1. What does this program do?

This program prompts the user to input a number n, then iterates through a loop n times. In the loop, the program generates a pseudo-random double, which adds 1 to ptsInInterval and has approximately a 50% chance of adding 1 to ptsInSubinterval. Then, the program prints a String with the estimate, an integer randomly taken from a normal distribution centered at 50 with the standard deviation varying based on the user input of n.

Overall, the program estimates the likelihood of ptsInSubinterval increasing by one on any given iteration through the loop.

2. What is the program output if the user enters 10000 when prompted for the number of points?

The program output may be:

Estimate of percentage: 5000%

With “5000” varying slightly

3. How would your answer to the above question change if the test in line 15 used <= rather than <?

My answer would not change, as the likelihood of the random generator returning .5 exactly is extremely slim.

4. Print the homework or copy and paste the code below in your homework. Draw a box around each statement, and underline each expression, in the code. (Even though technically an assignment in Java is an expression, do not underline entire assignments.)

```
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();
}
```