Midterm Review

Overview

This document provides a high-level review of the topics covered up to this point in the class. It does not list every fact

Course Material

You are responsible for knowing the information covered during lecture and in the textbook for the sections that we've covered thus far. The best sources for this information are: (1) the textbook (2) the lecture videos and (3) the 'student notes' posted on Canvas. Plan to understand high-level concepts, pseudo-code and procedures that we discussed, and how to related material across chapters.

The best way to study this material is to work through multiple explanations. See how I explained the material, compare that with what the book covered. Try to identify how the concepts from Chapter 1 apply to ideas in Chapter 2, etc.

Book Sections

We studied material from the following sections in your book:

- Chapter 1: Systems–Complexity and Beyond (Sections 1.1 - 1.5)
- Chapter 2: Fundamental Abstractions of Computer Systems (2.1 - 2.2)
- Chapter 3: Naming Schemes (Sections 3.1.1, 3.1.2, 3.1.6)
- Chapter 4: Enforced Modularity (Sections 4.1-4.2)

Course Concepts

More particularly, we covered the following topics in the course so far:

- Complexity in computer systems:
    - Causes of complexity
    - Design approaches to cope with complexity
- Fundamental Abstractions in Computer Systems:
    - Memory
    - Interpreters
    - Communication links
    - Naming–challenges and benefits
- Enforced Modularity (aka client-server systems):
    - Challenges with "soft" modularity
    - Enforced Modularity
        - What is it?
        - What does it give us?
        - Why is it difficult?
    - Remote Procedure Calls (RPC)--benefits, limitations

Book Questions:

One of the most effective ways to study for this exam is to work through the exercises and relevant problem sets in the book. Your book includes several exercises at the end of each chapter and also includes some longer problems (listed as problem sets) at the end of the book. I suggest preparing for the exam by working through both. Problem set questions are labeled with the chapter that they best match–anything tied to chapters 1-4 would be a great thing to work through. In particular, these problems are worth thinking through (although, it might be worth your time to work through them all!):

- Chapter 1: Exercises 1.1, 1.2, 1.5,
- Chapter 2: Exercises 2.3, 2.5
- Chapter 3: Exercises 3.3 (you are not responsible for details of Unix file systems, but comparing and contrasting syntactic and semantic name resolution is worthwhile),
- Chapter 4: Exercises 4.1, 4.2, 4.3, Problem-Set Problem 2 (Ben's Stickr)