**AC12001**

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Lab Title: …Assignment 3 – Binary Trees………………………………..……….

Test number/date/version: 03/03/19 ……………………………………….……..

Test Notes: …Tests run on submitted assignment ……………………………

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| **Test Description** | **Test Data** | **Expected result** | **Worked?** |
| Add an item to empty tree | Id = 5, name = sweets, cost = 1 | Item is added to the tree as root | y |
| Add item onto tree with root as 10 | Id = 4, name = chocolate, cost = 1 | Item is added to the left side of the tree | y |
| Add item onto tree with root as 10 | Id 15, name = coke, cost = 0.60 | Item is added to the right side of the tree | y |
| Print the whole tree in numerical order of id | Three items with ids:  2,6,10 | Items are printed out in numerical order 2,6,10 with the details of the items alongside them | y |
| Print entire tree again | Three items with ids:  10,15,20 | Items are printed in numerical order | y |
| Add item to tree already in | Set root to id 5 and try add item with same id | Error message should appear, and user should be returned to menu | y |
| Add item already in tree | Set root to id 6 and add a node with id 8, try and add 8 again | Error message should appear, and user should be returned to the menu. | y |
| Find item in empty tree | Try and find an item with id 5 in a empty tree | Error message appears, and menu re-appears | y |
| Find item in tree | Set root as item with id 5 and then try find the id 5 | Message appears that says the item has been found and the details of the item are displayed | y |
| Item not found | Set root to 10 and try find item with id 6 | Error message appears, and menu re-appears | y |
| Calculate the total cost of the tree | Input items with cost, 0.50, 3.00, 10.00 and 0.25 | Calculation should output 13.75 as total cost | y |
| Delete an item from the tree | Tree with root id 5 and two connected nodes (2 and 10), enter 2 to delete | Program should delete the node with id 2 | y |
| Delete an item from the tree | Tree with root id 5 and two connected nodes (2 and 10), enter 10 to delete | Program should delete the node with id 101 | y |
| Delete root from tree | Tree with root id 5, 2 connected nodes (3, and 10) and node with id 4 connected to 3. Delete id 5 | Program should delete the root and replace it with the right most on the left sub tree i.e. 4 | y |
| Delete from an empty tree | Enter id 5 to be deleted from empty tree | Error message should display and menu should re-appear upon hitting enter | y |
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