Exam 1 Study Guide – Nov 17th

The exam is on the following chapters:

Chapters 1, 2.1-2.2, 3, 4.3,4.5, 6, 7.1, 7.2, 12.1, 12.2

It will be very similar to the homework assignments, quizzes and material we covered in class.

Here is a list of topics:

* Estimating algorithm time efficiency
* Finding loop invariants
* Sorting – Bubble, Insertion, Merge, Heap, Quicksort
  + Be able to explain how they work
  + Sort an array on the fly
  + Know its worst, best and average cases
  + Be able to compare algorithms
  + Which are stable, not stable and why
* Order of Growth
  + Basic definitions of 𝑂, 𝛺, and 𝛩, o, and w (little omega).
  + Use basic definitions of 𝑂, 𝛺, and 𝛩 to prove things
* Recurrence versus iteration
* Create recurrence equation from recursive algorithm
* Solving Recurrences master method and backwards substitution
* Binary Trees
  + preorder, postorder, inorder,
  + searching
  + inserting, deleting
  + analysis