Final Exam Topics

In general, you are responsible for all of the material covered in class since the last class before the second midterm exam. This material is identified by topic below.

Queues

- Definition, application
- ADT
- Implementation using arrays and linked lists

Algorithm Efficiency and Analysis

- The meaning of best, average, expected, and worst case running times
- Big-O notation
- Asymptotic rates of growth of functions
- Analyzing the running time of algorithms
- Search algorithms: binary search, linear search
- Sorting algorithms: selection, insertion, and quicksort
- Analysis of running times of sorting and searching

Trees

- General trees: terminology and definitions, their properties, applications
- Binary trees: their properties and analysis, ADT
- Binary tree traversals
- Binary tree implementation
- Binary search trees: all algorithms supported by them

Miscellaneous Topics in Software Development

- Software build process
- Runtime support
- Typical coding mistakes : integer errors, unvalidated input, buffer overflows
- Identifying vulnerabilities
- Fixing vulnerabilities