Tutorial 04: Oct 4

1. **Search Lower Bound** Show that any comparison based searching algorithm uses $\Omega(\log(n))$ comparisons in the worst case (even if the input is sorted).

2. **Bounded Digit Sorting** Given an array A of n positive integers such that the total number of decimal digits in all integers combined is ℓ, design an algorithm to sort A in $O(\ell)$ time.

3. **AVL operations**
   Consider the AVL Tree shown below and perform the following operations: insert 61, delete 73, delete 49.