

```
1 import HelloWorld.WaitingLineKernel;
2
3 public class WaitingLineSecondary {
4     public interface WaitingLine<T> extends
5     WaitingLineKernel<T> {
6         @Override
7         public final boolean equals(Object obj) {
8             if (obj == this) {
9                 return true;
10            }
11            if (obj == null) {
12                return false;
13            }
14            if (!(obj instanceof Queue<?>)) {
15                return false;
16            }
17            Queue<?> q = (Queue<?>) obj;
18            if (this.lengthOfLine() != q.length()) {
19                return false;
20            }
21            Iterator<T> it1 = this.iterator();
22            Iterator<?> it2 = q.iterator();
23            while (it1.hasNext()) {
24                T x1 = it1.next();
25                Object x2 = it2.next();
26                if (!x1.equals(x2)) {
27                    return false;
28                }
29            }
30            return true;
31        }
32
33        @Override
34        public int hashCode() {
35            final int samples = 3;
36            final int a = 20;
37            final int b = 10;
38            int result = 0;
39            int n = 0;
40            Iterator<T> it = this.iterator();
41            while (n < samples && it.hasNext()) {
42                n++;
43                T x = it.next();
```

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44         result = a * result + b * x.hashCode();
45     }
46     return result;
47 }
48
49 @Override
50 public String toString() {
51     StringBuilder result = new StringBuilder("<");
52     Iterator<T> it = this.iterator();
53     while (it.hasNext()) {
54         result.append(it.next());
55         if (it.hasNext()) {
56             result.append(",");
57         }
58     }
59     result.append(">");
60     return result.toString();
61 }
62
63 /**
64  * Replaces the entry in {@code this} at position
65  * {@code pos} with {@code x}
66  * , and returns the old entry.
67  *
68  * @param pos
69  *         the position to replace
70  * @param x
71  *         the new entry at position {@code pos}
72  * @return the old entry at position {@code pos}
73  * @aliases reference {@code x}
74  * @updates this
75  * @clear x
76  * @requires
77  *
78  *         <pre>
79  *         {@code this != <>, 0 <= pos and pos < |this|}
80  *         </pre>
81  * @ensures
82  *
83  *         <pre>
84  *         {@code this = #this[0, pos) * <x> * #this[pos+1, |
85  *         #this|) and
86  *         <replaceEntry> = #this[pos, pos+1)}

```

```
86      *          </pre>
87      */
88
89      @Override
90      public T replaceEntry(int pos, T x) {
91          T removed = null;
92          int length = this.lengthOfLine();
93          for (int i = 0; i < length; i++) {
94              if (i == pos) {
95                  removed = this.removeFront();
96                  this.addLine(x);
97              } else {
98                  this.addLine(this.removeFront());
99              }
100          }
101          return removed;
102      }
103  }
104  }
105  }
106  }
107 }
108
```