

# American University of Armenia

## CS121, Data Structures

### PSS 8

#### ArrayList Iterators

1. Having certain data values stored as Double objects in ArrayList, remove the values that are far from the average:
  - Use an iterator it1 to compute the average of the values (mean).
  - Use the second iterator it2 to remove any value that is more than two times the average value ( $> 2 * \text{mean}$ ).

#### LinkedPositionalList

1. Modify the LinkedPositionalList class to support a method swap(p, q) that causes the underlying nodes referenced by positions p and q to be exchanged for each other. Relink the existing nodes; do not create any new nodes.

#### LinkedPositionalList Iterators

1. Implement a method alternateIterator( ) for a positional list that returns an iterator that reports only those elements having even index in the list.
2. Given a LinkedPositionalList L and two iterators it1 and it2, implement a method which will return modified list L in the following way: first take the first element of the first half of L, then the first element of the second half of L, followed by the second element of the first half of L, the second element of the second half of L and so on.

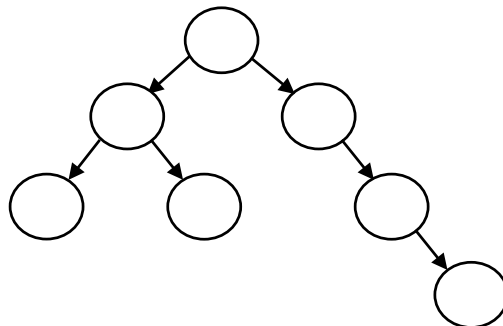
Example

L: ABCDEabcde

Modified L: AaBbCcDdEe

#### Trees

1. Draw a tree with n nodes such that:
  - Its height is  $\log(n)$
  - Its height is n
2. Given the following tree determine:
  - the depth of each node
  - the height of each node



3. Draw an arithmetic expression tree for:
  - $(4 * 8) / 6 - 3$
  - $(a - (b / c)) + (d * (e ^ (f ^ g)))$