

I built an interactive AVL tree that reads positive integers, inserting if new and deleting if present, and prints the tree after each operation until a non-positive value ends the program. I kept the provided third-example code and only added a small `contains(root, key)` helper plus a simple validated input loop. Time complexity is  $O(\log n)$  for the search, insert, and delete with  $O(1)$  left or right rotations and  $O(n)$  for printing. I verified this by toggling values by inserting them and then deleting them, and confirmed the tree stays balanced after each change.