1. Write code for the Left- and Right- Rotate operations which take as arguments a Binary Search Tree (used to locate the \textit{ROOT} variable) and a node \( x \) within it.

2. Implement the Red-Black Tree Insert and Delete Operations, including the restoring of the red-black tree properties after inserting or deleting of a node. In particular, you need to have a single nil variable to store all the leaves and the parent of the root. The root is always black. In addition to the fields you used to program the standard binary search tree, you need to have a field for the colour of each node.