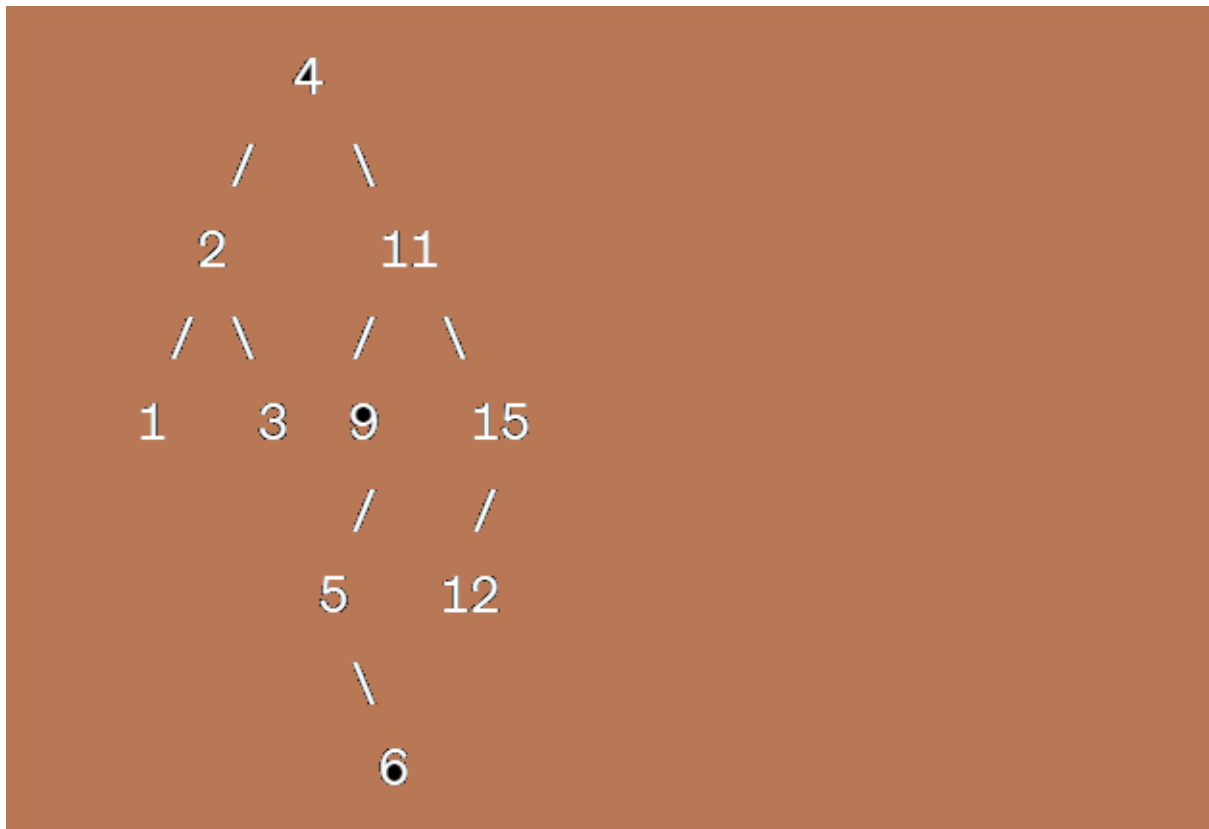
Inorder Traversal: 2, 3, 8, 9, 10, 12, 1

Postorder Traversal: 2, 3, 9, 10, 8, 1, 12

Level-order Traversal: 12, 8, 1, 3, 10, 2, 9

3.

(1) 4, 3, 1, 11, 5, 9, 2, 6, 15, 12.



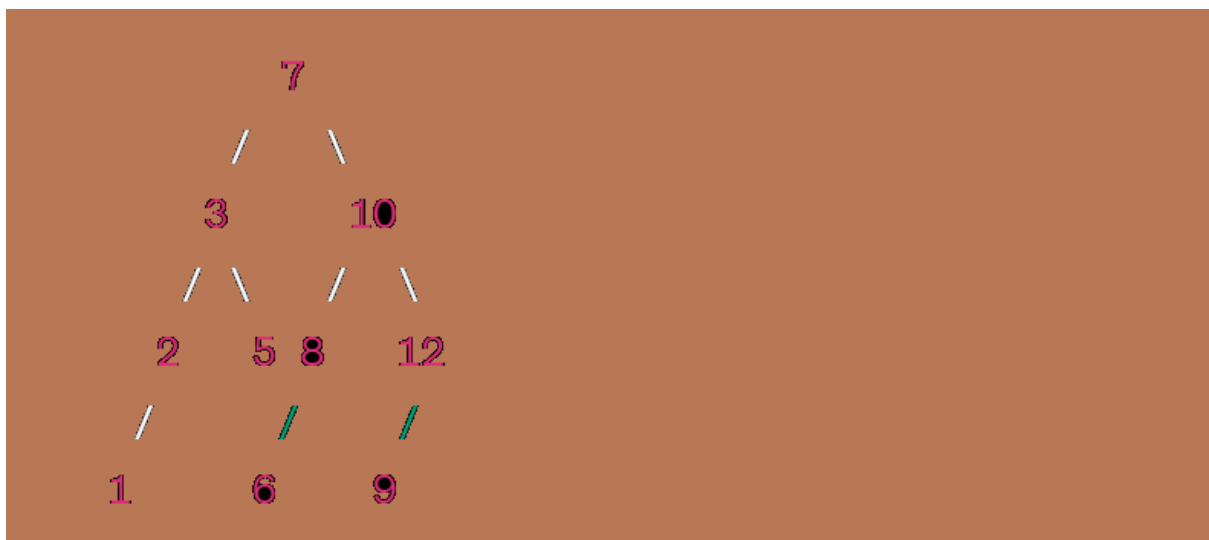
Preorder Traversal: 4, 2, 1, 3, 11, 9, 5, 6, 15, 12

Inorder Traversal: 1, 2, 3, 4, 5, 6, 9, 11, 12, 15

Postorder Traversal: 1, 3, 2, 6, 5, 9, 12, 15, 11, 4

Level-order Traversal: 4, 2, 11, 1, 3, 9, 15, 5, 12, 6

(2) 12, 7, 1, 3, 2, 5, 10, 8, 6, 9.



Preorder Traversal: 7, 3, 1, 2, 5, 6, 10, 8, 9, 12

Inorder Traversal: 1, 2, 3, 5, 6, 7, 8, 9, 10, 12

Postorder Traversal: 1, 2, 6, 5, 3, 9, 8, 12, 10, 7

Level-order Traversal: 7, 3, 10, 2, 5, 8, 12, 1, 6, 9