

Problem1. (Model a Percolation System)1. Performance Requirement:

- a. The constructor should take time N^2
- b. All other methods take constant time

2. Special Cases

- a. `IndexOutOfBoundsException` if any argument to `open()`, `isOpen()`, or `isFull()` is outside its prescribed range
- b. `IllegalArgumentException` if $N \leq 0$

Problem2. (Estimate Percolation Threshold)1. Performance:

- a. Calculate the mean
- b. Calculate the standard deviation
- c. The 95% confidence interval for the percolation threshold.

2. Special Cases:

- a. `IllegalArgumentException` if either $N \leq 0$ or $T \leq 0$

Other Requirements

1. Well formatted code (indentation)
2. Code compilation is successful
3. Code runs with no errors and meet the output

Extra Credit

1. Avoiding back-wash problem

Meeting Deadline: no penalty, 6 hours late: no penalty, otherwise: 0%