

```
1  /**
2   * Models a die
3   *
4   * :author: Chris Hegang Kim
5   * :note: I affirm that I have carried out the attached
   academic
6   * endeavors with full academic honesty,
7   * in accordance with the Union College Honor Code and the
   course
8   * syllabus.
9   */
10
11 import java.util.Random;
12
13 public class Die {
14     private final int MINIMUM_VALUE = 1;
15     private final int DEFAULT_SIDES = 6;
16     private final int TWICE = 2;
17
18     private int numberOfSides;
19     private int currentValue;
20
21     /**
22      * Non-default constructor for the die
23      * @param numberOfSides int for the number of sides that
   this die should have
24      */
25     public Die(int numberOfSides) {
26         this.numberOfSides = numberOfSides;
27         currentValue = MINIMUM_VALUE;
28     }
29
30     /**
31      * Default constructor for the die
32      */
33     public Die(){
34         numberOfSides = DEFAULT_SIDES;
35         currentValue = MINIMUM_VALUE;
36     }
37
38     /**
```

```
39     * Rolls the die
40     */
41     public void roll(){
42         Random random = new Random();
43         currentValue = random.nextInt(numberOfSides) + 1;
44     }
45
46     /**
47      * Gets the value currently showing on the die
48      * @return the value currently showing on the die
49      */
50     private int getValue(){return currentValue;}
51
52     /**
53      * Checks whether one of the dice shows a value that is
54      * exactly twice the value of the other
55      * @param otherDie a Die object for the other die for
56      * comparison
57      * @return True if the value of other die is two times
58      * larger than the value of current die itself
59      */
60     public boolean isTwice(Die otherDie){
61         if (this.getValue() == otherDie.getValue() * TWICE){
62             return true;
63         } else {return false;}
64     }
65
66     /**
67      * Converts to human understandable String
68      * @return a human understandable String for the current
69      * value of the die
70      */
71     public String toString(){return this.getValue() + "";}
72 }
```

```
1 import java.util.Scanner;
2
3 public class Client {
4     public static void main(String[] args) {
5         Die D6 = new Die();
6         Die D12 = new Die(12);
7
8         Scanner sc = new Scanner(System.in);
9
10        while (! D6.isTwice(D12) && ! D12.isTwice(D6)){
11            System.out.println("Press return");
12
13            if (sc.nextLine().equals("")) {
14                D6.roll();
15                D12.roll();
16
17                System.out.println("D6: " + D6 + " D12: " +
18                D12);
19            }
20        }
21        System.out.println("We have won, and the program ends"
22        );
23    }
```