

Musical Trees PruneNodes() Worksheet

The **MusicalTree::PruneNodes()** function removes nodes from the tree whose motif evaluates below a given fitness threshold. There are a few distinct cases to handle:

1. **Single-node tree:** If the node to prune is the only node in the tree, do nothing.
2. **Leaf node:** If the node to prune has no children, remove it from the tree.
3. **Internal node with children:** If the node to prune has children,
 - a. Recursively prune all of its descendants that also fall below the threshold.
 - b. If, after pruning, the node still has children, rotate its *most recently added* child up to take its place.
 - i. When rotating, merge the child's children with the current node's remaining children, and reassign the parent pointers appropriately.

Activity: For each of the three above cases, draw out a before and after tree that shows each case in action. Assume the pruning happens at a threshold of 50. See the specifications for two examples. Once you are done, share your trees with a partner to see if they agree with the examples and their results. Keep these examples in mind while you are programming and testing the function!

Before Pruning	After Pruning with Threshold 50



Before Pruning	After Pruning with Threshold 50

Before Pruning	After Pruning with Threshold 50

