Computer Science 3A

Practical Assignment 6

23 March 2017

Time: 23 March 2017 13:45 – 17:00 Marks: 50

Practical assignments must be uploaded to `eve.uj.ac.za` **before** 17h00 in the practical session.

Late submissions **will not be accepted**, and will therefore not be marked. You are **not allowed to collaborate** with any other student. You **must** upload your assignment to Eve **before** it will be marked.

Similar to generic Trees, Binary Trees are recursively known as a collection of nodes in a data structure containing a value, parent and two children. Decision trees leverage this concept by using left to represent a true decision and right to represent a false decision structurally. For this practical you are required to complete the implementation of a Binary Tree that is used to create a decision tree. The Binary Tree should conform to the implementation specifications that have been provided to you. There are a number of functions that have been removed that you should complete.

Job recruiters in companies have a hard time getting through many candidates and there is a need to automate the asking of interview questions. So a company has decided to facilitate these interviews in a computer lab with many candidates at a time with True or False questions. In order to help with this problem you will be implementing a program that asks the user questions and provides with the most appropriate questions that are job related for various roles in IT and overall provide them will an immediate outcome.

In order to solve this problem you need to complete the following functions:

1. `PreOrderElementTraversal, PostorderElementTraversal and InorderElementTraversal` — That traverses through the tree in its own respective manner and returns the elements is a PositionList that is passed through as a parameter.
2. `nodeDepth` — That determines the depth of the node in the current tree from the position that is given as a parameter.
3. `the remainder of the main method` — That uses the built decision tree to ask the candidate questions for an interview.

You are required to implement a Java Program that realizes the above operations.

The following files must be submitted to EVE:

1. *studentnumber*_p6.zip

Marksheet

1. BinaryTree: positions [5]
2. BinaryTree: nodeDepth [5]
3. BinaryTree:preOrderTraversal [5]
4. BinaryTree:postOrderTraversal [5]
5. BinaryTree:inOrderTraversal [5]
6. Main: BinaryTree Usage [10]
7. Compilation and Correct execution. [15]