

CSCI 136 – Fundamentals of Computer Science II  
Exam II Study Outline

I. Previous Concepts

- A. Linked Lists
- B. Stacks and Queues
- C. Abstract Data Types and Generics
- D. Performance
- E. Hash Maps / Dictionaries
- F. Recursion

II. Threads / Concurrency

- A. Separate paths of execution
- B. Creating and starting a Thread
- C. Workers for Threads
  - 1. Target Functions
  - 2. Methods within an object
- D. Indeterminate order of execution
- E. Thread States
  - 1. Runnable, Running, Blocked
- F. Launching Multiple Threads
- G. Waiting for Threads to complete
- H. Sleeping
- I. Concurrency Issues
  - 1. Lost Update Problem - Synchronizing Shared Data (Locking)
  - 2. Concurrent Access to the Same Data Structure - Locking – again
  - 3. Deadlock - No easy solution

III. Linux

- A. Operating Systems (OS) Overview
  - 1. Purpose of an OS
- B. The Command Shell
  - 1. Logging into and out of Linux
  - 2. Changing your Password
  - 3. General Command Format
- C. Directory Structure
  - 1. Directory and File Commands
  - 2. Directory and File Permissions
    - a. Changing File Permissions
  - 3. Finding Files
  - 4. Finding Text in Files
    - a. grep
- D. Processes
  - 1. File Redirection and Piping
  - 2. Controlling Processes
    - a. Foreground/Background
    - b. Killing a Process
- E. User Information
- F. Getting Help in Linux (man)