

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. Lists

- (a) (*Review*) List operations: create, destroy, size, capacity, isEmpty, isFull, insert, append, prepend, delete
- (b) Array representation for lists (implementing list operations)

2. Stacks (“LIFO” – Last In, First Out)

- (a) Stack’s major operations: push, pop, peek
- (b) Infix → Postfix stack-based conversion algorithm
- (c) Stack array representation

3. Queues (“FIFO” – First In, First Out)

- (a) Queue’s major operations: enqueue, dequeue
- (b) Queue array representations (normal and circular arrays)
- (c) Priority queues

4. Linked Lists

- (a) Implementation of our List operations
- (b) The “Little Brother” technique for list traversal
- (c) Variations: tail reference, circular linked lists, “dummy” nodes, doubly-linked lists (note: DLLs were covered in Section 10)
- (d) Linked-list representations of stacks and queues

5. Recursion

- (a) “What is (slightly) simpler than ...?”
- (b) Base and General cases
- (c) Binary Search (both iterative and recursive versions)

6. Other Material

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