

ITBU 373, Operating Systems Homework 17

Chapter 21, *Operating Systems, Three Easy Pieces*

Readings

Read chapter 21 in the *Operating Systems, Three Easy Pieces* book.

Discussion Questions

Answer the discussion questions in writing.

1. (not in book) The book uses the term *memory hierarchy*. List five levels of memory hierarchy. For each level, give a general indication of the size of the memory and the speed of access. To get started, the top level is the CPU registers. The access speed is one CPU cycle, and the size is a few KB.
2. What is *swap space*?
3. The book states on page 233 (section 21.2), “the hardware extracts the PFN from the PTE, installs it in the TLB, and retries the instruction[.]” Your grandmother asks you to explain what this means. How do you answer her question?
4. What is the *present bit*, and what does it do?
5. What is a *page fault*, and why do we call it that?
6. What is a *page replacement policy*?
7. Describe how the OS uses the *high watermark* and the *low watermark*.
8. (not in book) What is a *daemon* as the term is used in computer science? Why was “daemon” used for this purpose? Hint: It has little to do with devils or demons.
9. (not in book) What is the image in Figure ???



Figure 1: What is this?