6.5. Nodes and References

Our second method to represent a tree uses nodes and references. In this case we will define a class that has attributes for the root value, as well as the left and right subtrees. Since this representation more closely follows the object-oriented programming paradigm, we will continue to use this representation for the remainder of the chapter.

Using nodes and references, we might think of the tree as being structured like the one shown in Figure 2.



We will start out with a simple class definition for the nodes and references approach as shown in Listing 4. The important thing to remember about this representation is that the attributes left and right will become references to other instances of the BinaryTree class. For example, when we insert a new left child into the tree we create another instance of BinaryTree and modify self.leftChild in the root to reference the new tree.