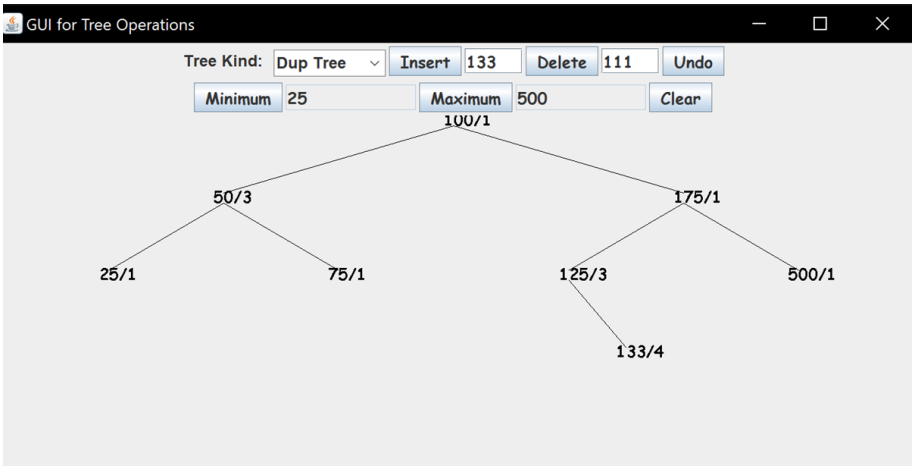
Assignment 5

(may be done by a team of at most two students)
Assigned: Saturday, November 10
Due: Tuesday, November 22 (11:59 pm)

Part 1: Using the Tree Memento

Posted on `Piazza:Resources → Assignments` is a file `TreeGUI.java` which implements a graphical user interface for the Binary Search Tree and DupTree. This program was demo-ed in Lecture 19. When it is run, a GUI appears, using which one can perform the familiar operations such as insert, delete, etc. The program draws the tree or duptree as illustrated below.



Your task in this part of the assignment is to implement the `actionPerformed` method corresponding to the `Undo` button. Implement this operation using the `TreeMemento` class given in the file and discussed in Lecture 19. Using the Undo button, it should be possible to undo all operations and restore earlier tree (or duptree) structures. The Undo button should never throw an exception; instead, whenever it is inapplicable (e.g., trying to perform an undo before any tree is built), a suitable pop-up message should be shown.

Coding Hints. The definition of the `actionPerformed` method is about 10-12 lines of Java code, and it is similar to those of `insert` and `delete` (given in the file). Feel free to add extra class fields as well as extra executable code to the `TreeGUI` class in order to support the Undo operation.

***What to Submit*.** Prepare a top-level directory named *A5_Part1_UBITId1_UBITId2* if the assignment is done by a team of two students; otherwise, name it as *A5_Part1_UBITId* if the assignment is done solo. (Order the *UBITId*s in alphabetic order, in the former case.) In this directory, place your revised `TreeGUI.java`. Compress the directory and submit the compressed file using the `submit_cse522` command. Only one submission per team is required.

Part 2: JUnit and Design by Contract

To Be Assigned.

End of Assignment 5 - Part 1