

CS 326

Page Tables

Wed May 7 → Project 04 demos
virtual memory

Thu May 8 → Final Review / Prep

Final

Tue May 13 3pm - 5pm

Reading: x86 Book Chapter 3

Motivation for Virtual Memory

Benefits:

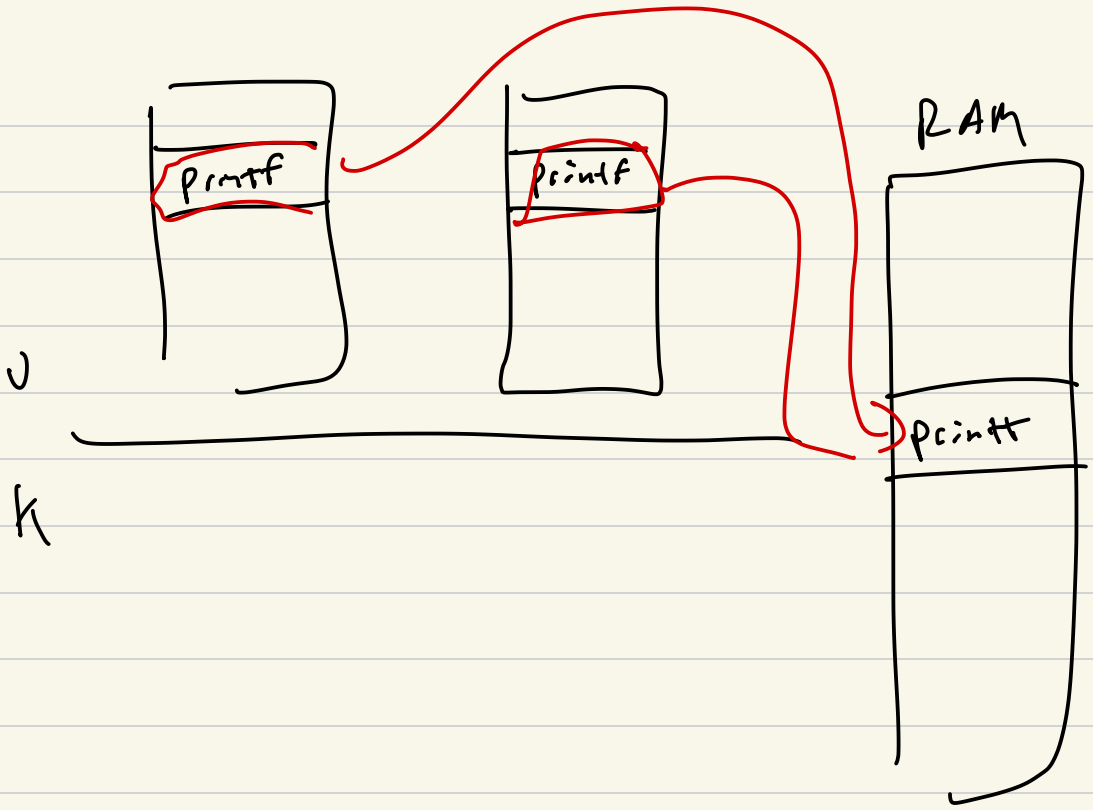
- Isolation

- Reduce Memory Usage

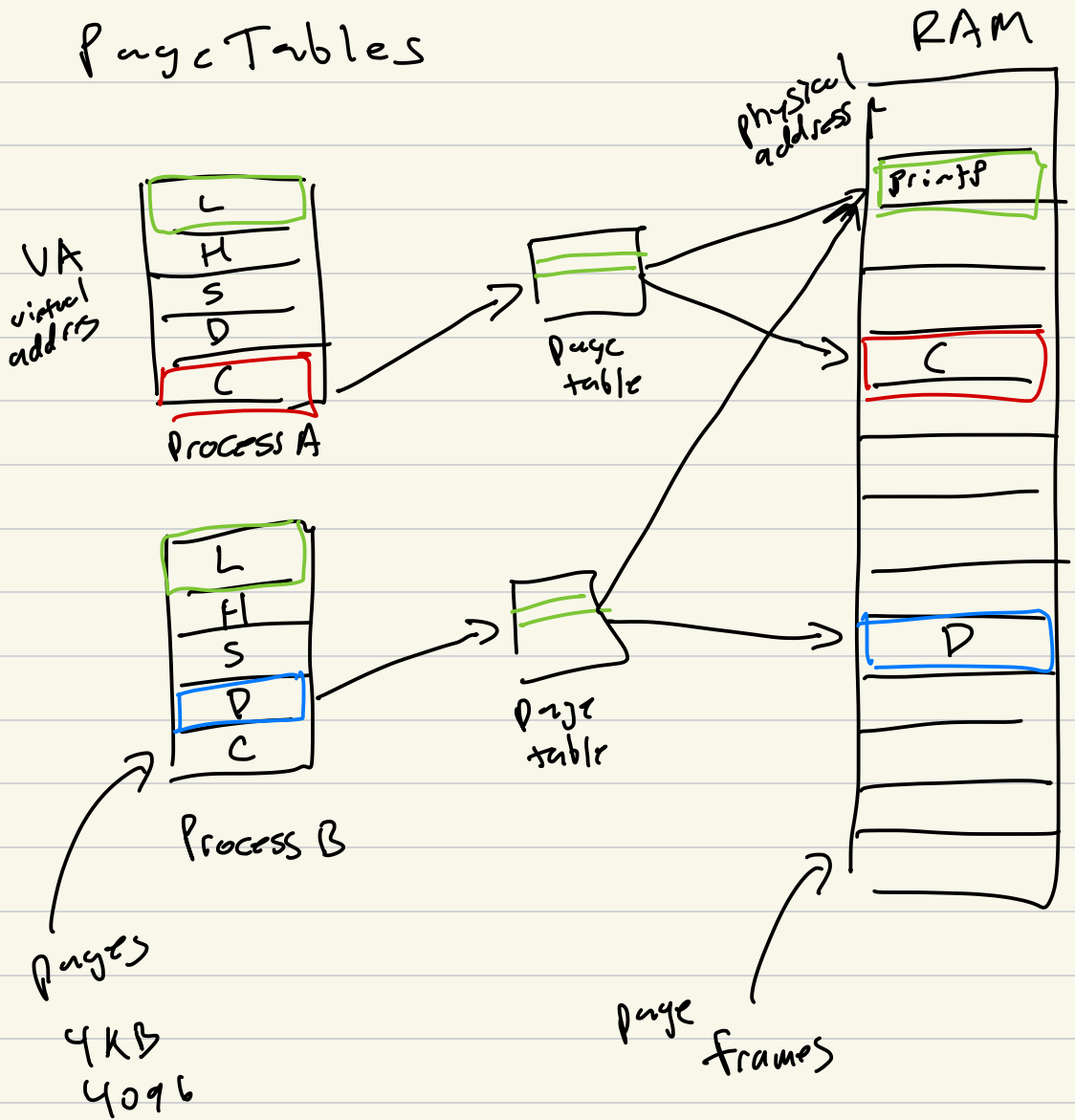
- Dynamically Linked Libraries

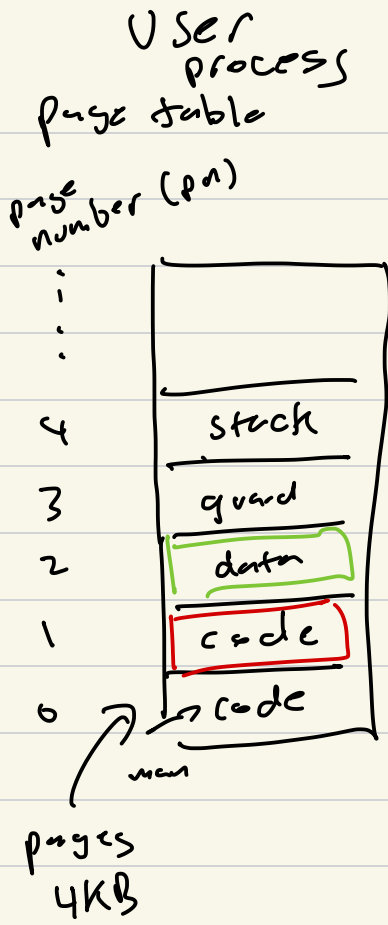
- Memory Mapped Files

- Give the illusion of more memory
than we actually have



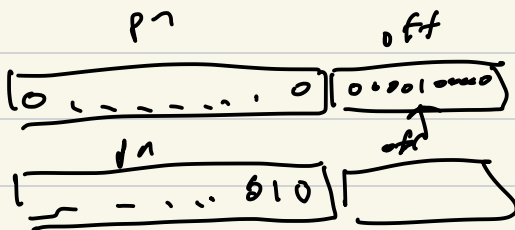
Page Tables





Page table

$[(1, 9), (2, 4) \dots]$

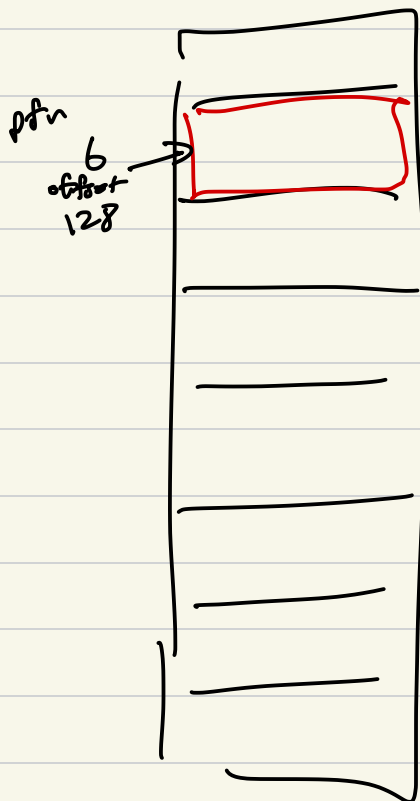
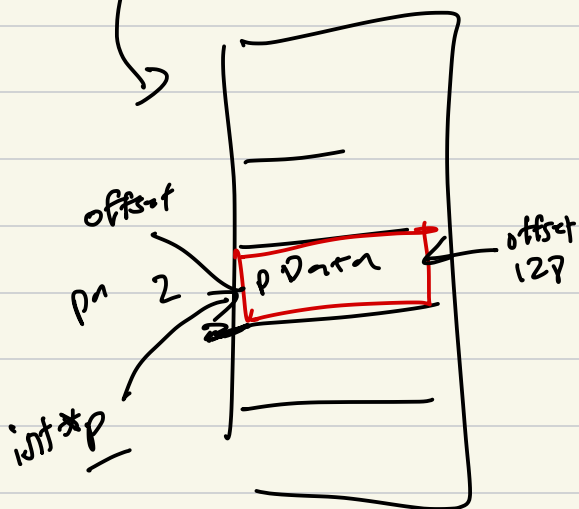
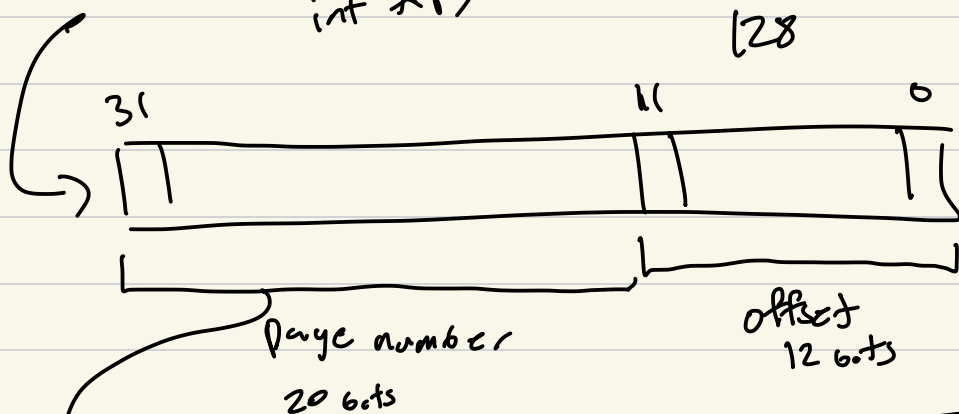


Addresses physical Address

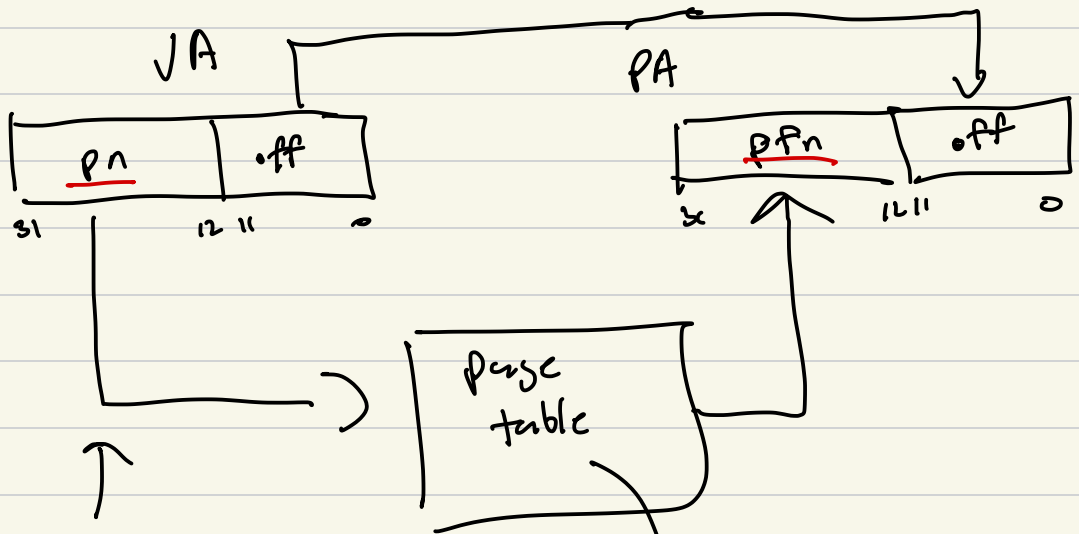
Virtual Address

$$2^{12} = 4096$$

int *p;



VA $\rightarrow$ PA address translation



20 bits

$$2^{20} = 1 \text{ MB}$$

$$2^{20} \cdot 2^2 = 2^{22} \\ 4 \text{ MB}$$

