Final review

format and scope

Format

- Give you a question and ask you to write an algorithm
- Give you an algorithm and ask you to write down the output
- Debugging an algorithm

A simple class

- Constructor
- Get and set methods
- Equals method

Collection class

- Constructor
- Get and set methods
- Size, capacity methods
- Contains method
- Add, ensureCapacity
- Remove, removeAll

Singly linked list

- Constructor
- Get and set methods
- addNodeAfterThis
- removeNodeAfterThis
- Size
- Add (to the end, ~~ordered~~)
- Remove (one value, several values, all)
- Copy (sublist)
- Reverse

~~Doubly linked list~~

- ~~Node class (members, get and set methods)~~
- ~~Doubly linked list class (with dummy nodes)~~
  - ~~Constructor~~
  - ~~Remove an element~~
  - ~~Insert an element~~
  - ~~Linked list traversal~~

Stack & Queue

- Array Stack
- Linked Stack
  - Members
  - Push, Pop, Top, IsEmpty
- Array Queue
- Linked Queue
  - Members, get and set methods
  - Enqueue, Dequeue, Front, Rear, IsEmpty, size

BST

- BST Node class
  - Members, get and set methods
- BST class
  - Members, get and set methods
  - Search (recursion, non-recursion)
  - Traversal (pre-, in-, post- order)
  - Insertion
  - Deletion
- Merged with AVL

Heap

- Constructor
- Get and set methods
- Add + reheap upward
- Remove + reheap downward
- Top

Binary search

- Lab 11 – binary search

Hash table

- Constructor
- Get and set methods
- Hash function
- Put method
- Remove method
- Search method

Generic programming, Recursive thinking, Big-O analysis

- Generic programming, recursion, and Big-O analysis are embedded in the other data structures
- E.g., SNode
  - For singly linked list
  - For stack
  - For queue