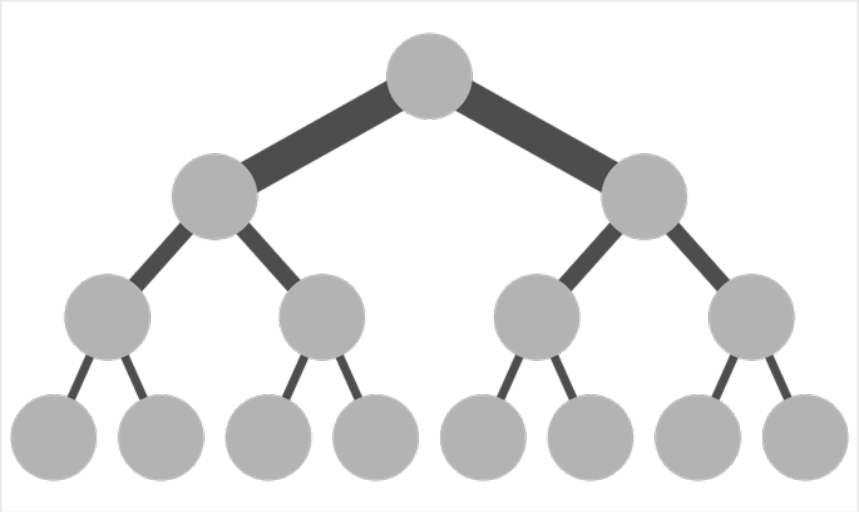
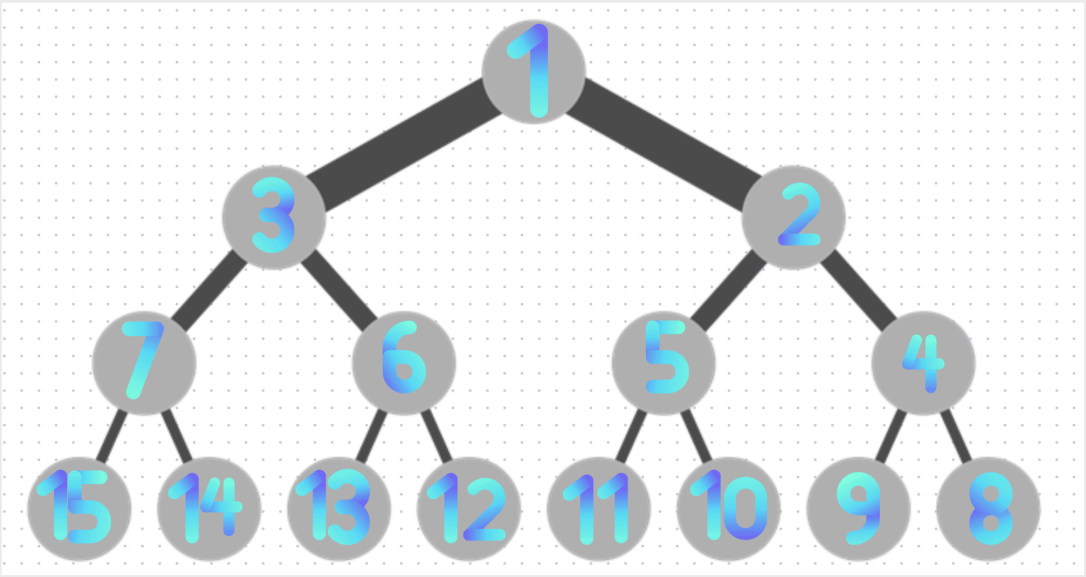
Chp 4 - Exercise 1 - Individual



•Which nodes have the longest communication path?
•We need to broadcast a message to all nodes
•Which node is the best start point?
•Which node(s) is(are) the worst start point?
•What would be a good rule of communication for this structure?

Grading Rubric:
_____ (1 Point) # the nodes in the graph
_____ (1 Point) List at least one pair of nodes with the longest communication path.
_____ (1 Point) General explanation of which pairs of nodes have the longest communication path.
_____ (1 Point) State the node which is the best average path to all other nodes.
_____ (1 Point) State the nodes that would be the worst point for all communication to originate from.
_____ (1 Point) States a good rule for which nodes a node should communicate with.

Answer:



The leaf nodes would be the longest ones to communicate especially the ones on the furthest ends(node 15 and 8) so if the leaf on the most left(node 15) of the diagram wants to send a message to the furthest leaf node on the right (node 8) side it would take +6 to get to it.

Broadcast a message to all notes

The best starting point would be the root node(node 1) as it will always be based on the height of the tree rather than the width which grows significantly compared to the height.

The worst start point nodes would be the leaves nodes especially the ones on the furthest left and right of the tree (node 15 and 8) as they would have communication from left to right and vice versa which is the longest path to communicate in a tree compared to if the starting point was just the root of the tree.

A good rule of communication would be if you need to broadcast use the tree root otherwise communicate using the neighbors if target is close on the same side of the tree. Otherwise communicate with node parent and siblings only.