

Computer Science 2300: Lab 4

Due: March 25, 2009

In this lab you are going to implement the *splay* function.

1 Splay Trees

You have been given a file `splay.c` that contains the framework required for splay trees. You have to complete the code for the function `splay()`.

The code in `splay.c` takes an integer n as input and makes a splay a tree of integers of $\{0, 1, \dots, n-1\}$. It then accepts the value of a node on which to splay the tree. At each step, it also displays the tree. Some details:

1. The structure `tree_node` contains a pointer to the parent, right child and left child, which are themselves instances of `tree_node`. The structure also contains a `key` which is the value of the node. This structure has been typeset as `Tree`.
2. The `splay()` function takes the pointer to the root of the tree and the value of the node to be accessed as arguments and returns a pointer to the root of the new tree formed after splaying. You do not need to change anything other than this function in the entire code.

2 Grading

You are required to implement the `splay()` function. For the purposes of grading, you will be required to perform splay operations on a tree containing 10 nodes. The code for splaying is non-trivial, so start early!