Computer Systems Overview

Answer the questions below, and submit electronically via elearning. Make sure you submit a couple hours early at the latest and double check your submission to ensure everything is in order *before* the submission time. Your answers should be submitted as a ".doc", ".docx", or ".pdf" file. Your answers should be typed, but scans or pictures of hand drawn figures and diagrams may be included in the file when needed.

For review questions, give a brief (couple sentences, small paragraph) description or explanation. For problems, show your work or give a medium sized paragraph explanation when expected. Review questions are worth 5 points and problems are worth 10 points.

The reflection question is designed to give you a platform to explore and reflect on the course content. There is no one right answer to the tasks. In some cases you may need to make assumptions. Merely write down these assumptions as part of your answer. Be clever, explore the possibilities, and try to have fun.

Due: Tuesday, March 3 11:59pm

1 Chapter 5: Concurrency/Mutual Exclusion (40 pts)

Review Questions: 5.3, 5.4, 5.7, 5.11

Problems: 5.1, 5.6

2 Chapter 6: Concurrency/Deadlock (40 pts)

Review Questions: 6.3, 6.5, 6.6, 6.7

Problems: 6.2, 6.7

3 Reflection: Deadlock in Everyday Life (20 pts)

Examples of concurrency, mutual exclusion, and deadlock can be seen in every day life. Consider a hobby or activity you participate in often, and construct a typical scenario that will lead to deadlock. What are the shared resources? How does deadlock happen? Explain how the for conditions for deadlock applies to the situation. How is deadlock usually avoided or fixed in this scenario? Is this a good systematic way? How might you change the way things are done to avoid, prevent, or detect deadlock?

Hints

- Anything including time, objects, and people can be considered a shared resource
- Think of times in the past that you or someone you know got "stuck" in your chosen activity, unable to proceed
- Once you have the scenario, try mapping it to the concept of processes and resources used in the book. You can get inspiration on algorithms from the book.