**Data Structures and Algorithms**

**Lab Report**

**Lab11**



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| Group Members Name & Reg #: | **Muhammad Haris Irfan**  **(FA18-BCE-090)** |
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| Class | Data Structures and Algorithms CSC211 (**BCE-3B**) |
| Instructor’s Name | Dilshad Sabir |

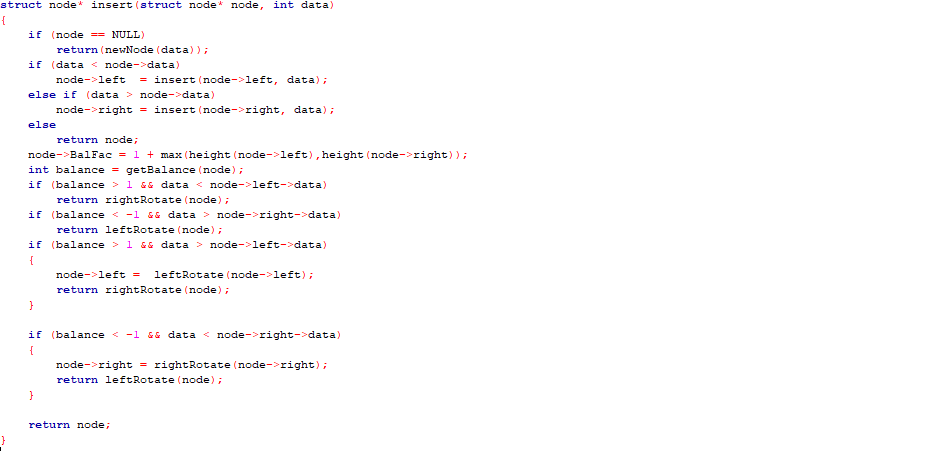
**In Lab Tasks**

**Task:1**

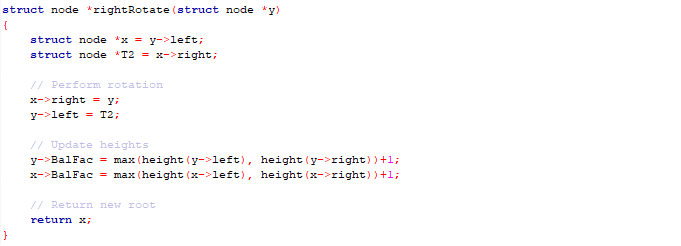
**Your task is to modify the insert function to incorporate AVL insertion**

**Solution:**

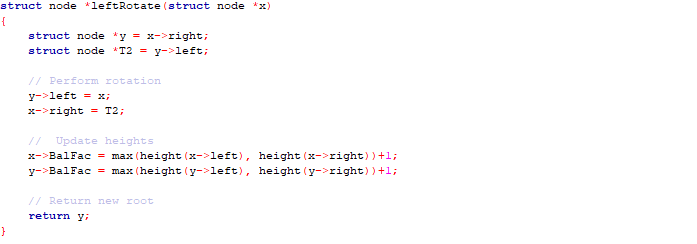
The code is shown below,



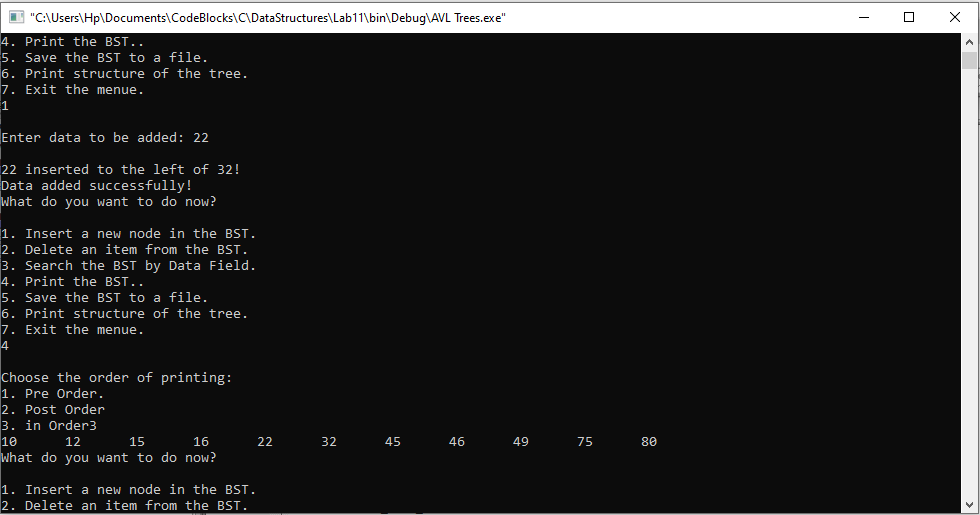
Code for right rotate is below:



Code for left rotate is below:

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The Result of the following code is attached below:



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**Post Lab Task.**

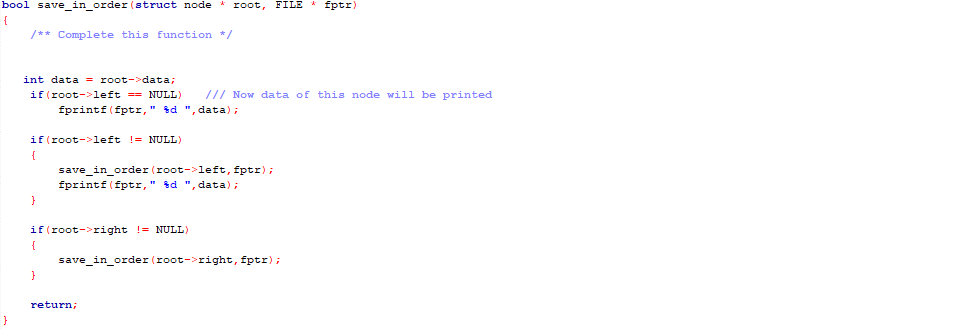
**Task 2:**

**Save the Tree data to a file (In-Order, Pre-Order and Post-Order)**

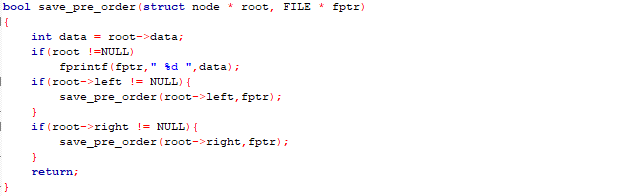
Solution

The code is shown below,

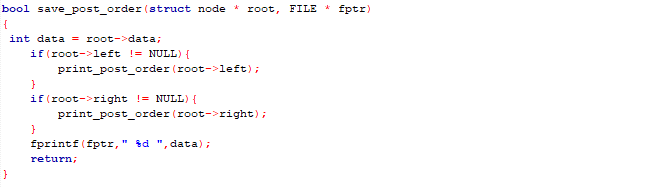
In-Order



Pre-Order



Post-Order



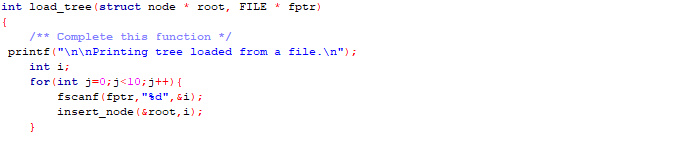
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**Task 3:**

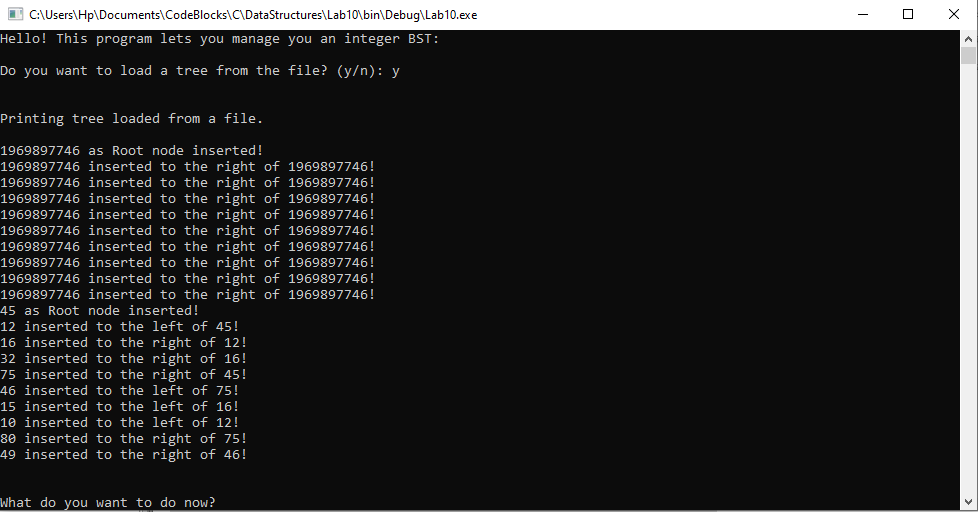
Load tree from a file containing numbers.

Solution

The code is shown below,



The Result of the following code is attached below:



**Conclusion:**

In this lab, we completed the AVL tree insertion function, to complete an AVL tree after inserting a value we needed to rotate the tree at certain points for which we made two functions, furthermore in Post-lab we implemented saving the our AVL Search Tree as well as loading a tree from a file containing numbers.

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THE END