OS 4/16

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Project Autograder

- Put the `-O3` tag in your Makefile to optimize your code, it might help with timing out on Gradescope
- Go to Greg's office hours if you want to see an example run, they'll post it for anyone who can't make the office hours (but go to office hours if you actually want to see it run and be able to ask questions and stuff)

Chapter 9

- Principle of Locality: the idea that memory accesses are going to be clustered so that we can efficiently use a small amount of memory in a hierarchical way
- Talked about:
  - where memory sits
  - the linking and loading steps during compile time
    - the presence of shared libraries
  - fixed and dynamic partitioning
    - fragmentation
  - memory sizes and paging → picking up here from where we left off on Tuesday

Addressing

- Logical: reference to a memory location that is independent of the current assignment of data to memory
  - Like telling someone "I'm going home" and they don't know where you live but they understand what home is
- Relative: address is expresssed relative to some known location
  - Like saying "my car is parked south of Devon", you know where the car is relative to Devon
- Physical/Absolute: actual location in memory
  - No one really knows what this is on the disk but we need to know how to turn a relative address into this so we can get the actual thing

Simple Paging

- We have a process that is divided into equal sizes, these are called pages
- Main memory is divided into a number of equal sized frames
- A process is loaded by loading all of its available pages
- He has zoomed in and started writing on a picture he drew last time after I had zoned out so I don't entirely know what's going on, sorry my dudes
- I think he said you can combine a page table base pointer and a frame to come up with a physical address
  - Look up a page number and replace it with the page table base pointer (PTBP), then the page offset from the frame goes after it, and you'll have your physical address
- An example of... something

– Address = 1502
– Bit string = 0000010111011110
– Page number = 1
– Offset = 478
– I got distracted and I don't know how he got the page number or offset sorry fam