

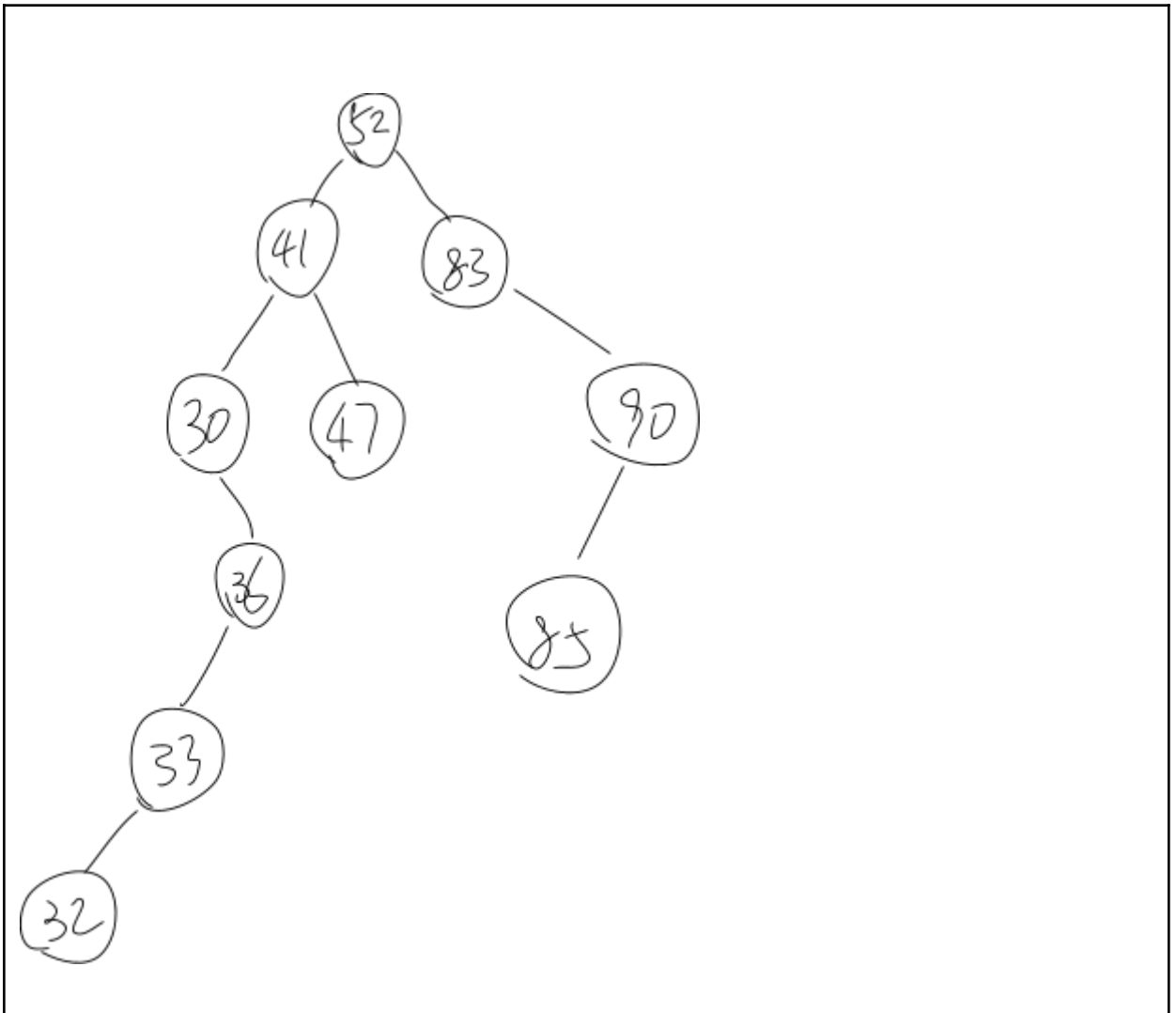
PA 6 Part 1: BST Worksheet

DSC 30 Fall 2021

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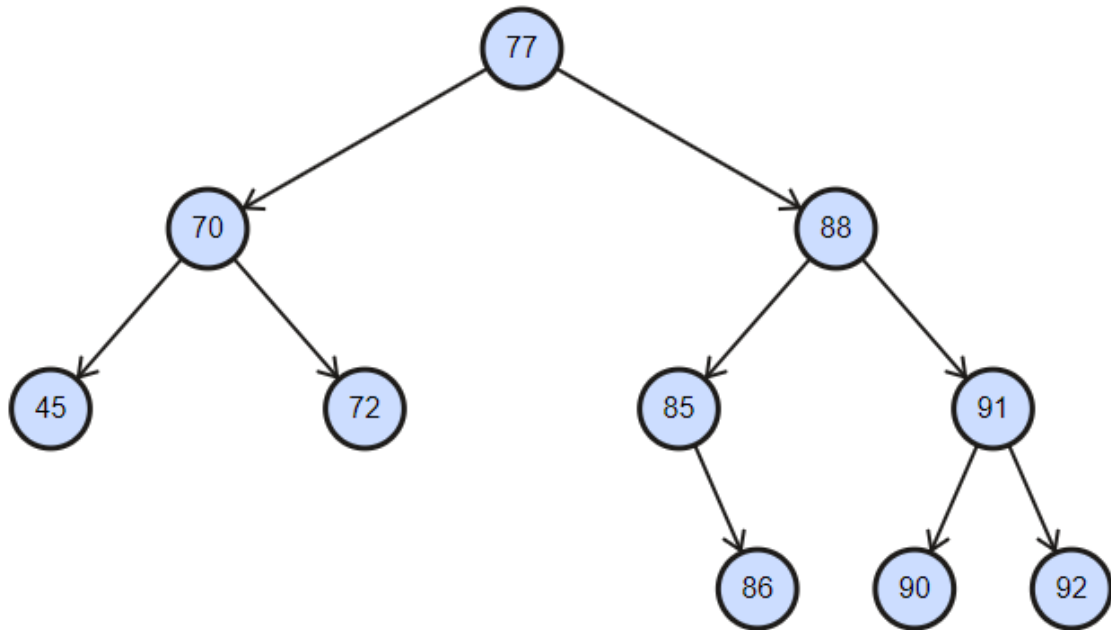
1. Insert the following integers in the order presented to an empty BST and draw the BST after these insertions in the box below. You don't need to show each step.

[52, 41, 83, 30, 36, 47, 33, 90, 85, 32]



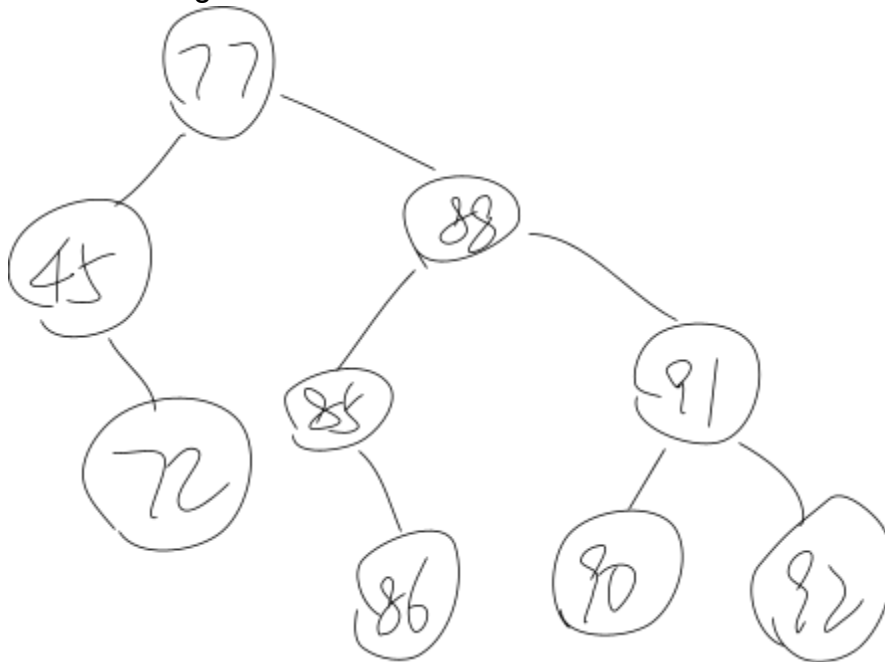


2. Remove the following integers in the order presented from the given BST and show each step of removal by drawing the BSTs after each step of removal in the box below (i.e. 5 trees in total). When removing a node with 2 children, you must replace it with its **in-order predecessor** to get credits.

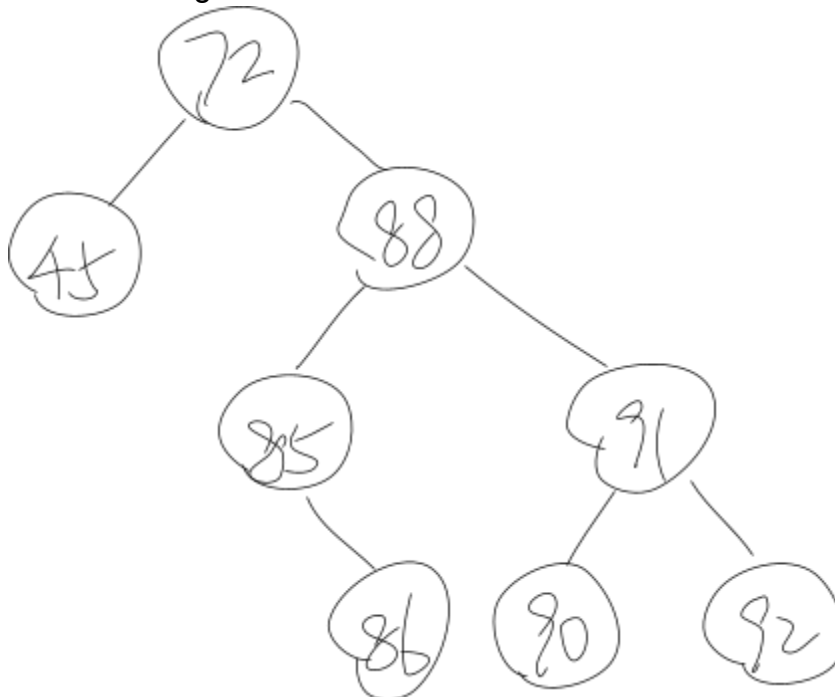


Elements to remove: [70, 77, 92, 88, 91]

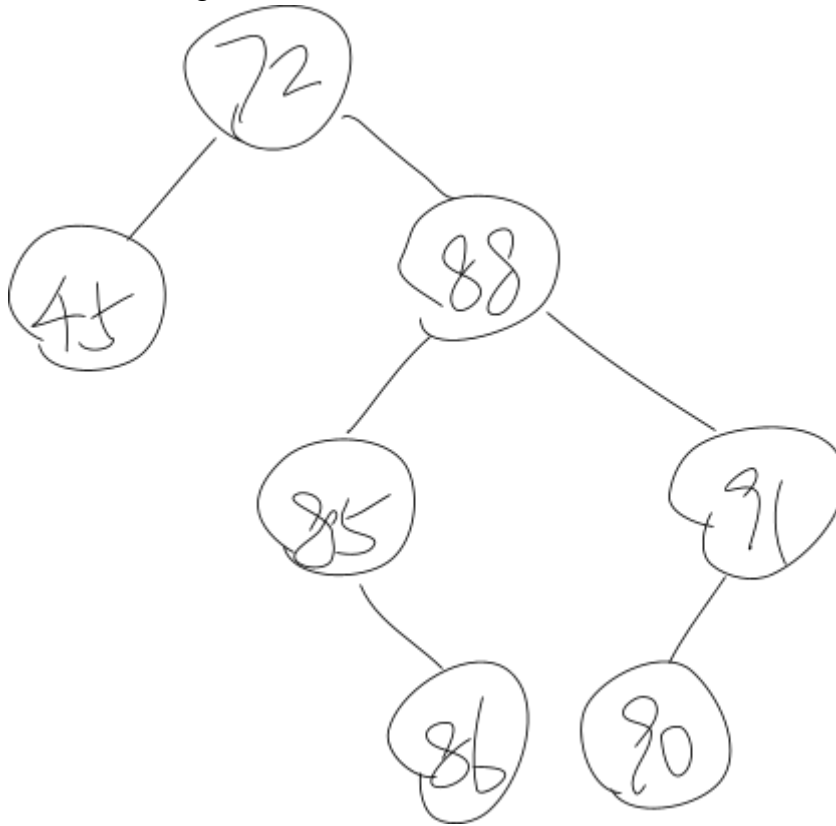
After removing 70:



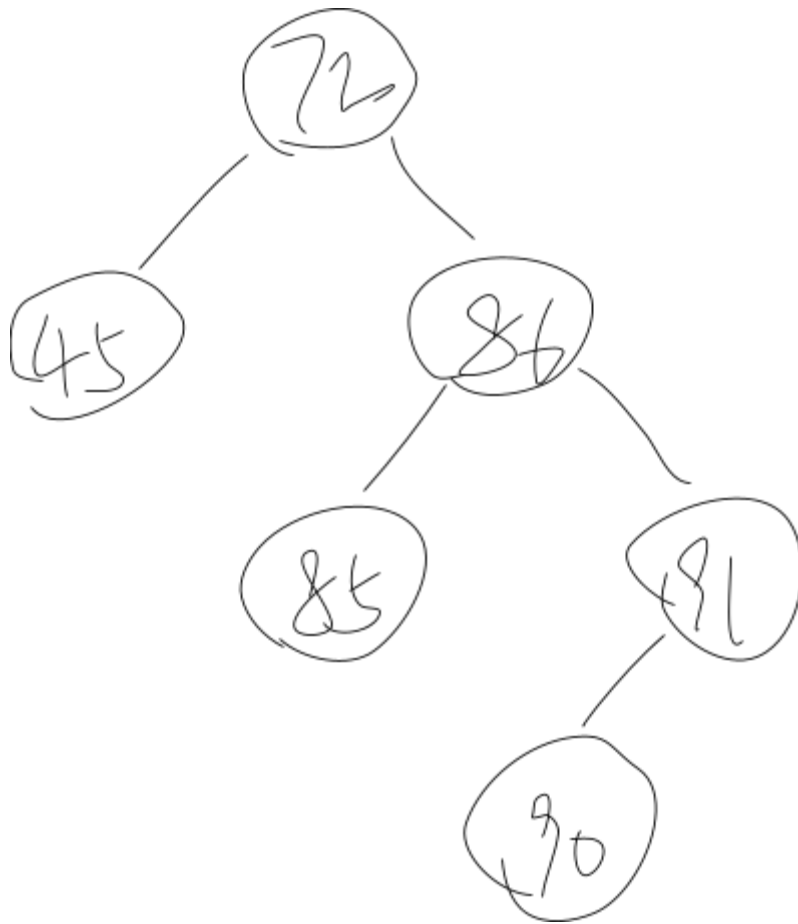
After removing 77:



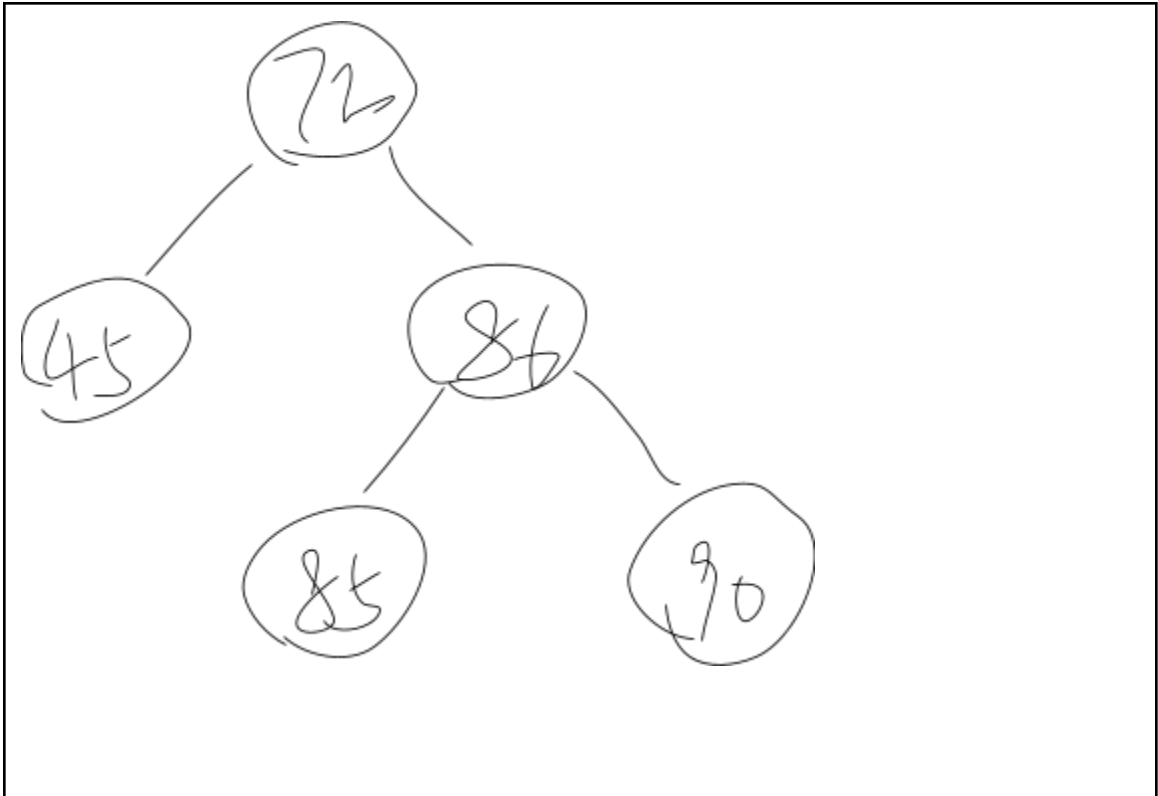
After removing 92:



After removing 88:



After removing 91:



3. Write down the in-order, pre-order, and post-order traversal output of the following BST.



In-order	0032 0035 0038 0043 0044 0047 0048 0050 0062 0073
Pre-order	0044 0035 0032 0043 0038 0048 0047 0050 0073 0062
Post-order	0032 0038 0043 0035 0047 0062 0073 0050 0048 0044

4. **(Extra Credit)** Recreate the original BST using the following traversal results.

Pre-order	[54, 43, 27, 28, 49, 45, 70, 68, 77, 75, 76, 88]
Post-order	[28, 27, 45, 49, 43, 68, 76, 75, 88, 77, 70, 54]

