COMP9024 Final Exam

[Instructions] [C language]
[Q1] [Q2] [Q3] [Q4] [Q5] [Q6]

Question 1 (10 marks)

One question on tree algorithms, for example,

- Implement function `isBalanced(BSTree t)` that returns 1 if a given tree is balanced; zero otherwise. We say a tree is balanced if for every node in the tree, the difference between the number of nodes in the left sub-tree and the number of nodes in the right sub-tree must not be greater than one. A tree with no nodes is considered to be balanced. Please note that the criterion is (slightly) different to a height balanced tree.
- Implement function `countNodes(BSTree t)` that counts and returns number of nodes in a given tree.
- Implement function `countLeaf(BSTree t)` that counts and returns number of leaf nodes in a given tree.
- Implement function `height(BSTree t)` that finds and returns height of a given tree.
- Implement function `countOdds(BSTree t)` that counts and returns number of nodes in a given tree with odd key values.