Welcome to Lab 4 - Binary Search Trees Created by Xi and Neil

BreadthFirst traversal: 57.12 23.44 87.43 18.36 44.55 68.99 111.22 11.00 20.21 36.18 48.48 77.77 101.00 543.21 1.00 21.00 51.00 345.67 251.00 151.00 inOrder traversal: 1.00 11.00 18.36 20.21 21.00 <u>23.44</u> 36.18 44.55 48.48 51.00 57.12 68.99 77.77 87.43 101.00 111.22 151.00 251.00 345.67 543.21 preOrder traversal: . 57.12 23.44 18.36 11.00 1.00 20.21 21.00 44.55 36.18 48.48 51.00 87.43 68.99 77.77 111.22 101.00 543.21 345.67 251.00 151.00 postOrder traversal: . 1.00 11.00 21.00 20.21 18.36 36.18 51.00 48.48 44.55 23.44 77.77 68.99 101.00 151.00 251.00 345.67 543.21 111.22 87.43 57.12

Instructions: Type a number (1-5) to select an operation:

1. Add Krone 2. Delete Krone

3. Search Krone

4. Print BST Traversals5. Print BST Traversals & Exit Program

Choose an operation: 1 Enter Krone value to add: 20

Choose an operation: 1

Enter Krone value to add: 57.12 Ignored. Krone value '57.12' already exists in tree.

Choose an operation: 1 Enter Krone value to add: -20 Ignored. Krone value '-20.00' is invalid.

Choose an operation: 2

Choose an operation: 4

Enter Krone value to delete: 23.44

BreadthFirst traversal: 57.12 36.18 87.43 18.36 44.55 68.99 111.22 11.00 20.21 48.48 77.77 101.00 543.21 1.00 20.00 21.00 51.00 345.67 251.00 151.00 inOrder traversal: 1.00 11.00 18.36 20.00 20.21 21.00 36.18 44.55 48.48 51.00 57.12 68.99 77.77 87.43 101.00 111.22 151.00 251.00 345.67 543.21 preOrder traversal: 57.12 36.18 18.36 11.00 1.00 20.21 20.00 21.00 44.55 48.48 51.00 87.43 68.99 77.77 111.22 101.00 543.21 345.67 251.00 151.00

postOrder traversal: 1.00 11.00 20.00 21.00 20.21 18.36 51.00 48.48 44.55 36.18 77.77 68.99 101.00 151.00 251.00 345.67 543.21 111.22 87.43 57.12

Choose an operation: 1 Enter Krone value to add: 10

Choose an operation: 4

BreadthFirst traversal: 57.12 36.18 87.43 18.36 44.55 68.99 111.22 11.00 20.21 48.48 77.77 101.00 543.21 1.00 20.00 21.00 51.00 345.67 10.00 251.00 151.00 inOrder traversal: 1.00 10.00 11.00 18.36 20.00 20.21 21.00 36.18 44.55 48.48 51.00 57.12 68.99 77.77 87.43 101.00 111.22 151.00 251.00 345.67 543.21 preOrder traversal: . 57.12 36.18 18.36 11.00 1.00 10.00 20.21 20.00 21.00 44.55 48.48 51.00 87.43 68.99 77.77 111.22 101.00 543.21 345.67 251.00 151.00 postOrder traversal: . 10.00 1.00 11.00 20.00 21.00 20.21 18.36 51.00 48.48 44.55 36.18 77.77 68.99 101.00 151.00 251.00 345.67 543.21 111.22 87.43 57.12

Choose an operation: 2 Enter Krone value to delete: 10

Choose an operation: 4 BreadthFirst traversal: 57.12 36.18 87.43 18.36 44.55 68.99 111.22 11.00 20.21 48.48 77.77 101.00 543.21 1.00 20.00 21.00 51.00 345.67 251.00 151.00 inOrder traversal: 1.00 11.00 18.36 20.00 20.21 21.00 36.18 44.55 48.48 51.00 57.12 68.99 77.77 87.43 101.00 111.22 151.00 251.00 345.67 543.21 preOrder traversal: . 57.12 36.18 18.36 11.00 1.00 20.21 20.00 21.00 44.55 48.48 51.00 87.43 68.99 77.77 111.22 101.00 543.21 345.67 251.00 151.00 postOrder traversal: 1.00 11.00 20.00 21.00 20.21 18.36 51.00 48.48 44.55 36.18 77.77 68.99 101.00 151.00 251.00 345.67 543.21 111.22 87.43 57.12

Choose an operation: 2 Enter Krone value to delete: 18.36

Choose an operation: 4 BreadthFirst traversal: 57.12 36.18 87.43 20.00 44.55 68.99 111.22 11.00 20.21 48.48 77.77 101.00 543.21 1.00 21.00 51.00 345.67 251.00 151.00 inOrder traversal: 1.00 11.00 20.00 20.21 21.00 36.18 44.55 48.48 51.00 57.12 68.99 77.77 87.43 101.00 111.22 151.00 251.00 345.67 543.21 preOrder traversal: 57.12 36.18 20.00 11.00 1.00 20.21 21.00 44.55 48.48 51.00 87.43 68.99 77.77 111.22 101.00 543.21 345.67 251.00 151.00 postOrder traversal: 1.00 11.00 21.00 20.21 20.00 51.00 48.48 44.55 36.18 77.77 68.99 101.00 151.00 251.00 345.67 543.21 111.22 87.43 57.12 Choose an operation: 2 Enter Krone value to delete: 3

Ignored. Krone value '3.00' does not exist in tree.

Choose an operation: 3

Enter Krone value to search: 7 Krone value '7.00' was not found.

Choose an operation: 3

Enter Krone value to search: -2 Ignored. Krone value '-2.00' is invalid.

Choose an operation: 3

Enter Krone value to search: 68.99 Found Krone value ' 68.99 '.

Choose an operation: 4

BreadthFirst traversal: 57.12 36.18 87.43 20.00 44.55 68.99 111.22 11.00 20.21 48.48 77.77 101.00 543.21 1.00 21.00 51.00 345.67 251.00 151.00

inOrder traversal:

1.00 11.00 20.00 20.21 21.00 36.18 44.55 48.48 51.00 57.12 68.99 77.77 87.43 101.00 111.22 151.00 251.00 345.67 543.21

preOrder traversal:

. 57.12 36.18 20.00 11.00 1.00 20.21 21.00 44.55 48.48 51.00 87.43 68.99 77.77 111.22 101.00 543.21 345.67 251.00 151.00

postOrder traversal:

. 1.00 11.00 21.00 20.21 20.00 51.00 48.48 44.55 36.18 77.77 68.99 101.00 151.00 251.00 345.67 543.21 111.22 87.43 57.12

Choose an operation: 5 BreadthFirst traversal:

57.12 36.18 87.43 20.00 44.55 68.99 111.22 11.00 20.21 48.48 77.77 101.00 543.21 1.00 21.00 51.00 345.67 251.00 151.00

inOrder traversal:

1.00 11.00 20.00 20.21 21.00 36.18 44.55 48.48 51.00 57.12 68.99 77.77 87.43 101.00 111.22 151.00 251.00 345.67 543.21

preOrder traversal:

 $\frac{5}{57.12}$ 36.18 20.00 11.00 1.00 $\frac{2}{0.21}$ 21.00 44.55 48.48 51.00 87.43 68.99 77.77 111.22 101. $\frac{1}{00}$ 543.21 345.67 251.00 151.00

postOrder traversal:

1.00 11.00 21.00 20.21 20.00 51.00 48.48 44.55 36.18 77.77 68.99 101.00 151.00 251.00 345.67 543.21 111.22 87.43 57.12

Thank you for using our program.
-Neil Dandekar and Xi Gao, 03.04.2023