1. Given an array $A$ of $n$ positive integers such that the total number of digits in all integers combined is $\ell$, design an algorithm to sort $A$ in $O(\ell)$ time.

2. Consider the AVL Tree shown below and perform the following operations: insert 60, delete 72, delete 48.

3. We consider a modified version of AVL trees where the height difference between the right and left subtrees of any node is in the range $[-2, 2]$ instead of $[-1, 1]$. These are called AVL-2 trees. Prove that the height of an AVL-2 tree on $n$ nodes is in $O(\log n)$. 