This involved most of the things discussed in class.

**Demo: "ls"**

- memory-mapped I/O
- drivers, read(), write()
- system calls
- process
- user/kernel
- context switching

**Fork vs. exec**

- virtual address
- address space
- copy-on-write
- page sharing
- page faults
- dynamic linking
- address translation
- TLBs

The few concepts not covered in the exam:

- indexes/indexes/SQL injection
- virtual machines

**Fs implementation**

- Fs layout (filelist, file arg)
- access control
- block interface
- DMA/RAID
- disk behavior, scheduling

**Final exam**

covers both halves of the class, but focuses on the second.

- **Virtual Memory** - extremely powerful tool
- **Block Storage** - a key interface that accepts a large number of abstractions
- **File Systems** -
- **Security** -

there will probably be something about explaining sequences of events.
Virtual memory

- partition
- page table
- page frame

Page table entries:
- present (valid)
- modified (write)
- read only

We allocate spare pages so that processes can't, e.g., stop passwords from other processes.

Block storage
- LBA
- size: 512 bytes

Topics:
- TDM
- I/O

File systems
- directory traversal
- block allocation
- file systems (FAT, Unix, etc.)