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CS 302 – 1001

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Leaning Left Red Black Trees Program Output

Section 2. Exercise on using Left Leaning Red Black Trees (LLRBTs)

On the basis of the implementation example provided at http://www.teachsolaigames.com/articles/balanced_left_leaning.html (uploaded also in the canvas announcement but mentioned here to acknowledge the author), you are requested to use LLRBTs with correspondence to 2-3 Trees (check relevant flag) and perform:

1. Insertion of 10 random variables
2. Removal of the fourth random variable you inserted

Terminal View:

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////////////////////////////////////
/////  Left Leaning Red Black Tree Data Structure  /////
////////////////////////////////////

Inserting Process: 62
Preorder Traversal: 62(B)

Inserting Process: 83
Preorder Traversal: 83(B) 62(R)

Inserting Process: 70
Preorder Traversal: 70(B) 62(B) 83(B)

Inserting Process: 95
Preorder Traversal: 70(B) 62(B) 95(B) 83(R)

Inserting Process: 22
Preorder Traversal: 70(B) 62(B) 22(R) 95(B) 83(R)

Inserting Process: 19
Preorder Traversal: 70(B) 22(R) 19(B) 62(B) 95(B) 83(R)

Inserting Process: 28
Preorder Traversal: 70(B) 22(R) 19(B) 62(B) 28(R) 95(B) 83(R)

Inserting Process: 19
Preorder Traversal: 70(B) 22(R) 19(B) 19(R) 62(B) 28(R) 95(B) 83(R)

Inserting Process: 64
Preorder Traversal: 62(B) 22(B) 19(B) 19(R) 28(B) 70(B) 64(B) 95(B) 83(R)

Inserting Process: 49
Preorder Traversal: 62(B) 22(B) 19(B) 19(R) 49(B) 28(R) 70(B) 64(B) 95(B) 83(R)

Deletion Process: 95
Preorder Traversal: 62(B) 22(B) 19(B) 19(R) 49(B) 28(R) 70(B) 64(B) 83(B)

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Copy/Paste Terminal Text:

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////////////////////////////////////
/////  Left Leaning Red Black Tree Data Structure  /////
////////////////////////////////////

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Inserting Process: 62
 Preorder Traversal: 62(B)

Inserting Process: 83
 Preorder Traversal: 83(B) 62(R)

Inserting Process: 70
 Preorder Traversal: 70(B) 62(B) 83(B)

Inserting Process: 95
 Preorder Traversal: 70(B) 62(B) 95(B) 83(R)

Inserting Process: 22
 Preorder Traversal: 70(B) 62(B) 22(R) 95(B) 83(R)

Inserting Process: 19
 Preorder Traversal: 70(B) 22(R) 19(B) 62(B) 95(B) 83(R)

Inserting Process: 28
 Preorder Traversal: 70(B) 22(R) 19(B) 62(B) 28(R) 95(B) 83(R)

Inserting Process: 19
 Preorder Traversal: 70(B) 22(R) 19(B) 19(R) 62(B) 28(R) 95(B) 83(R)

Inserting Process: 64
 Preorder Traversal: 62(B) 22(B) 19(B) 19(R) 28(B) 70(B) 64(B) 95(B)
 83(R)

Inserting Process: 49
 Preorder Traversal: 62(B) 22(B) 19(B) 19(R) 49(B) 28(R) 70(B) 64(B)
 95(B) 83(R)

Deletion Process: 95
 Preorder Traversal: 62(B) 22(B) 19(B) 19(R) 49(B) 28(R) 70(B) 64(B)
 83(B)