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X



CSCI 3310 OPERATING SYSTEMS



Sean Barker





Department of Computer Science

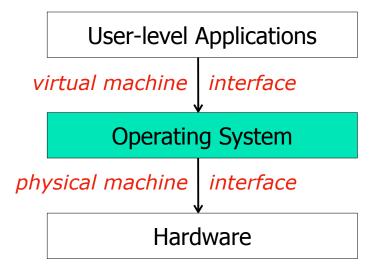
YouTube

AN X64 PROCESSOR IS SCREAMING ALONG AT BILLIONS OF CYCLES PER SECOND TO RUN THE XNU KERNEL, WHICH IS FRANTICALLY WORKING THROUGH ALL THE POSIX-SPECIFIED ABSTRACTION TO CREATE THE DARWIN SYSTEM UNDERLYING OS X, WHICH IN TURN IS STRAINING ITSELF TO RUN FIREFOX AND ITS GECKO RENDERER, WHICH CREATES A RASH OBJECT WHICH RENDERS FOZENS OF VIDEO FRAMES EVERY SECOND BECAUSE I WANTED TO SEE A CAT JUMP INTO A BOX AND FALL OVER. I AM A GOD.

(source: xkcd.com)



Top-Level View of an OS



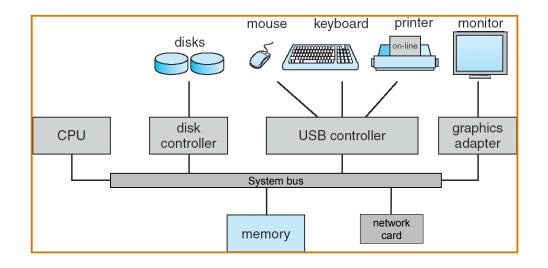
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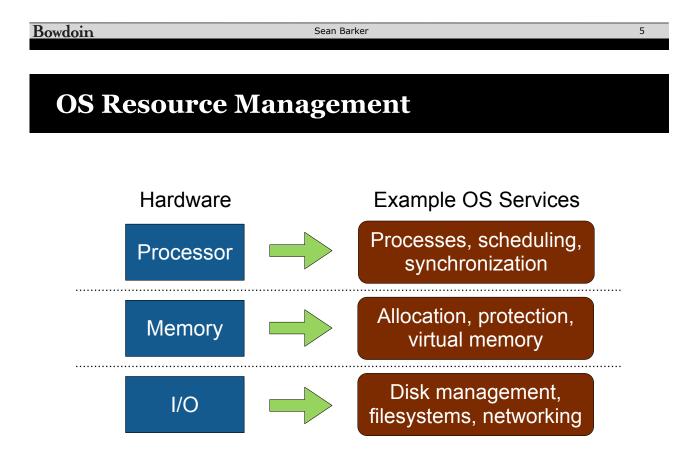
What's in an OS?



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Generic Computer Architecture





Personnel and Resources

Instructor: Sean Barker Email: <u>sbarker@bowdoin.edu</u> Office: Searles 220 Office Hours TBA (or by appointment)

Email **Slack** for discussions/questions/info...

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Course Components

Programming projects (4)

Problem sets (3-4)

Exams (2)

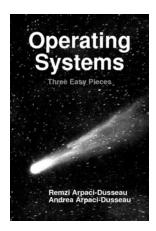
Attendance and engagement

Other Administrivia

Health policy

Textbook

Collaboration policy and honor code



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Course Website

Course website: bowdoin.edu/~sbarker/3310

Syllabus Schedule Assignments Anonymous Feedback

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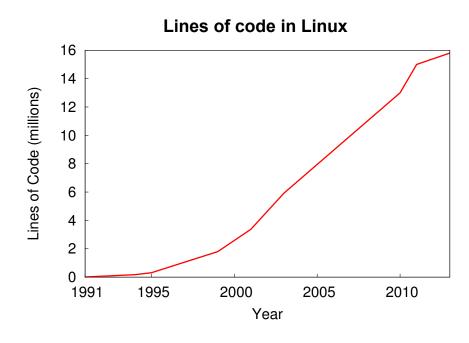
Project 1: Inverted Index



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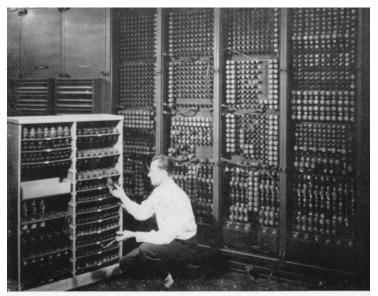
Now for some history...



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1. Single-User Computers (1945-55)



Vacuum tubes!

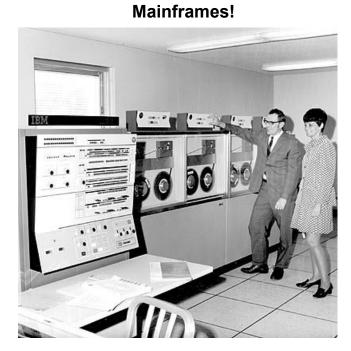
Replacing a bad tube meant checking among ENIAC's 19,000 possibilities.

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2. Batch Processing (1955-65)



Punch cards!

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3. Multiprogramming (1965-80)



Transistors!



Multiple programs concurrently

Simultaneous I/O and computation

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4. Personal Computers (1980-present)



5. Mobile & Distributed (2000-present)



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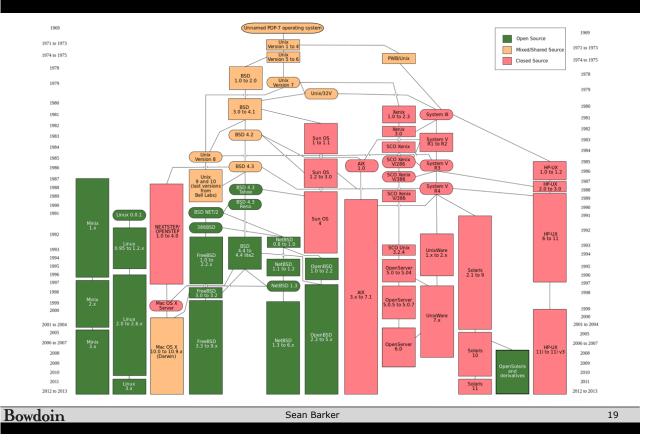
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UNIX (1971)



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Unix and Unix-like OSes



MS-DOS (1981)

Welcome to MS-DOS 2011
For a list of simple commands, please type HELP >HELP
LOC - Displays the location of the currently operating program OPEN {directory} - Opens and displays contents of the directory entered EXECUTE {directory/filename} - Executes a file within that directory REBOOT - Reboots current session {Confirmation will be required to prevent accidental reboots} SYS - Displays system properties >RUN: person .EXE
What was that? I can't understand you. ≻realityconfig
Attempting to configure your reality Enter password: >^C to abort.
Incorrect password. Exiting function. >SYS
Main Harddrive: Q:/ Space Used: 105246/6152374 KB Processing Power: 10 GH RAM: 3000000 KB >OPEN GAMES
What are you, stupid? GAMES isn't a directory! Try Q:/! >EXECUTE adventure.EXE
Try adding a directory to that, before you seen any less intelligent. $\boldsymbol{\succ}_{-}$

′ ∳ File Edit	View Special		
5 items	232K in disk	167K available	System Disk
Empty Folder	System Folder	Cr Disk Copy	Guided Tour
Font Mover	Fonts	·····································	
SysVersion	Figure 1		Ĩ

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Mac OS X (2014)

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Where are we going?



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