Homework: Monte Carlo Estimation

1. This program takes a number of points from the user then iterates that many times through a loop that estimates to a random percentage that approaches 50% as the user entered value is greater.
2. "Estimate of percentage: 50%"
3. It would likely be less than 50%

```java
public static void main(String[] args) {
    SimpleReader input = new SimpleReader1L();
    SimpleWriter output = new SimpleWriter1L();

    output.print("Number of points: ");
    int n = input.nextInteger();

    int ptsInInterval = 0, ptsInSubinterval = 0;

    Random rnd = new Random1L();

    while (ptsInInterval < n) {
        double x = rnd.nextDouble();
        ptsInInterval++;
        if (x < 0.5) {
            ptsInSubinterval++;
        }
    }

    double estimate = (100.0 * ptsInSubinterval) / ptsInInterval;
    output.println("Estimate of percentage: " + estimate + "%");

    input.close();
    output.close();
}
```