

15-213

“The course that gives CMU its Zip!”

Exceptional Control Flow Part I Oct. 17, 2002

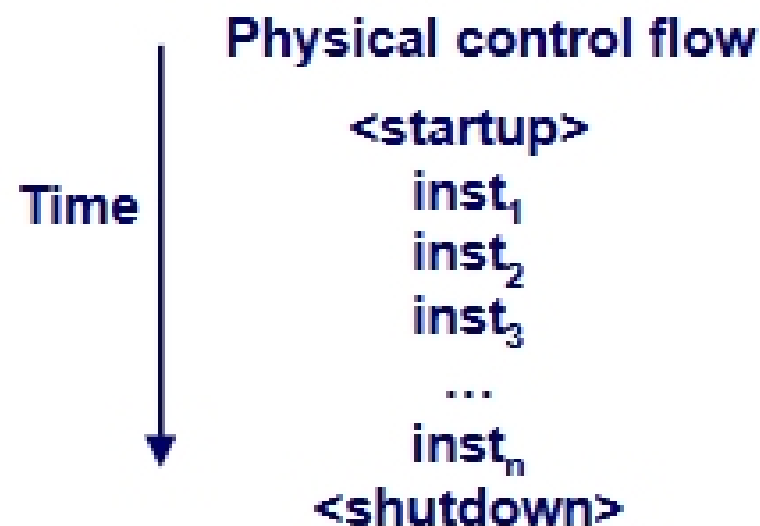
Topics

- Exceptions
- Process context switches
- Creating and destroying processes

Control Flow

Computers do Only One Thing

- From startup to shutdown, a CPU simply reads and executes (interprets) a sequence of instructions, one at a time.
- This sequence is the system's *physical control flow* (or *flow of control*).



Altering the Control Flow

Up to Now: two mechanisms for changing control flow:

- Jumps and branches
- Call and return using the stack discipline.
- Both react to changes in program state.

Insufficient for a useful system

- Difficult for the CPU to react to changes in system state.
 - data arrives from a disk or a network adapter.
 - Instruction divides by zero
 - User hits ctrl-c at the keyboard
 - System timer expires

System needs mechanisms for “exceptional control flow”