```java

/**
 * This class representa  six sided die
 */

public class NumberCube
{
    /** @return an integer value between 1 and 6, inclusive */
    public int toss()
    {
        return (int)(Math.random() * 6) + 1;
    }

// There may be instance variables, constructors, and methods that are not shown.
}

```

```
1
2   /**
3    * 2009 FR #1 solution based on that from Litvin
4    */
5   public class TestNumberCube
6   {
7      /** Returns an array of the values obtained by tossing a number cube numTosses times.
8       *  @param cube a NumberCube
9       *  @param numTosses the number of tosses to be recorded
10      *         Precondition: numTosses > 0
11      *  @return an array of numTosses values
12      */
13
14     //part a
15     public static int[] getCubeTosses(NumberCube cube, int numTosses)
16     {
17       int[] values = new int[numTosses];
18       for (int i = 0; i < numTosses; i++)
19       {
20         values[i] = cube.toss();
21       }
22       return values;
23     }
24
25     //part b
26     /** Returns the starting index of a longest run of two or more consecutive repeated values
27      *  in the array values.
28      *  @param values an array of integer values representing a series of number cube tosses
29      *         Precondition: values.length > 0
30      *  @return the starting index of a run of maximum size;
31      *          -1 if there is no run
32      */
33     public static int getLongestRun(int[] values)
34     {
```

```
35      int maxRunStart = -1, maxRunLength = 1;
36      int runStart = 0, runLength = 1;
37
38      for (int i = 1; i <= values.length; i++)
39      {
40        if (i < values.length && values[i] == values[i - 1])
41        {
42          runLength++;
43        }
44        else
45        {
46          if (runLength > maxRunLength)
47          {
48            maxRunStart = runStart;
49            maxRunLength = runLength;
50          }
51          runStart = i;
52          runLength = 1;
53        }
54      }
55
56      return maxRunStart;
57    }
58
59    //main method
60    public static void main(String[]args)
61    {
62      NumberCube die = new NumberCube();
63      int[] testArray1 = {1,5,5,4,3,1,2,2,2,2,6,1,3,3,5,5,5,5};
64      int[] testArray2 = getCubeTosses(die,50);  //use method to fill array with random data
65
66      System.out.println("Contents of Test Array1:");
67      for(int value: testArray1)
68          System.out.print(value + ",  ");
```

```
69      System.out.println();
70
71      System.out.println("Contents of Test Array2:");
72      for(int value: testArray2)
73          System.out.print(value + ", ");
74      System.out.println();
75
76      System.out.println("Longest run in TestArray1 starts at :" + getLongestRun(testArray1));
77
78      System.out.println("Longest run in TestArray2 starts at :" + getLongestRun(testArray2));
79
80    }
81
82  }
83
```