ITBU 373, Operating Systems Homework 13

Chapter 17, *Operating Systems, Three Easy Pieces*

Readings

Read chapter 17 in the *Operating Systems, Three Easy Pieces* book.

Discussion Questions

Answer the discussion questions in writing.

1. Why may requests for memory allocation (from the heap) fail when there is external fragmentation?
2. (review) What are the arguments, the functionality, and the return values of `malloc()` and `free()`?
3. What is the *free list* and what is it used for?
4. Describe *splitting*.
5. Describe *coalescing*.
6. What is the *header block*? What is it used for?
7. Describe how *best fit* operates. What are the advantages? What are the disadvantages?
8. Describe how *worst fit* operates. What are the advantages? What are the disadvantages?
9. Describe how *first fit* operates. What are the advantages? What are the disadvantages?
10. Describe how *next fit* operates. What are the advantages? What are the disadvantages?
11. What is a *slab allocator*? How does a slab allocator work?
12. What is a *binary buddy allocator*? How does a slab allocator work?
13. (optional) Read "Understanding glibc malloc". /urlhttps://sploitfun.wordpress.com/2015/02/10/understanding-glibc-malloc/ It's only 12 pages and most of it is either code or images.