

# CS367 Lecture 11

Wednesday 2 July 2014

## Announcements/Reminders:

- P2 and HW3 assigned – see due dates
- HW1 grades and solutions

## Last class:

- Comparing Complexities of List implementations
- Shadow array improvement
- Adding iterators to Linked Lists

## Today:

- Stacks and Queues
  - Intro
  - Implementations and Complexity
  - Applications
  - `findMax`

## **ADTs: Position-oriented vs. Value-oriented**

# Stack ADT

Conceptual Picture

Operations

Implementing using an Array

Complexities

Implementing using a Chain of Nodes (Linked List)

Complexities

# Queue ADT

Concept

Operations

Implementing using a Linked List

Complexities

## Implementing a Queue using an Array

Two options:

## Implementing a Queue using a “Circular” Array

## Using Stacks and Queues: Some Applications

**Balanced parentheses:**

**Infix to Postfix and its Evaluation:**

Notation:

Example:

## Simulating a Queue with Two Stacks