

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%

```
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();  
}
```