Homework Project 2

Given 03/15/2016, Due 03/29/2016

Take the height-balanced tree code, and add a field `int leaves` to the tree node structure. That field should contain the number of leaves below the node, so `n->leaves` = 1 if `n` is a leaf, and `n->leaves =n->left->leaves + n->right->leaves` else. The `leaves` field must be updated after an insertion or deletion for all nodes on the path from the root to the changed leaf, and after a rotation for the changed nodes. Then you create a function

```
object_t *find_by_number(tree_node_t *tree, int k);
```

which returns the `k`th leaf from left; here we number the leaves from 1 for the leftmost leaf.

The programming language is C or C++; test your code before submission using the `gcc` or `g++` compiler. Please remove all dead code; try to program as clearly as possible, since I try to read it. Do not copy code from another student or from the web; this is an easy project, and must be all your own work.

Submit your source code by e-mail to `phjmbrass@gmail.com`; include the course (220) and homework number in the subject line, and your name as a comment in the homework file.