Proposal

Class: Cs562

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About the library:

In this project, I am going to test a tree data structure library by using tstl. The python library is called pyTree. This library is developed by yoyzhou. The source code can be found from: https://github.com/yoyzhou/pyTree. In this library, the author provides several methods. They are:

addChild : add a child to this tree.

addChildren : add many children to this tree.

getParent : get node's parent node

getChild : get node's child node

getChildren : get node's all children nodes.

getNode : get the node.

delChild : delete node's child.

delNode : delete node.

getRoot : get the tree root.

isRoot : determine whether node is a root or not.

isBranch : determine whether node is a branch node or not.

prettyTree : print tree in a hierarchy style like:

```
        root
        |_____c01
        |      |___c11
        |_____c02
```

nestedTree : print tree in a nest-list style like: [Root [C01 [C11], C02]].

In this python library, the developer focus more on represents the tree data structure with its property. It doesn't consider more on the efficiency of his library. It doesn't give you an efficiency way to build a tree. You need to build by yourself and then test it. It also lack some useful methods like: leftmost, rightmost, hight, inorder traversal, preorder traversal. Although it lacks some method, it is still a source code over than 300 lines and it already contains lot methods in it. I think it is enough for the project.

Choose this one as the project because tree data structure is very important and basic. As a TSTL beginner, it is a good way to learn how to use the TSTL by using this library.

How I test it:

Since this library basically implement a tree data structure. I will test whether this library satisfied the properties of the tree data structure. This library has two ways to represent the tree, hierarchy style and nest-list style. I will test if two style shows as the right way. For each method, I will check if it is correctly do the job. For example, for addChild method, I will check if it is correctly add the child in the correct position. For getParent method, I will test if it is correctly get the node's parent, not the other node. For isRoot method, I will see if tis actually the root, not the other node. For isBranch method, I will see if it is the branch of this tree or not. And for both showing style, I will check if it is actually shows the right way.

Future job:

I will finish the test project for this library in the future. But if I still have time, I will try to add some new function to this library and try to do the further job or I will choose another library to do the test. I hope this project will help me and let me learn the technique of the TSTL.