

COMP3506/COMP7505—Algorithms and Data Structures

School of Information Technology and Electrical Engineering

Week 8 Tutorial

Question 1

- a) Insert into an empty binary search tree, entries with keys 30, 40, 24, 58, 48, 26, 11, and 13 (in this order). Draw the tree after each insertion.
- b) Does the final tree meet the height-balance property? Show the tree with each node annotated with its height.
- c) Perform a single tri-node restructuring to balance the tree of question 2b.
- d) Show by annotating the nodes that the tree is now meets the height-balance property.
- e) Remove the following nodes from the result of question 3. Remove 26 and 58.
- f) Does the final tree meet the height-balance property? Show the tree with each node annotated with its height.

Question 2

Show the insertion of the following numbers into an AVL tree: 10, 12, 14, 15, 23, 32, 35.

Show the structure of the tree after each insertion.