

## Homework Assignment #1

Due: Wednesday, September 8, 2020

1. what is dual mode?
2. what are temporal locality and spatial locality?
3. Describe the bootstrap process of one typical X86 machine.
4. List at least three different ways (or machine level instructions) that a user mode program uses to transfer control to the kernel.
5. What is the purpose of interrupts? How does an interrupt differ from a trap? Can traps be generated intentionally by a user program? If so, for what purpose?
6. Which of the following instructions should be privileged?
  - a. Set value of timer.
  - b. Read the clock.
  - c. Clear memory.
  - d. Issue a trap instruction.
  - e. Turn off interrupts.
  - f. Modify entries in device-status table.
  - g. Switch from user to kernel mode.
  - h. Access I/O device.
7. Describe the differences between symmetric and asymmetric multiprocessing. What are the advantages and disadvantage of multiprocessor systems?