Assignment 3

For an undirected graph to be considered a tree, it has to have no cycles, and it has to also be connected.

To check both of those conditions, we would have to use our DFS/BFS algorithm.

For connectedness, we would run the algorithm from any starting vertex, and traverse all the reachable vertices from this node. If we reach all vertices, then our graph is connected.

As for cycles, we keep track of the parent node (the one we traversed before our current node) and while traversing we check if we visit an already visited node other than the parent node. If that occurs, then our graph is cyclic, if this doesn't happen and we traverse the entire graph, then it is acyclic.