

PseudoRandom.java

```
2 * File: PseudoRandom.java
4
5/
  ****
  ****
6 *   CS 211, Winter 2009, R.
   Gandham *
7 *   Bellevue College, Bellevue, Washington,
   USA *
8
   *
   *
9 *   Copyright (C) 2009 Mark A. Taff
   <mark@marktaff.com> *
10
   *
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    n.
    *
15
```

PseudoRandom.java

```
*
*
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    the
23 *   Free Software Foundation,
    Inc.,
24 *   51 Franklin Street, Fifth Floor, Boston, MA
    02110-1301, USA.
25
*****
*****/
26
27/**
28 * The PseudoRandom class generates a
    sequence of pseudo random
```

PseudoRandom.java

```
29 * numbers.
30 * @author Mark A. Taff <<a
    href="mailto:mark@marktaff.com">mark@marktaff.com</a>>
31 */
32 public class PseudoRandom
33 {
34     private int m_seed      = 0;    // Seed for the
        generator
35     private int m_multiplier = 0;    // Factor multiplied
        by the seed
36     private int m_increment  = 0;    // Value added to the
        product of seed and multiplier
37     private int m_modulus    = 1;    // Range of pseudo-
        random number, [0:modulus]
38
39     /**
40      * Ctor
41      * @param seed The seed for the generator
42      * @param multiplier A factor multiplied by the
        <code>seed</code>
43      * @param increment A value added to the product of
        the seed and multiplier
44      * @param modulus Sets the range of the pseudo-random
        number from 0 to
45      *                  <code>modulus</code>
46      * @throws IllegalArgumentException
47      *      Indicates that modulus was zero, but
        divide by zero is undefined.
48      */
49     public PseudoRandom(int seed, int multiplier, int
```

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```
    increment, int modulus)
50    {
51        // modulus cannot be zero
52        if (modulus == 0)
53        {
54            throw new IllegalArgumentException("Modulus
    == 0: Cannot divide my zero");
55        }
56
57        m_seed      = seed;
58        m_multiplier = multiplier;
59        m_increment  = increment;
60        m_modulus    = modulus;
61
62    } // End Ctor
63
64
65
66
67    /**
68     * Sets the <code>seed</code> to the new value
69     * @param seed The new value for the <code>seed</code>
70     */
71    public void setSeed(int seed)
72    {
73        m_seed = seed;
74    } // End method setSeed()
75
76
77
```

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```
78
79  /**
80   * Generates and returns the next pseudo-random number
81   * @return the next number in the sequence
82   * @postcondition the seed equals <code>getNextNumber
83   *               </code>
84   */
85  public int getNextNumber()
86  {
87      int nextNumber = (m_multiplier * m_seed +
88      m_increment) % m_modulus;
89      // Next number becomes new seed
90      m_seed = nextNumber;
91      return nextNumber;
92  } // End method getNextNumber()
93
94
95
96} // End class PseudoRandom
97
```