

```
1 import components.binarytree.BinaryTree;
2
3 /**
4  * {@code Queue} represented as a {@code Sequence} of entries, with
5  * implementations of primary methods.
6  *
7  * @param <T>
8  *         type of {@code Queue} entries
9  * @correspondence this = $this.entries
10 */
11 public class HelloWorld {
12
13     /**
14      * Returns the {@code String} prefix representation of the
15      * given
16      *
17      * @param <T>
18      *         the type of the {@code BinaryTree} node labels
19      * @param t
20      *         the {@code BinaryTree} to convert to a {@code
21      * String}
22      * @return the prefix representation of {@code t}
23      * @ensures treeToString = [the String prefix representation of
24      * t]
25      */
26     public static <T> String treeToString(BinaryTree<T> t) {
27         String rep = "";
28         if (t.root().equals("")) {
29             rep += "()";
30         } else {
31             rep += t.root() + "(";
32             BinaryTree<T> left = t.newInstance();
33             BinaryTree<T> right = t.newInstance();
34             T temp = t.disassemble(left, right);
35             String leftString = treeToString(left);
36             String rightString = treeToString(right);
37             rep += leftString + rightString;
38             rep += ")";
39             t.assemble(temp, left, right);
40         }
41         return rep;
42     }
43 }
```

```
42
43  /**
44   * Returns a copy of the the given {@code BinaryTree}.
45   *
46   * @param t
47   *         the {@code BinaryTree} to copy
48   * @return a copy of the given {@code BinaryTree}
49   * @ensures copy = t
50   */
51  public static BinaryTree<Integer> copy(BinaryTree<Integer> t) {
52      BinaryTree<Integer> tree = t.newInstance();
53
54      if (t.size() != 0) {
55          BinaryTree<Integer> left = t.newInstance();
56          BinaryTree<Integer> right = t.newInstance();
57          Integer root = t.disassemble(left, right);
58          BinaryTree<Integer> copyLeft = copy(left);
59          BinaryTree<Integer> copyRight = copy(right);
60          tree.assemble(root, copyLeft, copyRight);
61          t.assemble(root, left, right);
62      }
63      return tree;
64  }
65
66 }
```