CSCI1321 Final Review

This final will be formatted in a manner very similar to the midterm. There will be 10 questions though you have a longer period of time to answer them. During the exam you will be able to have the Scala and Java APIs open on your computer, but no other references will be allowed.

Topics:
Recursion – Know how to write and trace recursive functions. You should also understand when recursive functions can/should be used to aid in problem solving. How do they compare to loops and when are they superior to loops?
Binary Trees – Know what a binary tree is and the things we can do with them. This includes binary search trees and the different traversals. You also need to understand what they are good for, their O speed, and when that breaks down. You need to be able to write basic functions to do things like find the height of a tree or count the number of leaves.
Heaps – You need to understand how a binary heap is implemented with a complete binary tree that has "heap ordering". You should also know how to emulate a complete tree through the use of an array. Be able to write or trace code for this.
RegEx – You need to be able to use regular expressions to parse strings of reasonable complexity. You should also be able to figure out what a regular expression of modest complexity is doing in code.
Spatial Trees – Have a conceptual level understanding of spatial trees and be able to explain their usage.
Binary Direct Access Files – Know what these are and how to use them effectively.
Actors – You should know the basics of the actor model of parallelism and how to write simple code that uses it.