Exam #2 Topic List

**Purpose:** Students often appreciate receiving a list of topics that will be covered on upcoming exams. My usual answer to the question “Which topics should we study for the exam?” is “All of ’em!” While that’s true, it’s also not detailed.

Please note that this is not meant to be an exhaustive list of exam topics; rather, it’s meant to hit the highlights and ensure that you don’t overlook a critical topic.

1. Stacks (“LIFO” – Last In, First Out)
   - Stack’s major operations: `push()`, `pop()`, `peek()`
   - Infix → Postfix stack-based conversion algorithm
   - Array representation
   - The Java API’s `Deque()` Interface

2. Queues (“FIFO” – First In, First Out)
   - Queue’s major operations: `enqueue()`, `dequeue()`
   - Array representations (normal and circular arrays)
   - Priority queues
   - The Java API’s `Deque()` Interface

3. Linked Lists
   - Singly-Linked Lists
   - Implementation of our ListADT operations
   - The “Little Brother” technique for list traversal
   - Variations: tail reference, circular linked lists, “dummy” nodes, doubly-linked lists
   - Pros and cons of linked lists vs. arrays
   - Linked-list representations of stacks and queues

4. Recursion
   - How to Approach a Problem Recursively:
     1. “What is (slightly) simpler than . . . ?”
     2. Can that (slightly) simpler version be used to solve the original problem? (Leads to the General Case(s).)
     3. What’s the most trivial example of the problem? (Leads to the Base Case(s).)
   - Binary Search (both iterative and recursive versions)

Don’t forget to review what you learned from (and learn from the mistakes you may have made on) the sample programs, assignments, section activities, and ICAs!