Lecture Outline (CS 303, Dong Xu, 2/11/04)

• Things to start…
  – Discussion on the quiz
  – Other questions?

• Outline
  – Introduction to sorting and order statistics (pages 123-126)
  – Concept of heaps (6.1)
  – Maintaining the heap property (6.2)
  – Building a heap (6.3)
• **Introduction to sorting and order statistics**
  – Relationship between data structure and algorithm
  – Sorting (in place)
  – Order statistics

• **Binary heaps**
  – Definition
  – Heap and array
  – Max-heap / min-heap
  – Height of heap
• Maintaining heap property
  – MAX-HEAPIFY()
  – Example
  – Computing time

• Build a heap
  – BUILD-MAX-HEAP
  – Example
  – Loop invariant
  – Computing time
• **Reading**
  – Pages 123-126
  – Chapter 6.1
  – Chapter 6.2
  – Chapter 6.3

• **Homework**
  – Ex. 6.1-1, 6.1-2, 6.1-3, 6.1-7
  – Ex. 6.2-1, 6.2-2, 6.2-6
  – Ex. 6.3-1, 6.3-3