CPSC 457
Operating Systems

Lecture 3
The Revenge of Hardware
The Concepts of Operating Systems

Last Time

The History of Operating Systems

A Hardware Refresher (from an OS perspective)

This Time

The Revenge of Hardware

Device I/O
The Truth about Buses

Operating System Concepts

Booting

Types of Operating Systems

Organization of OSs

Processes

Address Space

Files and File Systems

System Calls

I/O Devices

Buses

Types of Operating System

Tanenbaum's Zoo

Mainframe

Server

Personal Computer (Desktop)

Mobile

Embedded

Real-Time

Organization of Operating Systems

Some Broad Categories

Monolithic

Layered

Microkernels

Modular

Hybrid

Virtual Machines

Booting

Processes

Address Space

Files and File Systems

System Calls

System Calls for Processes

UNIX	Win32	Description
fork	CreateProcess	Create a new process
waitpid	WaitforSingleObject	Wait for a process to exit
execve	--	Load instructions
exit	ExitProcess	Terminate execution

From MOS (pg 62)

System Calls for Files

UNIX	Win32	Description
open	CreateFile	Create or open a file
close	CloseHandle	Close a file
read	ReadFile	Read data from a file
write	WriteFile	Write data to a file
lseek	SetFilePointer	Move the File pointer
stat	GetFileAttributesEx	Get various file attributes

System Calls for Directories

UNIX	Win32	Description
mkdir	CreateDirectory	Create a new directory
rmdir	RemoveDirectory	Remove an empty directory
link	--	Add a reference to a file
unlink	DeleteFile	Remove a reference to a file
mount	--	Add a device to the file system
unmount	--	Remove a device from the file system

System Calls for Other Stuff

UNIX	Win32	Description
chdir	SetCurrentDirectory	Change the current working directory
chmod	--	Change the permission bits of a file
kill	--	Send a signal to a process
time	GetLocalTime	Get the current time