

CPSC 457
Operating Systems
 Lecture 4
 Processes and Threads

Last Time

Booting Types of Operating Systems Operating System Organization	Processes Address Space Files and Files Systems System Calls
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Processes

Program
Code (instructions) in a file

Process
Instructions being executed, with access to data

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Multiprogramming and Multiprocessing

Multiprogramming
Make use of the CPU when we're waiting for I/O

Multiprocessing
Pseudeoparallelism
Want to react to things in a timely fashion

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Process Operations

Process Creation Process Termination Process Scheduling	Process Execution Process Tracking Process Communication
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Process Creation

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Process Termination

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Process Execution

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Process Information

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Context Switch

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Scheduling

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Interprocess Communication

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Break Time




Threads

Light-weight
Sometimes we can use different "threads of execution" in the same address space.

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Webserver - Motivation

Server

- Receive Requests  **Fast**
- Open the file with the page  **Blocking, possibly slow**
- Transmit that data to the requestor  **Blocking**

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Thread Design

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Thread Execution

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Thread Lifespan

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Where do we implement threads?

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Assignment 2

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Review

- Multiprogramming/Multiprocessing
- Process Operation
 - Creation
 - Execution
 - Process Information
 - Context Switching
 - Scheduling & Communication
 - Termination
- Threads
 - Motivation
 - Concepts
 - Context Switching
 - Kernel vs User Threads

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Next Time

How do we decide which process to run and when?

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