John Kim

Homework #5

1a.

80

65

15 74

36

25

1b.

In-order: 15, 25, 36, 65, 74, 80

Pre-order: 80, 65, 15, 36, 25, 74

Post-order: 25, 36, 15, 74, 65, 80

1c.

50

40 60

10 70

2a.

struct Node

{

int data;

Node\* parent;

Node\* leftChild;

Node\* rightChild;

}

2b.

If the root pointer is null

Set the root pointer to point at the new Node

Set the current Node pointer to the root

Infinite loop

If the value is the current’s value then return

If the value is less than the current’s value

If the leftChild of the current is not null follow the leftChild

Else create a new Node on the left and set the new Node’s parent pointer to current

then return

If the value is greater than the current’s value

If the rightChild of the current is not null follow the rightChild

Else create a new Node on the right and set the new Node’s parent pointer to current

then return

3a.

8

3 6

0 2 4

3b.

8, 3, 6, 0, 2, 4

3c.

6, 3, 4, 0, 2

4a. O(C+S)

4b. O(log C + S)

4c. O(log C + log S)

4d. O(log S)

4e. O(1)

4f. O(log C + S)

4g. O(S log S + S) drop “+ S” since “S log S” is greater so O(S log S)

4h. O(C log S)