Assignment 3: Binary Search Tree Implementation

Description

In this assignment, you'll be provided ADTs for Binary Search Tree (BSTreeADT.java) and Iterators (Iterator.java) to be implemented as a Binary Search Tree (BST).

Equipment and Materials

For this assignment, you will need:

- Eclipse, Java 8 and JUnit 4

Instructions

This assignment consists of three parts, to be completed **outsid**e of class time. See the course outline and Brightspace for due dates. Complete this assignment with your assigned group.

Part A: Create an Implementation of a BST (90 marks)

Using the specifications below:

1. Design a complete set of unit test based on the BSTreeADT.java interface provided by your instructor.

   Note: Your instructor will use a different set of JUnit tests to test your implementation.

2. Create your own implementation of a Binary Search Tree based on the contract in the ADT.

Part B: Complete an Evaluation as a Group (5 marks)

After completing the work outlined in Part A, check your work against the provided marking criteria. Your instructor will refer to your group's self-evaluation when grading the assignment and will provide further feedback and grade adjustments as needed. Your instructor is responsible for awarding the group's final grade.

1. Open the Marking Criteria document (MarkingCriteria_Assignment3.docx) and save a copy with your group's name.
2. As a group, discuss how well you met each criterion and assign yourselves a mark for each row in the table. You may include a short, point form, explanation for your mark in the Notes column.
3. Save this file for submission to Brightspace along with your completed code.

Part B: Complete a Peer Assessment (5 marks)

Each student must also complete a peer assessment of their group members. Your instructor will provide further submission details.

Assignment Specifications

1. Design a complete set of JUnit tests to test an implementation of the Binary Search Tree based on the **BSTreeADT.java** and **Iterator.java** interfaces provided by your instructor.

   Note: You can NOT modify the ADT in any way!

2. Write a linked list based implementation (**BSTree.java**, **BSTreeNode.java**) using the **BSTreeADT.java** and **Iterator.java** interfaces provided by your instructor.

Submission Deliverables

Your group's submission should include a zipped folder which includes the following items:

1) Your completed javadoc using the "-private" option when generated, and the output placed in the **doc** directory of the project.
2) A folder containing the complete Eclipse project directory.
3) The completed Marking Criteria document containing your group's evaluation of your application.

Name your group's assignment submission folder as your group name followed by the assignment number (e.g., A3Group7.zip).

Upload your group's .zip file to Brightspace by the specified due date and time.

No late assignments will be accepted.