TDP assignment 3

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February 27, 2014

Answers

1 The static counter attribute belongs to the class and is not an independent attribute for any instance of Counter. This means any object will use the exact same counter attribute.

2 To counters are initialised. One counts from 0 to 1000 (Up) and the other from 1000 to 0 (Down). The're initialised in seperate threads, but they share the same counter attribute. Up starts and sets the shared counter attribute to 0. Next Down sets the counter to 1000. Because the counter is now set to 1000, Up stops running. Now Down runs until the counter reaches 0.

3 The minimal number of output lines is 1001. This is possible when the counter is first set to 1000 by Down, but before the condition of the for-loop is checked, the Up counter sets the counter to 0. Then the Down counter will not execute the System out, while the Up counter can now simply output 1001 lines (0-1000).

4 The maximal number of output lines is infinite. If the Down counter would first run (at least) three times through the for-loop, the counter would be set to 998. Now the Up and Down counter can alternate between adding and substracting one from the counter. This could be repeated for an infinite amount of times.