```
 1  // Example 3.1 joi/examples/StaticDemo.java
 2  //
 3  //
 4  // Copyright 2003 Bill Campbell and Ethan Bolker
 5
 6  // Demonstrate the interplay between static members (fields and methods)
 7  // and instance (non-static) members.
 8  //
 9  // %> java StaticDemo
10  // 0: counter = 1; objectField = 0
11  // StaticDemo.classMethod() = 100
12  // classMethod() = 100
13  // 1: counter = 2; objectField = 1
14  // StaticDemo.classMethod() = 101
15  // classMethod() = 101
16  // 2: counter = 3; objectField = 2
17  // StaticDemo.classMethod() = 103
18  // classMethod() = 103
19  // 3: counter = 4; objectField = 3
20  // StaticDemo.classMethod() = 106
21  // classMethod() = 106
22  // 4: counter = 5; objectField = 4
23  // StaticDemo.classMethod() = 110
24  // classMethod() = 110
25  //
26  // last classMethod() = 110
27
28  public class StaticDemo
29  {
30      // Declare three (static) class variables
31      // A class variable is associated with the (one) class.
32
33      private static int counter  = 0;
34      private static int classVar = 0;
35      private static Terminal terminal = new Terminal();
36
37      int objectField = 0;     // an instance variable; one per object
38
39      // The constructor keeps track of how many StaticDemo objects
40      // have been constructed.
41
42      public StaticDemo( int objectFieldValue )
43      {
44          objectField = objectFieldValue; // set the instance variable
45          counter++;  // increment counter (counting the StaicDemos made)
46      }
47
48      public void instanceMethod()
49      {
50          // Instance methods can refer to both instance variables
51          // and class variables.
52
53          terminal.println( "counter = " + counter +
54                            "; objectField = " + objectField );
55          classVar = classVar + objectField;
56
```



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57      }
58
59      public static int classMethod()
60      {
61          // Class methods may refer only to class variables
62          // (and other class methods), as well as to local variables.
63
64          // What happens if we comment out the next line?
65          int counter = 100;
66
67          return counter + classVar;
68      }
69
70      public static void main( String[] args )
71      {
72          for (int i = 0; i < 5; i++) {
73              StaticDemo sd = new StaticDemo( i );
74              terminal.print( i + ": " );
75              sd.instanceMethod();
76
77              // classMethod()
78              //   is equivalent to
79              // StaticDemo.classMethod()
80              terminal.println( "StaticDemo.classMethod() = "
81                                + StaticDemo.classMethod() );
82              terminal.println( "classMethod() = "
83                                + classMethod() );
84          }
85          terminal.println();
86          terminal.println( "last classMethod() = " + classMethod() );
87      }
88  }
```