CS 3310 - Data & File Structures
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Assignment 5 - Trees and Binary Search Trees

PHASE 1: SPECIFICATION

Design, develop and implement an object-oriented application to build an unbalanced binary search tree T using an array based implicit representation of T and starting with an empty tree T.

PHASE 2: DESIGN

The program has several parts and will be broken down:

1. BinarySearchTree
    a. The main controller which handles the input data and shares it with various classes. Includes a switch statement that organizes what action shall be performed
    b. Insert - inserts data into tree
    c. Search - searches tree for data
    d. Delete - deletes nodes from tree
    e. Preorder traversal
    f. Inorder traversal
    g. Postorder traversal
    h. Iterator
    i. Node

PHASE 3: RISK ANALYSIS

Certain types of data can affect deletion and searching functions

PHASE 4: VERIFICATION

I have verified that the methods and functions work as expected in the specs.

PHASE 5: CODING

Everything was coded in JAVA using the Eclipse IDE. Generics were used as requested which allows for many different data types to be added to the hash table.

PHASE 6: TESTING

I ran tests using the file provided by Dr. Gupta.

PHASE 7: REFINING THE PROGRAM

Future refinements could be made to the program such as creating the data to the console and directly outputting it to a file so the results of the program can be seen without executing it multiple times.

PHASE 8: PRODUCTION

I prepared a copy of the entire program for Lab TA's evaluation, as specified by the TA. Then, I sent electronically the copy to the Lab TA using eLearning dropbox.

PHASE 9: MAINTENANCE

Based on the feedback received from the grader, I will perform maintenance as needed to my program.