

Algorithm Design
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Solution of Exercise C-6.12

We can compute the *diameter* of the tree T by slightly modifying the algorithm we used in previous question.

1. Remove all leaves of T . Let the remaining tree be T_1 .
2. Remove all leaves of T_1 . Let the remaining tree be T_2 .
3. Repeat the “remove” operation as follows: Remove all leaves of T_i . Let remaining tree be T_{i+1} .
4. When the remaining tree has only one node or two nodes, stop! Suppose now the remaining tree is T_k .
5. If T_k has only one node, that is the center of T . The *diameter* of T is $2k$.
6. If T_k has two nodes, either can be the center of T . The *diameter* of T is $2k + 1$.