

# CPSC 3125, Operating Systems Homework 12

## Chapter 16, *Operating Systems, Three Easy Pieces*

### Readings

Read chapter 16 in the *Operating Systems, Three Easy Pieces* book.

### Discussion Questions

Answer the discussion questions in writing.

1. The book notes that *segmentation* is a simple idea. Give a simple explanation of segmentation.
2. In our canonical address space we have three segments. What are they?
3. What is a *sparse address space*?
4. In the first paragraph on page 158 of the book, the book gives a verbal explanation of calculating the address of a heap segment. Give an arithmetic explanation of the calculation.
5. Describe the *explicit* approach to address segmentation.
6. Describe the *implicit* approach to address segmentation.
7. Describe in detail the manner in which address translation for the stack works. Why is this a little more complex than address translation for the code and heap segments?
8. What are *protection bits* and why are they important for code sharing?
9. What is a *segment table*?
10. What is *external fragmentation* and why does it occur?
11. (review) What is *internal fragmentation*?