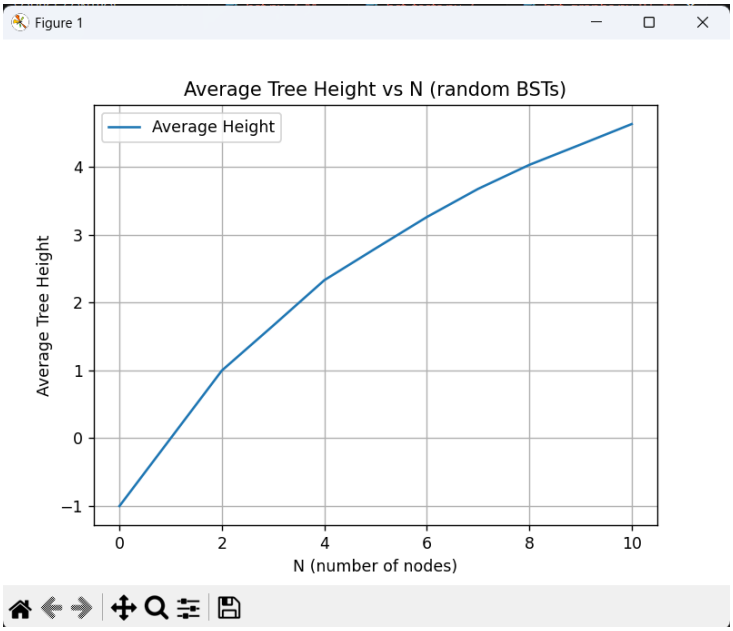
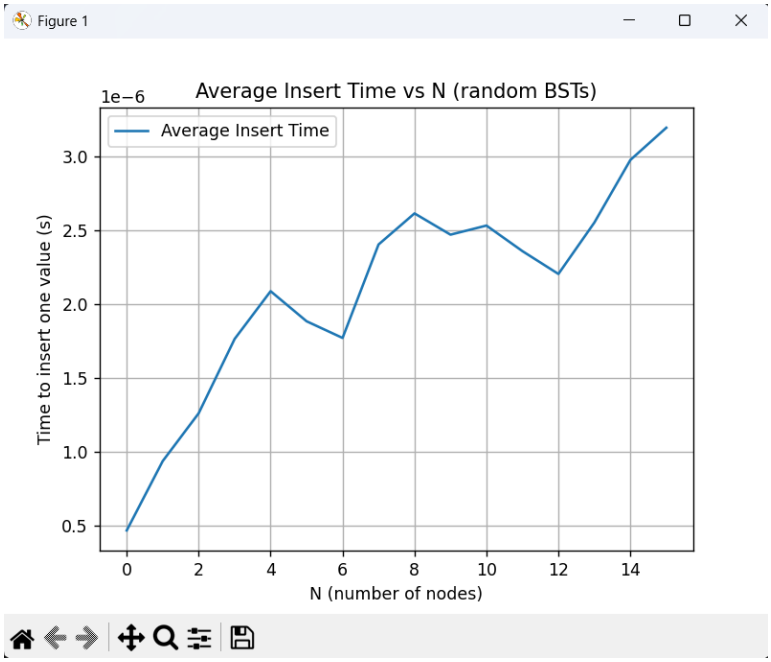
Lab 4, CSC 202





In this lab, we generated random Binary Search Trees to study how their height and insertion time change as the number of nodes increases. The first graph, showing average tree height versus the number of nodes, increases in a smooth, curved pattern that slows down as trees get larger, which matches the expected logarithmic growth. The second graph, showing average insert time versus the number of nodes, also increases gradually but with small fluctuations because the trees and inserted values are random, and some insertions happen to be deeper or closer to the worst case. Both results confirm that, for random BSTs, average height and insertion time grow proportionally to log N, meaning that operations remain efficient even as trees get larger.