

Programming Assignment
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Data Structure Part 2: Tree
B Tech (Information Technology and Mathematical Innovations)
Due: 5th April 2020

Programming Questions for Tree Data Structure

Design a tree node for a student having the following information

1. Roll no of students
2. Name of the student
3. Marks in Data Structure course

And write a program with a user menu having the following functions.

1. Creation of Tree considering Roll No as unique information.
2. Insertion of the new student node in the existing tree.
3. Inorder tree traversal with recursion and without recursion.
4. Pre-order tree traversal with recursion and without recursion.
5. Post-order tree traversal with recursion and without recursion.
6. Find n-th node of inorder traversal.
7. Find n-th node in Postorder traversal.
8. Write a function to convert the existing Tree into its Mirror Tree

Documentation

You must document your functions. Each function should be commented with what the function does, its input parameters, and what it returns. Comments are very important and will account for 15% of your grade. Send mail with Subject: Data Structure Assignment Part 2-Name-RollNo to my email id.

Testing

You must thoroughly test your functions to ensure that they work. You will need to develop main routine to test them and output the test results into a file. These results should be easily readable. For each routine, think about the type of input you might have and develop a test case for it.

Deliverables

You must submit all source files in addition to your test files. Also, include a README file explaining how you tested your code and what problems you encountered. Note the code must be able to be compiled and executed on the Dev C++.

Grading

Grading will be based on the following:

- 60% correct functionality
- 25% testing code
- 15% documentation