CSE120
Principles of Operating Systems

Yuanyuan (YY) Zhou
Review for Architecture Support for OS
Review: high level issues

- In the memory hierarchy, which one is the fastest, slowest, largest, smallest?
  - Registers, cache, memory, disk, tape
- Difference between kernel mode and user mode?
- Does kernel mode need to be supported by hardware? Why?
- What is protected instruction? Give an example?
- What should be execute in kernel mode?
- Why does OS need to provide memory protection?
- Give an example that architecture changes/trends impact OS design
Review: Events

- True or false: the only way to get into OS is through events
- Difference between exceptions and interrupts?
- Difference between system call and interrupt?
- Difference between function call and system call?
A simple program in C

```c
void fun()
{
    int locVar = 0;
    locVar++;
}
```

```assembly
fun:
pushl  %ebp
movl  %esp, %ebp
subl  $16, %esp
movl  $0, -4(%ebp)
addl  $1, -4(%ebp)
leave
ret
```
Background: Program Stack (or Call Stack)

- https://www.youtube.com/watch?v=Q2sFmqvpBe0