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1
2 /** Represents a random access memory (RAM) unit. A RAM is an indexed sequence of
   registers
3  * that enables reading from, or writing to, any individual register according to a
   given index.
4  * The index is typically called "address". The addresses run from 0 to the memory's
   size, minus 1. */
5
6 public class Memory {
7
8     private Register[] m; // an array of Register objects
9
10    /** Constructs a memory of size registers, and sets all the register values to
       0.
11     * Each register in the memory is a Register object.
12     * @param size the size (number of registers) of this memory. */
13    public Memory (int size) {
14        // Put your code here
15        m = new Register[size];
16        reset();
17    }
18
19    /** Sets the values of all the registers in this memory to 0. */
20    public void reset () {
21        for(int i = 0; i < m.length; i++) {
22            m[i] = new Register();
23        }
24    }
25
26    /** Returns the value of the register whose address is the given address.
27     * @param address the address of the register.
28     * @return the value of the register, as an int. */
29    public int getValue (int address) {
30        // Put your code here
31        return m[address].getValue();
32    }
33
34    /** Sets the register in the given address to the given value.
35     * @param address the address of the register.
36     * @param value the register's value will be set to value. */
37    public void setValue (int address, int value) {
38        m[address].setValue(value);
39    }
40
41    /** Returns the memory's contents, as a formatted string. To avoid clutter,
       returns only the
42     * first 10 registers (where the top of the program normally resides) and the
       last 10 registers
43     * (where the variables normally reside). For each register, returns the
       register's address and
44     * value. */
45    public String toString () {
46        String firstAndLast10 = "";
47
48        for(int i = 0; i < 10; i++) {
49            int theValue = m[i].getValue();
50            firstAndLast10 = firstAndLast10 + i + "\t" + theValue + "\n";
51        }
52
53        firstAndLast10 += "\n";
54
55        for(int j = m.length - 10; j < m.length; j++) {

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56 |         int theValue = m[j].getValue();
57 |         firstAndLast10 = firstAndLast10 + j + "\t" + theValue + "\n";
58 |     }
59 |
60 |     return firstAndLast10;
61 | }
62 | }
```