

COMP 282 Project 2: Balanced Trees (30 points)

Due: October 10 at 23:55

Idea: Binary search trees are a nice idea and frequently work well, but sometimes we have more stringent requirements for performance.

Requirements: Write a java program that performs n operations on both a splay tree and a 2-3 tree and times the performance (hint: `System.currentTimeMillis()`).

Your program must have at least one class called `Driver2` which runs the program.

Your program must have a class `SplayTree.java` and a class `TwoThreeTree.java` that both have a no argument constructor and implement the following interface.

```
public interface BalancedTree<E extends Comparable<E>> {
    public void insert(E item);
    public E find(E item);
    public void delete(E item);
    public void printInOrderTraversal();
}
```

You must also have a file called `status.txt` which contains your name and a short (2-10 sentence) description of the status of your program. This file should be an ascii file. Though you may create it with MS Word (or notepad/wordpad/jGrasp/etc), you should be certain that it is a text file. A sample `status.txt` file is below.

Comments: You should be using good programming style. At a minimum break the project into appropriate classes, place your name near the top of each file, comment appropriately, be limited to 80 character lines, be limited to 30 line methods (usually shorter), and be properly indent.

Submission: Prior to the deadline upload your files (java and `status.txt`) to moodle (class files and data files are neither necessary nor wanted). I would suggest uploading long before the deadline and updating/replacing as you go (work on it today and upload, work on it tomorrow and replace, work on it the next day and replace,

Sample interaction:

Welcome to Project 2: Balanced Trees

Running Test

	Start Time	Finish Time	Total Time
Splay Tree	8013482	8014493	1011
2-3 Tree	8042751	8043867	1116

Sample `status.txt` file:

John Noga - Project 2

The program isn't finished. I can get the `SplayTree` to work, but I still can't figure out how to handle 2-3 Trees. The project compiles and runs and the output matches the correct format to the letter, but the start and finish time for the 2-3 Tree are the same since no operations actually run. However, the style and formatting is incorrect because I DIDN'T: comment it (didn't even put my name in the file), keep the length of lines to 80 characters, and keep the length of methods to 30 lines. Just to annoy you and lose an additional point I called my `status.tex` file `HowAmIDoing.docx` and made it a word document.

Cheating: This project is an individual project. You can discuss this project with other students. You can explain what needs to be done and give suggestions on how to do it. You can use the web to find ideas. You cannot share source code with your fellow students or submit solutions written by someone else (including code downloaded from the internet).