Exercise 4 – BST Sort

Due Friday 4ᵗʰ September 2020 by 23:55.   (2 marks)

For this exercise, you are to implement BST sort and test it for correctness.

As usual, your program will prompt for the name of an input file and the read and process the data contained in this file.

The file contains a sequence of integer values. Read them and construct a binary search tree from the values in the order they are read. Thus; the first number read will be the root of the tree.

For this exercise, you may use dynamic data, but it is better to store the numbers sequentially in an array.

You do not need to balance the tree as you construct it.

When you have read the last value into the BST, conduct an in-order traversal to output the values in ascending order.

Print them 10 to a line in a 5-character wide field.

Note: there may be duplicated value in the input file – in this case each copy of the number should be kept in the tree and output. E.g. if the input was 3 5 3, the output would be 3 3 5.

As usual, do not use classes or STL.

Submit ex4.*ext* via moodle as usual where *ext* is one of c, cpp, java or py.