CS 3130 Design and Analysis of Algorithms Fall 2018

Programming Project #3 [80 points].

Due date: Tuesday, November 27.

Write a program implementing some operations on binary search trees. Requirements to your program:

- The program should be menu-driven. The user will enter the code of operation. In the output, show that all functions work properly.
- You can use the code of all tree functions from your textbook. In the beginning of the program, create an array of integers from the following list:
  30, 10, 45, 38, 20, 50, 25, 33, 8, 12 (in this particular order).
  Create a binary search tree with nodes containing these numbers as key values (here the function **TREE-INSERT** must be used).
- Display the results of *inorder*, *postorder* and *preorder* traversals of your binary tree.
- Show the result of **TREE-SEARCH** function for the keys **38** and **9**. Show also the sequence of nodes examined in each case.
- Delete the node with the key **10** (use the function **TREE-DELETE)**.
- Display the results of *inorder*, *postorder* and *preorder* traversals of your new binary tree.

Submit your code and output results in a single file.