COSC2436 Programming Fundamentals III /ITSE2445 Data Structures

The submission opens two days before the due day, and closes right at the due time on due day. One submission is allowed per project. It is students' responsibility to submit timely and correctly. Students MUST start each project when it is first discussed in class in order to complete it on time. All projects are individual projects. Project due days may be changed to better align with lectures.

If one of the following is true, not credits will be given:

- The project is late.
- The algorithm or class design is missing.
- The project has errors.
- There are no comments (Javadoc format required) at all in your code.
- Wrong files are submitted.
- **A project is a copy and modification of another student's project. (Both will receive 0.)**

Files to be submitted through Canvas:

- The UML design (UML class diagram)
- All source codes and driver programs
- All supporting files if any

Software Development Project Rubric: (Design is worth 20%; the rest is worth 80 %.)
Analysis: There will be no credit if the software doesn't meet customer specification at all.

- Does the software meet the exact customer specification?
- Does the software read the exact input data and display the exact output data as they are shown in sample runs?
- Does each class include all corresponding data and functionalities?

Design: There will be no credit if the design is missing.

- Is the design (a UML class diagram) an efficient solution?
- Is the design created correctly?

Code: There will be no credit if there are errors.

- Are there errors in the software?
- Are code conventions and name conventions followed?
- Does the software use the minimum computer resource (computer memory and processing time)?
- Is the software reusable?

Debug:

- Are there bugs in the software?

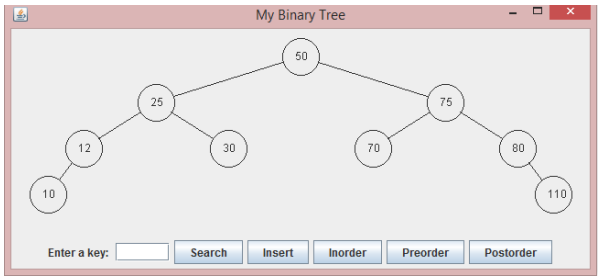
Documentation: There will be no credit if comments are not included.

- Are there enough comments included in the software?
- Class comments must be included before a class header.
- Method comments must be included before a method header.
- More comments must be included inside each method.
- All comments must be written in Javadoc format.

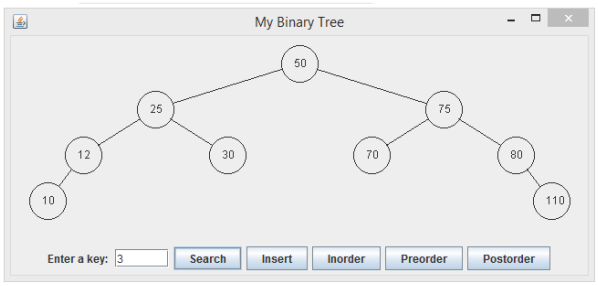
Project 4 Binary Search Tree Visualization **Due: See calendar**

Write a Java Applet /Application that has the following functionalities:

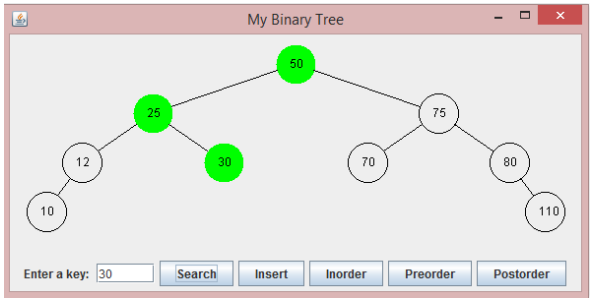
- The applet/application displays a preloaded binary tree with tree controls at the bottom.



- When a key value is entered, search button is clicked; an error message is displayed if the value is not in the tree.



- When a key value is entered, search button is clicked; a search path is displayed if the value is in the tree.



- When a key value is entered, insert button is clicked; the value is inserted in the tree, and the tree is refreshed. The inserted value is highlighted in the tree. It is assumed that the key value is different from all existing values in the tree.
- When one of three traversal buttons is clicked, a proper traversal should be made. All values should be displayed in order. Select a proper component to display ordered values.