Homework 4

Due Tuesday, March 19, 2019

1. Use an example to show how \( n \) integers in the range of 1 to \( n^2 \) can be sorted in \( O(n) \) time. You are required to use \( n = 20 \) in your example.

2. Write a Java program to implement **Counting Sort** and write a driver to test it. Note: use random number generator to generate your input with \( n = 10, 50, \) and 100. Verify that the running time is \( O(n) \).

3. Write a Java program to implement **Bucket Sort** and write a driver to test it. Note: use random number generator to generate your input with \( n = 10, 50, \) and 100. Verify that the running time is \( O(n) \).